Annual Assessment Report Exemplars

Overview

The Annual Assessment Reporting process is what we use at UCR to guide programs through an annual assessment of their outcomes. How programs implement and demonstrate their assessment of outcomes can vary considerably from program to program. To support programs, UCR's Office of Evaluation and Assessment runs annual workshops on both the Annual Assessment Reporting process and assessment in general. In addition, there are also resources available for programs to guide them through the assessment process. The final piece of support is providing exemplars of each section of the report from programs here at UCR that are implementing assessment well within their programs.

The following examples are organized by each section of the report and include examples at both the undergraduate and graduate level. Please keep in mind that these are just some examples. If a program is not listed as an example, it does not mean that the program is not doing assessment well. It just means that these were the best examples from 2020-2021 using the following criteria:

- Scored at "Highly Developed" or "Developed" by the Meta-Assessment Committee using the rubric in Appendix 1
- Could potentially be an informative example to other programs
- Demonstrated varying possibilities for exemplary assessment
- A mix of quantitative and qualitative examples
- A mix of STEM and non-STEM programs

Some notes on how to use the examples:

- These are not prescriptive. Use what you feel is best for your program and modify as needed
- Look at all of the examples for each criterion and not just those closest to your program's field
- Look at both the undergraduate and graduate examples and not just those at your program's level
- The templates for the reports are provided in Appendix 2
- The examples have only been formatted for consistency. Content has not been modified

If you would like help in applying the examples to your own program-level assessment, Omar Safie in the office of Evaluation and Assessment can help.

Contents

Reflection and Closing the Loop

Undergraduate Examples

Example 1: Anthropology

During the previous six years, Anthropology has been assessing LO1 and LO3. Data were collected in introductory level courses for LO1 (ANTH001, ANTH005) and LO3 (ANTH005). Based on the data collected for LO1 (identifying anthropology as a holistic discipline), there have been no changes implemented from the feedback the department received from the 2018-2019 assessment report; this learning outcome was not assessed in 2020-2021. Regarding LO3 (analysis of empirical data), a new series of courses regarding methods have been developed (the ANTH165 series). Data have already begun to be collected (in ANTH165E, Methods in Archaeology) regarding LO3 and will be presented below. ANTH165E will serve as the upper division course in which we will collect and analyze data for LO3 among the upper division classes given that one of the topics covered is archaeological stratigraphy, the one of the same topics the department has been utilizing to evaluate students' engagement with empirical data at the lower division level in ANTH005. The ANTH165 series was designed specifically for majors to learn how to work with empirical data. On the one hand the department realized that there was not a concerted effort being made to engage students with data analysis and that concrete coursework needed to be developed. On the other, stemming from the fact that an upper division course that dealt systematically with empirical data, we did not have a really apt course to evaluated LO3 in the curriculum map. These issues have now been attended to. We hope to see the impact of this change in our learning assessment data and begin to make any necessary adjustments in the near future.

Example 2: Creative Writing

In 2019 we addressed the question of our students' mastery of syntax and grammar. We found a need for more explicit instruction in the subject and skills required. The department voted to develop and offer a non-required course on the subject. The department is now offering "The Sentence" as a subtitle under 146-"Special Topics, Fiction." Although the course is listed for fiction, the curriculum is designed to meet the needs of creative nonfiction and poetry students as well.

The 2020 report has been distributed to the faculty, and a revision of the curriculum has been discussed. The faculty in a recent meeting discussed revisions to the curriculum to reduce the total number of workshops in favor of more courses in craft fundamentals, literary analysis, and theory. A committee will prepare a revision for a department vote and proposals for the Academic Senate. At the same time, we are developing more large classes with TA sections to cover these areas so that the same emphasis on fundamentals becomes integral to the graduate program as well.

Example 3: Mathematics

Over the past 4 years this committee has assessed and gathered information (by embedding questions on tests) in two courses which pose challenges to students because they are proof based: Math 131 (linear algebra) and Math 172 (Modern Algebra). This information was used this year to assist some of the Math 131 and Math 172 instructors. We expect that this helped those instructors identify potential challenges in advance and better prepare the students to succeed in those classes.
The course Research for Undergraduates Math 197 gives mathematics majors the opportunity to work on interesting research projects in small groups, under the mentorship of math graduate students and the support of math faculty. Math 197 runs once per year during the spring quarter. As part of Math 197, each team of five students gives a presentation on the results of their quarter-long joint research

project. One of the challenges in Math 197 is that students are still in the process of understanding the level of effort required to produce and communicate original mathematical ideas. In part to help overcome these challenges, Math 197 moved the time when the presentations take place. In the past, presentations took place on Week 9 of the same spring quarter. This year, the presentations were postponed in such a way that the students who finished their Math 197 project would wait several months to present their results once there was a new group of Math 197 students. We believe that this was very beneficial for the new students who are currently participating in Math 197, as they got to meet previous Math 197 participants, and they got to see presentations on completed math research projects comparable to those they are currently working on. However, while postponing the presentations was positive for the new Math 197 group, we believe that this was negative for the students who had to wait months to present their results.

Example 4: Earth and Planetary Sciences

The Faculty discussed the 2019-20 LO report at the Fall 2020 (virtual) Faculty retreat as well as during a subsequent dedicated Faculty meeting, and implemented the following:

- Firstly and primarily (and the major changed since 2019-20), we created and agreed a set of assessment rubrics for all the 7 Department LOs – provided in this report as Appendix I.
- Secondly, we carried out minor edits to the LOs themselves, both in light of the new rubric text (i.e. better aligning the LOs with practical methods of assessment) as well as to better reflect the still changing nature and make-up of the Department (principally the expansion of 'Planetary' in Earth and Planetary Sciences). We also re-considered LO7 – 'Ability to make critical personal/professional judgments based on their scientific understanding'. Despite this being intended to be rather more aspirational than formally assess-able (and quantifiable as part of the LO assessment) per se, we decided to retain it and create a rubric.
- Given the disruption and additional burdens created by the pandemic and previous years report feedback encouraging fewer LOs to be assessed, the assessment plan was changed. Originally (as per the 2019-20 LO report), a moving window of a total of 4 (four) LOs would be accessed each year. We have now adopted a moving window of a total of 2 (two) LOs assessed each year. (The reason for more than one LO, and for a moving window, is because not every course runs each and every year, and assessing a single LO one year and then moving on to the next LO the next year, could leave some courses never being assessed for a particular LO. A 2-LO moving window ensures that all courses are evaluated for a specific LO in one or both of 2 adjacent years.)
- Finally, the Google Form feedback template was revised.

Graduate Examples

Example 1: Philosophy

The data from last year suggested that our students are taking too long to finish their proposition. In an ideal world, students would finish their proposition by the end of their third year, but a more realistic goal is that all students will finish their proposition by the end of their fourth year. We will do or have done three things to help us meet this goal. (1) The graduate advisor will more emphatically publicize that acceptable progress means finishing the proposition by the end of the fourth year. (2) Individual advisors will emphasize the importance of meeting this goal and do what they can to facilitate the meeting of this goal. (3) We have created a new graduate course: the third and fourth year research seminar (Phil 276). This course is designed to help students transition from course work to independent research and thus to help them finish their proposition and prospectus in timely manner. Though we have been offering the course for two years -- with positive feedback from students -- it was not required for students entering the program prior to Fall 2018. Students entering the program in Fall

2018 and beyond are required to enroll in Phil 276 during the winter and spring quarters of their third year and the winter quarter of their fourth year. The Fall 2018 class has just entered their third year and will be taking Phil 276 this winter and spring. We plan to assess outcome #4 again in 2025 to see if this course requirement has the effect we are hoping for.

Example 2: Music

Last year's assessment (PLO 6: Are Effective Teachers) revealed that Digital Composition graduate students receive fewer TA-ship opportunities appropriate to their research compared with their Ethnomusicology and Musicology counterparts. In response, the Music Department approved a new large breadth course created by Prof. Ian Dicke (MUS 026: Art of the Synthesizer) which will be prioritized for Digital Composition students to serve as TAs. The course has not yet received financial approval to offer the enrollment needed to create official TA-ships, but it will be taught for the first time next year with a student reader.

Example 3: Chemistry

As recommended in last year's assessment:

1. We have provided students in the PhD program with detailed guidelines and a high-quality sample written proposal that helps them succeed in the second year research evaluation (SYRE) and qualifying exam.
2. Faculty are similarly provided with forms and instructions at each exam that emphasize the importance of providing students with detailed feedback.
3. The department chair, vice-chair, and graduate advisor have consulted multiple times during the year to ensure graduate-level course offerings satisfy student needs, keeping them on track to complete the degree in a reasonable time frame. This has been particularly important this year with first-year graduate student enrollments being lower than usual due to COVID impacts.

Example 4: Entomology

We addressed several recommendations/next steps from the 2019/2020 report.

1. **Feedback on annual presentation at Student Seminar Day (SSD).** Due to the campus closure, the Instructional and Student Affairs Committee (ISAC) completely reformatted our student seminar day. We had a short session in September where we had poster presentations (1st, 3rd, and 5th year students), and we moved the talks (2nd, 4th, and 6th year students) to our Departmental Seminar (ENTM 250). Each student had ~ 25 minutes for presentation and Q&A. After the presentations, the entire Department was given the opportunity to provide feedback via google forms. We removed the competitive aspect of SSD and instead focused on providing constructive feedback on the student's presentation skills.
2. **Student handbook and dissertation proposal.** ISAC has communicated the importance of adhering to the timelines clearly laid out in the student handbook to faculty in our faculty meetings. We have also (and will continue to) emphasize the role of these timelines in helping student's progress to their qualifying exam.
3. **Core courses.** As the recent revisions have been well-received, we have made no revisions this year.
4. **Annual report and IDP.** We have not yet added ENTM 302 (College Teaching Practicum) to the IDP on the annual progress report. Instead we are urging faculty to suggest that their teaching assistants sign up for ENTM 302.

Student Outcomes

Undergraduate Examples

Example 1: History

Preamble: The History Department understands the possible learning outcomes that our majors achieve to be diverse and evolving. History faculty support these diverse outcomes through their professional practice, based on their own formation and credentialed through their own higher degrees. The learning outcomes described below express a general consensus about desirable outcomes resulting from such professional practice, but are not intended to be either mandatory or exclusive.

I = Introduce; P = Practice; D = Demonstrate

1. **Historical knowledge**: Develop a body of historical knowledge with range and depth. Read and contextualize materials from the past with appropriate precision and detail.
    1. **I**: Survey or introduction. Identify key terms and events and understand the dynamics of change over time.
    2. **P**: Specialized study of a field, issue or theme. Place specific events, developments and sources in a broader context.
    3. **D**: Focused study of a particular topic or question. Engage with a complex historical record. Evaluate the significance of materials documenting particular events; compare and contrast with other sources and contexts.
2. **Historical analysis:** Generate a historical interpretation that is reasoned and based on historical evidence selected, arranged, evaluated and analyzed.
    1. **I**: Formulate an interpretation in response to a focused prompt (often yes/no.)
    2. **P**: Formulate an original argument in response to an open-ended prompt.
    3. **D**: Formulate an independent research question and answer it with a coherent and original argument and analysis.
3. **Treatment of sources**: Develop a methodological practice of gathering, sifting, analyzing, ordering, synthesizing, and interpreting evidence.
    1. **I**: Recognize primary and secondary sources, how to use them, and proper citation practices. Evaluate the relevance of online sources.
    2. **P**: Evaluate the historiographical value of a source (context, authorship, reception, motives and assumptions, limitations on source reliability) and analyze its relationship to other sources. Identify and evaluate relevant sources in the library, online etc.
    3. **D**: Independently search and build a coherent source base around a particular topic or question; evaluate sources' historiographical value and place them in relation to one another.
4. **Writing proficiency**. Communicate a historical analysis clearly and coherently using proper mechanics and citation practices.
    1. **I**: Compose short papers in response to tightly defined prompt.
    2. **P**: Compose mid-length paper on open prompt.
    3. **D**: Compose a full research or historiographical essay.
5. **Historical discussion and debate**: Present a historical interpretation in spoken form, support it with evidence and revise it in conversation with others. Engage a diversity of viewpoints in a civil and constructive fashion.
    1. **I**: Communicate historical ideas and respond to others. Participation in class discussion is required and/or discussion sections are held.

2. **P**: Engage other students in civil, constructive conversation around historical questions. Participation in class discussion is a significant portion of course work.
3. **D**: Offer original ideas and interpretations; support them with evidence and revise them in conversation with others. Give a presentation or participate in a debate.

Example 2: Economics

The student learning outcomes (SLOs) for students in all four majors in the department are listed below. These outcomes were developed during the 2016-2017 academic year and updated during the 2018-2019 academic year. There have been no other adjustments since that time.

1. MICROECONOMICS: Students will be able to use the following basic elements of economic thinking to analyze the decision-making process:
   A. Opportunity cost
   B. Incentives
   C. Marginal analysis
   D. Optimal decision-making
   E. Microeconomic equilibrium
2. MACROECONOMICS: Students will be able to define and interpret the following macroeconomic subjects to characterize the macroeconomy:
   A. Economic indicators
   B. Business cycles
   C. Fiscal and monetary policy
   D. Growth and economic development
   E. Macroeconomic equilibrium
3. QUANTITATIVE KNOWLEDGE: Students will be able to apply the following basic statistical tools to characterize the relationships between variables:
   A. Descriptive statistics and plots
   B. Expected values
   C. Probability density functions
   D. Regression analysis and interpretation of results
4. APPLIED ECONOMICS: Students will be able to apply economic concepts to analyze:
   A. Business decisions
   B. Public policies
   C. Current economic affairs

Example 3: Physics

i. Knowledge Based

LO 1 Graduates will construct models and use their knowledge of physics concepts in the basic areas of the discipline (classical mechanics, electricity and magnetism, wave phenomena, thermodynamics and statistical mechanics, and quantum mechanics).

LO 2 Graduates will be able to apply core physics knowledge to solve problems on one or more advanced topics of current physics research (high energy physics, nuclear physics, condensed matter physics, biophysics, or astronomy).

LO 3 Graduates will be able to solve problems competently and creatively by identifying the essential parts of a problem and formulating a strategy for solving the problem. This will include the ability: to use appropriate mathematical and computer/computation techniques to arrive at a solution, to estimate the reasonableness of models and solutions, to test the correctness of models and solutions, and to interpret their results.

LO 4 Graduates will be able to use computers in data acquisition, as a tool for data analysis and for computer simulations.

LO 5 Graduates will be able to use modern search tools and databases to locate and retrieve scientific information about a topic relating to physics and physics research.

ii. Performance/Skills Based

LO 6 Graduates will be able to design and properly perform experiments, and appropriately record and analyze the results. This includes the analysis of data and the formulation of conclusions based on the analysis. They will also demonstrate the ability to properly use laboratory equipment (both standard and modern state-of-the-art instrumentation) and know to follow the appropriate procedures and regulations for the safe handling of materials and equipment.

LO 7 Graduates will be able to communicate the concepts and results of their laboratory experiments through effective a) writing and b) oral communication skills.

iii. Effective

LO 8 Graduates will be able to successfully identify and pursue their career objectives in advanced education in professional and/or graduate schools, in a scientific career in government or industry, in a teaching career in the school systems, or in a related career following graduation.

Example 4: Electrical Engineering

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to 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
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Graduate Examples

Example 1: History of Art

1. Students will be able to choose methodological frames appropriate to their projects, and these choices will be informed by the historiography of the field.
2. Students will be able to describe and accurately characterize the art and sociocultural context of the time period relating to their dissertations.
3. Students will be able to deliver short oral presentations of their work designed specifically to be easily comprehended by a live audience, and they will be able to field questions from the audience spontaneously.
4. Students will be able to conceive an original argument, carry out the research necessary to support it, and write a publishable research paper.
5. Students will be able to plan and teach art history courses.

Example 2: Education

PhD Program

SO1 Students will be able to critically evaluate research articles published in journals, periodicals, and other scholarly sources related to the programmatic focus.

SO 2: Students will be able to integrate and synthesize theories, conceptual frameworks, and other scholarly ideas

SO 3: Students will be able to identify and evaluate relevant research questions

SO 4: Students will be able to develop research designs appropriate for addressing

SO 5: Students will be able to organize and communicate scholarly ideas clearly and effectively

MA Program

SO 1: Students will be able to critically evaluate research and other scholarly literature related to their programmatic focus

SO 2: Students will be able to integrate and analyze ideas

SO 3: Students will be able to evaluate research questions and research strategies

SO 4: Students will be able to organize and communicate scholarly ideas clearly and effectively

MEd Program

SO 1: Students will be able to critically evaluate research and other scholarly literature related to their programmatic focus

SO 2: Students will be able to integrate and analyze ideas

SO 3: Students will be able to evaluate research questions and research strategies

SO 4: Students will be able to organize and communicate scholarly ideas clearly and effectively

Example 3: Bioengineering

Successful completion of the PhD program in Bioengineering results in graduates who:

I. have comprehensive knowledge of the factual information, theoretical principles, and methodological approaches in at least one of the five areas of bioengineering, and graduate-level familiarity in a second area:
   A. Biomaterials and regenerative medicine
   B. Biomedical imaging
   C. Computational bioengineering
   D. Neuroengineering
   E. Molecular and cellular bioengineering

II. can synthesize biological, engineering, mathematical/computational, and statistical concepts

III. can conduct independent bioengineering research, including (a) being able to identify problems; (b) formulate a research plan; (c) gain sufficient expertise to carry out that plan; and (d) analyze and interpret results.

IV. can effectively disseminate research results and communicate bioengineering concepts through (a) written and (b) oral means.

V. can effectively teach bioengineering concepts at an undergraduate level.

VI. can function as capable professionals in bioengineering.

Successful completion of the MS (Plan 1: Thesis option) program in Bioengineering results in graduates who:

I. have comprehensive knowledge of the factual information, theoretical principles, and methodological approaches in at least one of the five areas of bioengineering, and graduate-level familiarity in a second area:
   A. Biomaterials and regenerative medicine

   B. Biomedical imaging
   C. Computational bioengineering
   D. Neuroengineering
   E. Molecular and cellular bioengineering
II. can synthesize biological, engineering, mathematical, and statistical concepts
III. can conduct bioengineering research, including (a) formulate a research plan; (b) gain sufficient expertise to carry out that plan; and (c) analyze and interpret results.
IV. can effectively disseminate research results and communicate bioengineering concepts through (a) written and (b) oral means.
V. can function as capable professionals in bioengineering.

Successful completion of the MS (Plan 2: Comprehensive exam) program in Bioengineering results in graduates who:

I. have comprehensive knowledge of the factual information, theoretical principles, and methodological approaches in at least one of the five areas of bioengineering, and graduate-level familiarity in a second area:
   A. Biomaterials and regenerative medicine
   B. Biomedical imaging
   C. Computational bioengineering
   D. Neuroengineering
   E. Molecular and cellular bioengineering
II. can synthesize biological, engineering, mathematical, and statistical concepts
III. can effectively communicate bioengineering concepts through (a) written and (b) oral means.
IV. can function as capable professionals in bioengineering.

Example 4: Microbiology

Learning Outcome 1: Gaining a comprehensive knowledge of the variety of microorganisms - Each PhD Masters student will master basic concepts and theoretical principles about the diversity and distribution patterns of Microbiology. A Ph.D. student should have a comprehensive knowledge of the microbial world, including but not limited to Virology, Bacteriology, and Mycology.

Learning Outcome 2: Understanding of microbiology techniques - Each PhD and Masters student will master basic wet lab and computation approaches in Microbiology. A Ph.D. student should have a comprehensive knowledge of the molecular and bioinformatics approaches that are relevant to their primary lab and research. They should be able to apply these techniques to research problems in these areas by graduation.

Learning Outcome 3: Ability to design and conduct a research project - Each PhD student will be able to understand and develop research problems, hypotheses, and relevant rationales. Further, the student must be able to design a study to address hypotheses, and conduct research in a responsible and ethical manner. Finally, students must be able to evaluate, analyze, and interpret results.

Learning Outcome 4: Ability to communicate science effectively - Each PhD student will be able to convey research findings effectively in the visual (poster), written and oral form. Students must give talks about their research to a range of audiences, including at least one departmental seminar. Students should be able to translate the research results and findings to peer-reviewed publications and documents, as well as to popular writing for non-scientists.

Learning Outcome 5: Learning to be an effective teacher - Each PhD student will enroll in teaching assistant training, and in so doing become effective teachers and communicator . At least 2

quarters of Teaching Assistantship is required for the Microbiology PhD Program. This requirement does not apply to Masters Students.

Outcomes Mapping

Undergraduate Examples

Example 1: Philosophy

Relationship Between the Philosophy Curriculum and Student Learning Outcomes (LO's)						
Course #	Course Title	LO 1	LO 2	LO 3	LO 4	LO 5
1	Introduction to Philosophy	I	I			
2	Contemporary Moral Issues	I	I		I	
3W	Ethics and the Meaning of Life	I	I		I	
3X	Honors: Ethics and the Meaning of Life	I	I		I	
5	Evil	I	I			
5H	Honors Evil	I	I			
7	Introduction to Critical Thinking	I, P				
8	Introduction to Logic	I, P				
9	Biomedical Ethics	I	I		I	
30E	Hellenistic Philosophy: Pre-Socratic-Aristotle	I	I			I
30I	Early Modern Philosophy	I	I			I
30J	Late Modern Philosophy	I	I			I
30K	Nineteenth-Century Philosophy	I	I			I
100	Sophomore-Junior Seminar		P			
110	Asian Philosophy	P	P			P
111	Philosophy, Film, and Reflective Popular Culture	P	P		P	
112	Mortal Questions	P	P		P	
120E	Plato	P	P			P
120J	Seneca	P	P			P
120G	Plato and Aristotle	P	P			P
121N	Kant	P	P			P
1210	Hegel	P	P			P
121Q	Nietzsche	P	P			P
121T	Heidegger	P	P			P
122E	Ancient Philosophy	P	P			P
122M	Moral Theories of Kant and Hume	P	P		P	P
122N	Nineteenth-Century Philosophy	P	P			P
122O	Kant and Post-Kantian Eur Moral Philosophy	P	P			P
124	Formal Logic	P, M				
125	Intermediate Logic	P, M				
130	Theory of Knowledge	P	P	P		
132	Philosophy of Language	P	P	P		
134	Philosophy of Mind	P	P	P		
135	Philosophy of Psychology	P	P	P		
137	Philosophy of Science	P	P	P		
138	Philosophy of Agency	P	P	P		
140	Topics in Metaphysics	P	P	P		
150	Philosophy in Literature				P	P
151	Existentialism	P	P			P
152	Twentieth-Century Continental Philosophy	P	P			P
159	Philosophy of Religion	P	P	P	P	
161	Ethics	P	P		P	
164	Justice	P	P		P	
165	Philosophy of Law	P	P		P	
166	Philosophy of Feminism	P	P		P	
167	Biomedical Ethics	P	P		P	
168	Ethics and Families	P	P		P	
169E	Ethics	P	P		P	
169F	Aesthetics	P	P		P	
193	Senior Seminar-Philosophy	M	M	M	M	M
LWSO100	Introduction to Study of Law and Society	I	I		I	
LWSO193	Senior Seminar-Law and Society	M	M		M	

I=Introduced; P=Practiced; M=Mastered

Example 2: Media and Cultural Studies

*This is a partial map

*New courses have asterisks

*Courses with color-shaded cells have learning outcomes yet to be determined

Course Code	Course Title	Course Description	Outcomes
MCS 001	Introduction to Media and Cultural Studies	Examines media from economic, political, and cultural perspectives. Discusses their relation to U.S. export industries; democratic communication and the parliamentary process; and social trends. Explores how changes in media and associated technologies are akin to a new industrial revolution.	1, 2
*MCS 002	Introduction to Immersive Media	Focuses on tools for fast prototyping interactive media. Combines contemporary board and pencil and paper game and card design with computer game design, and VR, and digital/web production.	
*MCS 003	Immersive Media Production	Focuses on creative activity. Students with existing expertise in a design field are brought together for a devised project.	
MCS 004	Introduction to Moving Images: Film, Video, and New Media	Explores issues and skills of video/film/media art based in production, history, and theory of the moving image. Introduces basic production, editing concepts and techniques of live-action production, story boards, image editing, and final authoring. Examines the moving image through installation, documentary, experimental film, video art, sound art, and performance. Cross-listed with ART 004.	6
MCS 005	Media Studies: Theory and Practice	Introduces the history of various mass media industries. Analyzes the roles, functions, and effects of mass communication. Discusses recent technological developments and their implications for communication studies, as well as media law, policy, and ethics. Investigates the diffusion and impact of U.S. mass media in an era of heightened globalization	1, 2, 3

MCS 006	Introduction to Contemporary Critical Issues in Art	Examines basic principles and methodologies of theory as applied to the interpretation and creation of works of art. Includes screenings.	1, 5
*MCS 007	Digital Journalism and Society	Explores the emerging field of digital journalism. Discusses its theoretical, professional, and practical dimensions. Topics include history, technology, political economy, content, and pattern of digital journalism; innovative journalistic practices; and the impact of digital media on contemporary culture, politics, and society.	1, 4
MCS 009	Music in Movies and TV	An exploration of popular film and TV soundtrack music, emphasizing drama and musical style. Scene study features such films as The Matrix, Casablanca, The X-Files, and Altered States.	1
*MCS 010	Cultural Studies: Historical and Contemporary Perspectives	Investigates culture through the frameworks of feminism, Marxism, and race theories. Analyzes the different methodologies cultural critics use to theorize subcultures, cultural policies, and consumption. Explores ways cultural works are not only produced and received but also distributed and circulated within national and transnational contexts.	1, 2, 3
*MCS 011	Drug Markets as Conformity and Resistance	Examines the raced, gendered, and classed dimensions of the illegal drug market within historical, economic, political, and global contexts.	2, 3
*MCS 012	Gangs: A Critical Analysis	Examines the raced, gendered, and classed dimensions of gangs within historical, economic, political, and global contexts.	2, 3
MCS 015	Introduction to Television Studies	An introduction to the study of television, including its stylistic conventions, primary genres, modes of production, economics, and important critical methodologies.	1, 2, 3
MCS 020	Introduction to Film Studies	An introduction to the formal and narrative principles of film construction and to various critical approaches to the cinema, such as auteur and genre theory. Provides an overview of world cinemas.	1, 2
MCS 021	Introduction to Film, Literature, and Culture	Surveys critical approaches to the cinema such as auteur and genre theory. Studies literature and film, national cinemas, and film movements.	1, 2, 3, 4
MCS 022	Introduction to Japanese Film	An introduction to Japan's major directors and to watching and writing about Japanese film. Works studied range from the samurai epics of Kurosawa to recent anime. All films have subtitles. No previous knowledge of Japanese language or culture is required.	1, 2, 3, 4

MCS 023	Introduction to Media Art	An introduction to the impact of media technology on the visual arts, from photography to the Internet. Addresses mechanical reproduction, perception, gender, sexuality, identity, interactivity, cybernetics, and popular culture.	1, 2, 4
MCS 024	World Cinema	Introduction to world cinema as a fusion of national and international, culturally specific, and globally universal characteristics. Topics include realism, the role of world wars, Hollywood's global reach, alternative aesthetics of third-world cinemas, cross-fertilization between Europe and Asia, and the function of international film festivals and the international film market.	
*MCS 025	Suburbia	Introduces the history of suburbia from the Industrial Revolution to the present. Includes the rise of suburbs in England; classic suburbs in the United States; the spread of suburbs and mass transportation; the role of race and gender in suburbia; suburban sprawl in Southern California and sustainability and suburban development.	2,3
*MCS 027	Introduction to Video Game Studies	Offers an introduction to the critical study of video games. Considers questions about the meaning of play. Explores media form and content including video game representations and media effects on individuals and groups.	2, 3, 4
MCS 036	Food in Film	Explores the representation of food, cooking, and restaurants in films from different national traditions. Includes gender roles; sensuality and sexuality; social class and the economics of food; excess and lack.	2, 4
MCS 038	The Ancient World in Film and Television	A study of representations of Greece and Rome in film, television, and other modern media. Introduces these 'visual texts' both as popular art forms on their own and in relation to their ancient and modern literary sources.	
MCS 042	Introduction to German Cinema	Introduction to the history of German cinema from the advent of the studio system to the present. Covers film in Germany, Switzerland, and Austria. Attention is paid to the work of German-speaking filmmakers living in other parts of the world. Instruction is in English; all films have subtitles.	1, 2, 3
MCS 043	Soviet Cinema	A survey of the Soviet cinema, beginning with the film innovations of the 1920s and continuing with representative films from each of the ensuing periods of Soviet culture. All work done in English	1, 2, 3

Example 3: Physics

Course	Title	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8
i. Lower Division Core (Required)									
41A	General Physics	I		I	I		I	I	
41B	General Physics	I		I	I		I	I	
41C	General Physics	I		I	I		I	I	
ii. Upper Division Core (Required for standard track)									
130A	Classical Mechanics	R		R					
130B	Classical Mechanics	R		R					
132	Thermodynamics	R		R					
133	Statistical Physics	R		R					
135A	Electromagnetism	R		R					
135B	Electromagnetism	R		R					
136	Electromagnetic Waves	R		R					
139L	Electronics for Scientists	M		M	M		M	R	
142L	Advanced Physics Laboratory	M	M	M	M	M	M	M	
142W	Advanced Physics Laboratory	M	M	M	M	M	M	M	
156A	Quantum Mechanics	R		R					
156B	Quantum Mechanics	R		R					
iii. Physics Electives (minimum 3 required)									
17	Linear Algebra for Physics	R		R					

111	Astrophysics and Stellar Astronomy		M	M		M			
117	Advanced Mathematical Methods of Physics	M		M					
145A	Biophysics		M	M		M			
145B	Biophysics		M	M		M			
145C	Biophysics		M	M		M			
150A	Intro to Condensed Matter Physics		M	M		M			
150B	Intro to Condensed Matter Physics		M	M		M			
151	Topics in Modern Condensed Matter Research		M	M		M			
152A	Exploring Many-Body Quantum Physics with Mathematica		M	M	M	M			
152B	Exploring Many-Body Quantum Physics with Mathematica		M	M	M	M			
156C	Quantum Mechanics		M	M		M			
163	Atomic Physics and Spectroscopy		M	M		M			
164	Intro to Nuclear Physics		M	M		M			
165	Intro to Particle Physics		M	M		M			
166	Cosmology		M	M		M			
168	Energy and the Environment		M	M		M			
177	Computational Methods for Physics Science		M	M	M				
iv. Seminars and Optional Research Courses									
39	Adventures in Physics (highly recommended for all freshman and transfer students)	I		I		R			R
190	Special Studies		M	M	M	M	M	M	M
190L	Special Studies at Los Alamos National Laboratory		M	M	M	M	M	M	M
195A	Senior Thesis		M	M	M	M	M	M	M
195B	Senior Thesis		M	M	M	M	M	M	M
195C	Senior Thesis		M	M	M	M	M	M	M

195D	Senior Thesis		M	M	M	M	M	M	M
197	Research for Undergraduates		M	M	M	M	M	M	M
198-I	Individual Internship in Physics		M	M	M	M	M	M	M

I=Introduced, R=Reinforced, M=Mastered

Example 4: Biochemistry

Learning Objective	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17	L18	L19	L20	L21	L22	L23	L24	L25	L26
Course																										
BCH 095																							I			I
BCH 096																							I			
BCH 015	I,P	I,P			I				I	I	I		I						I	I,P	I			I		
BCH 110A				I	I	I	I	I	P	I	I	I		I		I										
BCH 110B			I	P	P	P	P					I						I								
BCH 110HB			P, D	P	P	P	P					P, D									I					
BCH 110C								I	P				P	P	I	P	I	I								
BCH 120			P	P	P		P					I						I								
BCH 162	P,D	P,D			P		D	P	D	D	P			P		P			P	D	I, P	I		P		
BCH 180 (E-Z)			D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D			P	
BCH 184						D				D	D															
BCH 186					D	D			D	D	D															
BCH 187					D	D			D	D	D	D														
BCH 188								D											P	D	D	D			D	
BCH 189								D	D	D	D	D	D	D	D	D	D	D	P	D	D	D	D	D	P	
BCH 190																			D	D	D	D	D	D		
BCH 197	P,D	P,D																	D	D	D	D	D	D		

I=Introduced; P=Practiced; D=Demonstrated

Graduate Examples

Example 1: Business Administration

	Learning Goal #1: Professional Integrity / Ethical Reasoning Skills	Learning Goal #2: Global Context Skills	Learning Goal #3: Written Communication	Learning Goal #4: Information Technology Skills
Management 200 - Organizational Behavior and Theory	Introduce and practice Professional Integrity / Ethical Reasoning Skills		Practice writing effective case analysis reports	
Management 201 - Statistics for Management		Introduce and practice decision-making and solving management problems using data.		
Management 202 - Financial Management		Introduce and practice managing a firm's investment decisions in a global environment		
Management 203 - Managerial Economics	Introduce and practice Professional Integrity / Ethical Reasoning Skills			
Management 205 - Information Systems				Introduce and practice operation and management of information systems as applied to the business environment.
Management 207 - Operations Management for Competitive Advantage	Introduce and practice Professional Integrity / Ethical Reasoning Skills		Practice writing effective case analysis reports	Introduce and practice skills and tools to analyze, optimize, and improve production processes for competitive advantage.
Management 209 - Marketing Management	Introduce and practice Professional Integrity / Ethical Reasoning Skills	Introduce concepts on local, national and global marketing environment and functions.	Practice developing effective marketing plans.	Practice data collection, analyses using multiple online sources and databases.

Management 211 - Financial Accounting	Introduce and practice Professional Integrity / Ethical Reasoning Skills			Introduce and practice analytical tools in using of financial accounting information.
Management 235 - Strategic Management	Introduce and practice Professional Integrity / Ethical Reasoning Skills	Introduce and practice the formulation, implementation, and evaluation of business unit and corporate strategies and the organizational policies and managerial practices that support them.	Practice writing effective case analysis reports	
MGT 298i - Fieldwork in Management		Introduce and practice field experience culminating in a final report or other academic component		
MGT 402: Business Career Professional Development Workshop	Practice ethical and professional behavior to network in person and via social media outlets.		Practice development and presentation of student's ideas clearly at internship and job interviews.	

Example 2: Visual Art

	Outcome 1: Engagemant in making	Outcome 2: Analysis of theoretical and historical Issues	Outcome 3: Critical self and peer evaluation	Outcome 4: Proficiency in art making	Outcome 5: Professional Preparedness
ART 230 Contemporary Critical Issues		introduced/practiced (lecture/presenation/paper)			
ART 240 Current Topics in Critical Theory		introduced/practiced (lecture/presenation/paper)			
Graduate Level Art Hisotry Seminar		introduced/practiced (lecture/presenation/paper)			
ART 293 Directed Individual Studio Production	introduced/practiced/demonstrated (Individual studio meeting w/faculty)		introduced/practiced/demonstrated (Individual studio meeting w/faculty)	introduced/practiced/demonstrated (Individual studio meeting w/faculty)	indroduced (Individual studio meeting w/faculty)
ART 285 Peer Critique	practiced/demonstrated (Group critique w/faculty)		introduced/practiced/demonstrated (Group critique w/faculty)	introduced/practiced/demonstrated (Group critique w/faculty)	
ART 299 Research for Thesis		practiced/demonstrated (Individual studio meeting w/faculty)			introduced (Individual studio meeting w/faculty)
ART 302 Teaching Practicum	introduced/practiced/demonstrated (Classroom observation of mentor and practice)				
Self-directed Studio Practice	practiced (Studio/Lab experience)			practiced (Studio/Lab experience)	
Visiting Artist Studio meetings (Art 180 and Spring Artist Lectures: 8 times 1 hour meetings per student per year)	introduced/practiced/demonstrated (Individual studio meeting w/Art Professionals)		introduced/practiced/demonstrated (Individual studio meeting w/Art Professionals)	introduced/practiced/demonstrated (Individual studio meeting w/Art Professionals)	introduced (Individual studio meeting w/Art Professionals)
1st and 2nd year Exhibition at the Riverside Art Museum				practiced/demonstrated (Public group exhibition)	practiced/demonstrated (Public group exhibition)
1st and 2nd Year Review	introduced/practiced/demonstrated (Faculty Review Presentation/Feedback w/student)	practiced/demonstrated (Faculty Review Presentation/Feedback w/student)	practiced/demonstrated (Faculty Review Presentation/Feedback w/student)	practiced/demonstrated (Faculty Review Presentation/Feedback w/student)	practiced/demonstrated (Faculty Review Presentation/Feedback w/student)
Bi-Annual Open Studio Event				practiced (exhibition of work in studios)	practiced (exhibition of work in studios)
Thesis Exhibition and Written Thesis Submission				demonstrated (Public Exhibition and written Thesis submission)	demonstrated (Public Exhibition and written Thesis submission)

Example 3: Bioengineering

	PhD SLO I	PhD SLO II	PhD SLO III	PhD SLO IV	PhD SLO V	PhD SLO VI	MS Plan 1 SLO I	MS Plan 1 SLO II	MS Plan 1 SLO III	MS Plan 1 SLO IV	MS Plan 1 SLO V	MS Plan 2 SLO I	MS Plan 2 SLO II	MS Plan 2 SLO III	MS Plan 2 SLO IV
BIEN 201: Mathematical methods in bioengineering		IP						IP					IP		
BIEN 202: Mathematical and computational methods in bioengineering		IP													
BIEN 211: Advanced statistics and research design for bioengineering		IP						IP					IP		
BIEN 223: Engineering analysis of physiological systems	IP						IP					IP			
BIEN 224: Cellular and molecular engineering	IP						IP					IP			
BIEN 225: Self-organization in engineered and native tissue	IP						IP					IP			
BIEN 227: Biophotonics: laser-tissue interactions and therapeutic applications	IP						IP					IP			
BIEN 228: Biophotonics: optical diagnosis and measurements	IP						IP					IP			
BIEN 234: Orthopaedic regenerative medicine and mechanobiology	IP						IP					IP			
BIEN 235: Vascular biomechanics and engineering	IP						IP					IP			
BIEN 236: Nanomaterials for regenerative medicine	IP						IP					IP			
BIEN 237: Medical diagnostics	IP						IP					IP			
BIEN 242: Advanced biomedical optical imaging	IP						IP					IP			
BIEN 245: Optical methods in biology, chemistry, and engineering	IP						IP					IP			
BIEN 249: Integration of computational and experimental biology	IP						IP					IP			
BIEN 264: Biotransport phenomena	IP						IP					IP			
BIEN 270: Transport with reactions in biological systems	IP						IP					IP			
BIEN 275: Magnetic resonance imaging	IP						IP					IP			
BIEN 276: Introduction to neuroimaging with MRI	IP						IP					IP			
BIEN 286: Colloquium in bioengineering				IP		IP				IP	IP			IP	IP
BIEN 302: Teaching practicum					IP										
BIEN 401: Fundamentals of proposal preparation and ethical standards in bioengineering				IP		IP									
BIEN 402: Effective writing for bioengineering research publications				IP		IP				IP	IP			IP	IP
NRSC 200A: Fundamentals of neuroscience		IP						IP					IP		
BCH 210: Biochemistry of macromolecules		IP						IP					IP		
BIOL/CMDB 201: Molecular biology		IP						IP					IP		
BIOL/MCBL 221: Microbial genetics		IP						IP					IP		
CMDB 207: Stem cell biology and disease		IP						IP					IP		
BCH 212: Signal transduction and biochemical regulation		IP						IP					IP		
BIOL/CMDB 200: Cell biology		IP						IP					IP		
BCH 211: Molecular biology		IP						IP					IP		
CEE 238A: Bioprocess degisn laboratory		IP						IP					IP		
EE 206/MSE 227A: Nanoscale characterization techniques		IP						IP					IP		
EE 217: GPU architecture and parallel programming		IP						IP					IP		
EE 244: Computational learning		IP						IP					IP		
ME 220/EE 233: Optimal control and estimation		IP						IP					IP		
ME 240A: Fundamentals of fluid mechanics		IP						IP					IP		
ME 261: Theory of elasticity/solid mechanics		IP						IP					IP		
ME 270/MSE 238: Introduction to microelectromechanical systems		IP						IP					IP		
CEE 212: Bioseparations and bioprocess engineering		IP						IP					IP		
EE 241: Advanced digital signal processing		IP						IP					IP		
ME 241A: Fundamentals of heat and mass transfer		IP						IP					IP		
ME 266/MSE 208: Mechanics and physics of materials		IP						IP					IP		
ME 267L Finite element methods		IP						IP					IP		
CEE 210: Cell engineering		IP						IP					IP		
EE 237: Nonlinear systems and control		IP						IP					IP		
EE 240: Pattern recognition		IP						IP					IP		
EE 243: Computer vision		IP						IP					IP		
ME 271: Therapeutic biomedical microdevices		IP						IP					IP		
ME 272: Nanoscale science and engineering		IP						IP					IP		
Written qualifying / Comprehensive exam	D	PD										D			
Lab experience		P	IP					P	IP						
presentation in group meetings			P	P					P	P					
Oral qualifying exam (Advancement to candidacy)		PD	P	PD											
Research progress evaluation		PD	P	PD				PD	PD	PD					
Written dissertation/thesis		D	D	D				D	D	D					
Dissertation/thesis defense		D	D	D				D	D	D					
Teaching experience					PD										
faculty-student colloquium				P		P				P	P			P	P
conference attendance/participation				PD		PD				PD	PD				
publications				PD		PD				PD	PD				
grant/fellowship application				PD		PD				PD	PD				
job placement						D					D				D

Example 4: Electrical Engineering

PhD	1. Students will have a broad and thorough understanding of the fundamental concepts, theoretical principles, and methodological approaches in one of the areas enumerated below: i) Signals, Systems and Machine Intelligence (SSMI) ii) Nano-Materials and Devices (NMD) iii) Computer Engineering (CE)	2) Students will have the ability to conduct independent research, which comprises of the abilities to i) gain in-depth knowledge by researching the literature on a problem of interest ii) identify new questions and research directions iii) implement algorithms, techniques, or methods iv) develop novel ideas, techniques, and approaches v) apply existing know-how (intra- or inter-discipline) to a new problem	3. Students will have the ability to write properly in technical English, in a format suitable for publication in typical IEEE (Institute of Electrical and Electronics Engineers) journals or conference proceedings	4. Students will have the ability to orally present technical results and/or surveys	5. Students will have the skills to become effective teachers if an academic career is to be pursued	6. Students will have made timely progress
i. EE 215 Stochastic Processes	Introduced (lesson plan)					
i. EE 236 State and Parameter Estimation Theory	Practiced (lesson plan)					
i. EE 246 Intelligent Transportation Systems		Practiced (lesson plan)	Demonstrated (project paper)	Demonstrated (project paper)		
ii. EE 202 Fundamentals of Semiconductors and Nanostructures	Introduced (lesson plan)					
ii. EE 203 Solid-State Devices	Practiced (lesson plan)					
ii. EE 206 Nanoscale Characterization Techniques		Practiced (lesson plan)	Demonstrated (project paper)	Demonstrated (project paper)		
iii. EE 213 Computer-Aided Electronic Circuit Simulation	Introduced (lesson plan)					
iii. EE 221 Radio-Frequency Integrated Circuit Design	Practiced (lesson plan)					
iii. EE 224 Digital Communication Theory and Systems		Practiced (lesson plan)	Demonstrated (project paper)	Demonstrated (project paper)		
Preliminary Exam	Demonstrated (exam)	Demonstrated (exam)	Demonstrated (exam)			
Oral Qualifying Exam and written report		Demonstrated (presentation and report)	Demonstrated (presentation and report)	Demonstrated (presentation)	Demonstrated (presentation)	Demonstrated (observations of mentors)
Annual Evaluation					Demonstrated (observations of mentors)	Demonstrated (observations of mentors)
Writing and oral defense of the dissertation		Demonstrated (presentation and report)	Demonstrated (presentation and report)	Demonstrated (presentation)	Demonstrated (presentation)	

MS	1. Students will have a good understanding of the fundamental concepts, theoretical principles, and methodological approaches in one of the three specializations enumerated below: i) Signals, Systems and Machine Intelligence (SSMI) ii) Nano-Materials and Devices (NMD) iii) VLSI Circuits and Systems (VLSI)	2. Students will have the ability to conduct independent work, which comprises of the abilities to i) gain in-depth knowledge by researching the literature on a problem of interest ii) implement algorithms, techniques, or methods	3. Students will have the ability to write properly in technical English	4. Students will have the ability to orally present technical results and/or surveys	5. Students will have made timely progress
i. EE 215 Stochastic Processes	Introduced (lesson plan)				
i. EE 236 State and Parameter Estimation Theory	Practiced (lesson plan)				
i. EE 246 Intelligent Transportation Systems		Practiced (lesson plan)	Demonstrated (project paper)	Demonstrated (project paper)	
ii. EE 202 Fundamentals of Semiconductors and Nanostructures	Introduced (lesson plan)				
ii. EE 203 Solid-State Devices	Practiced (lesson plan)				
ii. EE 206 Nanoscale Characterization Techniques		Practiced (lesson plan)	Demonstrated (project paper)	Demonstrated (project paper)	
iii. EE 213 Computer-Aided Electronic Circuit Simulation	Introduced (lesson plan)				
iii. EE 221 Radio Frequency Integrated Circuit Design	Practiced (lesson plan)				
iii. EE 224 Digital Communication Theory and Systems		Practiced (lesson plan)	Demonstrated (project paper)	Demonstrated (project paper)	
Comprehensive Exam	Demonstrated (capstone exam)	Demonstrated (capstone exam)	Demonstrated (capstone exam)		
Thesis		Demonstrated (capstone exam)	Demonstrated (capstone exam)	Demonstrated (capstone exam)	Demonstrated (capstone exam)
Annual Evaluation					Demonstrated (observations of mentors)

Methods (Evidence of Student Learning):

Undergraduate Examples

Example 1: Political Science

To assess the student outcomes, we did a study of written assignments, and we conducted a faculty and graduate student survey. This section explains our methods:

Paper Assessment for the Report: The total number of papers evaluated was 64. In contrast to the previous years, we did not include only final papers in our sample. Also, because of the remote learning format, some courses did not have the regular analytical research paper requirements as before, but instead had take home essay exam requirements. Therefore, in order to be more inclusive and to have a better sense of the alignment with the learning outcomes, this year in our evaluation sample, we included both paper assignments and take home essay exams. This gave us the best possible handle on the core competency of written communication. Following the previous years' procedure, we decided not to undertake a longitudinal study that would follow some number of students who were evaluated in previous years. The main reason is that there is a logistical challenge of keeping track of the same students, and the small scope of longitudinal studies did not generate meaningful results in the past.

Our methods were as follows:

Sampling procedures

We drew a stratified sample of students using the following method: 1) We enumerated all upper-division classes offered in the 2020-21, which yielded a list of 49 courses (some courses taught more than once but we counted each offering separately). Last year, we included only papers from the Fall and the Winter quarters, but this year we included all three quarters. Therefore the scores this year are not exactly comparable to last year. In our sample, we are evaluating only upper-division courses since most lower division courses usually do not have analytical paper assignments. 2) We randomly selected 8 upper division courses. (We also selected 8 courses two years ago, but 6 courses last year due to pandemic/moving to the remote format in Spring 2020). 3) We used a computer generated random number selector to select 8 papers from each of the 8 selected courses. In total, this year we evaluated 64 papers/exams from 8 courses. 4) We contacted faculty from each of these classes and requested access to their final papers via their learning management systems or by e-mail attachment. 5) Three advanced graduate students, who were not involved in any of the courses assessed, evaluated the written work. (We increased the number of paper evaluators from two to three this year).

Evaluation procedures

Each reader independently evaluated the written work, using a learning outcomes rubric based on the evaluation markers outlined above. Each work was scored on a 3-point scale: 3=high, or mastery of learning outcome, 2=medium, or satisfactory achievement of learning outcome, and 1=low, or unsatisfactory achievement of learning outcome. For example, since the course POSC 184S Digital Government aligns with the learning outcome category of LO1: Political Institutions and Structures, and LO2: Political Processes, Behavior, and Ideas, it is only evaluated with respect to LO1 and LO2, (not LO3: Political Contexts and Cultures). To give another example, the course POSC 171 American State Politics is aligned with only LO1: Political Institutions and Structures, so it will only be evaluated with respect to LO1. Each work (paper) was evaluated in two categories, descriptive and analytic. These are two very general categories. Other factors such as originality and creativity of the papers could have been included, however, we have now been using the descriptive and analytic categories for over six years, and thus, we are able to see the changes over the years. In the future, originality, creativity and other

factors could be incorporated into the analysis. There is a master spreadsheet that includes each individual score and the mean scores for each learning assessment outcome category. Survey of faculty members (number of faculty respondents to be inserted) To assess written communication skills further, we followed the protocol developed last year by sending a survey to faculty members. The survey asks faculty their impressions of student performance in information literacy, and critically evaluating or assessing the validity and reliability of information sources. Also we sent out a survey to graduate students to ask about the oral competencies of the undergraduate students.

Example 2: Psychology

For the assessment of students' proficiency in evaluating psychological claims, we analyzed student papers from one course in Winter 2021: PSYC 132 (Perception). Papers were scored by TAs of the course using a rubric designed by the instructor of record (also the author of this report). Level 1 for SLO 2 is "(Remembering & Understanding): Students will be able to identify when a claim in scholarly, scientific, and academic publications, as well as those in the popular press, are based in psychological principles and will be able to articulate the basis of psychological claim in their own words. Level 2 for SLO 2 is "(Applying & Analyzing): are based, both in scholarly, scientific, and academic formats, as well as popular media. Level 3 for SLO 2 is "(Evaluating & Creating): Students will be able to articulate evidenced-based psychological claims in formats appropriate for scholarly, scientific, and academic journals, as well as in formats appropriate for communicating with non-expert audiences using popular media. The rubric categories that assessed these items are provided below. For each category, analyses examined the mean as well as the percent of students at different levels of achievement: Excellent (90% - 100%), Proficient (70% - 89%), and Poor (0% - 69%).

Example 3: Entomology

For LO4 (Quantitative Reasoning), the Department of Entomology expects our undergraduate students to develop quantitative reasoning, or the ability to apply mathematical concepts to the interpretation and analysis of quantitative information. ENTM/BIOL 127 (Insect Ecology) is one of the upper-division classes that addresses the requirement. This course has a strong emphasis on developing quantitative skills, linking quantitative skills to the theoretical framework of insect ecology (putting math to the words), and becoming more facile with ecological models. Some details of the course are described below.

ENTM 127 discussion exercises are active learning exercises in which the students either collect data and then analyze the trends (groups essentially carry out the same experiment and compare their data at the end of class) or they are given datasets that they have to parse, analyze statistically and plot trends to compare the results among groups in the discussion section (different datasets were provided to the groups in each discussion section). Second, an e-textbook was used that allows the students to work with ecological and evolutionary models using simulations and directed calculations. They were asked to answer questions which provided feedback as they work through the exercises, and then at the end of each module they submitted answers to questions that were graded. The answers to the graded questions were provided when they received their grades for each exercise. A large component of the exercises focused on enhancing their quantitative skills. The exercises also included simulations in which the students could enter a range of parameter values to see how the outcomes of the models differ. To answer some of the questions, the students must interpret the model outcomes based on either their calculations or the simulation exercises. The students could also evaluate the exercises to provide feedback about concepts that were unclear or concepts that they found difficult to understand from the lectures (the instructor found this very helpful). The textbook is

updated annually and most of the questions are at a high Bloom's level. Third, the lectures, especially in the first part of the course, have a strong quantitative component (quantitative skills first, just-so stories later). Last, the students worked in groups of 5 to 6 students to develop an active learning exercise based on a concept in insect ecology. They not only had to devise an engaging learning exercise for their peers, most of the exercises included a quantitative component to illustrate an application of the concept. A grading rubric for the exercise was available to emphasize the importance of presentation content, presentation skills and mutual respect/team building skills. A pre- and post-class assessment was carried out using ten questions in a timed format (15 minutes). The questions were the same on both assessments and students were not apprised that they would be answering the same questions. Student self-assessments for each lecture were improved based on comments from students in previous classes and were available on the class iLearn site.

Example 4: Microbiology

Summary. For PLO-3, students can draw on existing knowledge, using citations from the scientific literature, to create and present scientific information to a lay audience in oral format.

Method Overview: Use Experimental Microbiology (MCBL 125), which is our **Capstone Class**. It is a laboratory class designed to **Train Students** to (i) formulate hypotheses and develop experiments to test them, (ii) apply technical laboratory skills, (iii) organize and present their research in both written and oral formats and (iv) apply analytical and computational skills; for all of these elements, the students are trained, evaluated and provided feedback. All students in the major are required to take the class.

Specific Methods: Each student (33 enrolled; 1 did not complete assignment) independently prepared 5 Powerpoint slides and gave a 5-minute oral presentation over Zoom to the class. The talks were focused on one gene or mutant and presented a hypothesis-driven experiment developed by the student at the end of the quarter. Students were required to provide an introduction, methods, possible results (including statistical analysis of data) and summation for full credit. They were also graded on the appearance, legibility and completeness of their slides and ability to answer questions from the audience.

Graduate Examples

Example 1: Professional Accountancy MPAc

Exams for twenty-two students completing the comprehensive exams in December of 2020. The assessor selected haphazardly eight exams to review. See the Appendix for a copy of the exam and instructions.

The assessor mapped each exam question to a learning objective as follows:

Learning Objective	Exam Questions
Accounting/Auditing, Tax or Information Systems Skills	1-3 (required) 4-6 (elective - select one of three)
Professional Integrity / Ethical Reasoning Skills	2 (required)
Global Context Skills	3 (required)
Information Technology Skills	Not Tested

Example 2: Art MFA

Summary. For PLO-3, students can draw on existing knowledge, using citations from the scientific literature, to create and present scientific information to a lay audience in oral format.

Method Overview: Use Experimental Microbiology (MCBL 125), which is our **Capstone Class**. It is a laboratory class designed to **Train Students** to (i) formulate hypotheses and develop experiments to test them, (ii) apply technical laboratory skills, (iii) organize and present their research in both written and oral formats and (iv) apply analytical and computational skills; for all of these elements, the students are trained, evaluated and provided feedback. All students in the major are required to take the class.

Specific Methods: Each student (33 enrolled; 1 did not complete assignment) independently prepared 5 Powerpoint slides and gave a 5-minute oral presentation over Zoom to the class. The talks were focused on one gene or mutant and presented a hypothesis-driven experiment developed by the student at the end of the quarter. Students were required to provide an introduction, methods, possible results (including statistical analysis of data) and summation for full credit. They were also graded on the appearance, legibility and completeness of their slides and ability to answer questions from the audience.

Example 3: Evolution, Ecology, and Organismal Biology

Our assessment was based on the written qualifying exams submitted in 2020 by our 14 second year students. We chose the written qualifying exam because it represents the culmination of writing exercises associated with each course in our core curriculum. Each course requires that students write a term paper in which they trace the historical development of one key question in each discipline (evolution, ecology, organismal biology) and, based on that exercise, define the status of the discipline in answering the question, how our ability to answer it has been augmented by the advent of new technologies (e.g., DNA sequencing in evolution, stable isotopes in ecology, metabolomics in organismal biology) and what the remaining issues are that need to be resolved. The ultimate goal is to teach the students how to master a discipline sufficiently to be able to identify research questions that will lead to a dissertation that will have a lasting impact. Doing so requires a commanding knowledge of the current state of the discipline. The completion of the core courses represents the attainment of the first learning goal. The submitted essays represent the students' application of this approach to defining their own dissertation project. They are required to perform a similar historical analysis applied to their chosen question of interest, use it to justify and define the hypotheses they will address with their dissertation research, outline the research they will execute and present the whole package in a concise, well-referenced essay. Essays are submitted in week 8 of the spring quarter in their second year. Three faculty were assigned to assess each essay. They followed and completed a rubric (Appendix 2) and offered additional written evaluations plus detailed comments on the essay. The graduate advisor then reviews the comments from the three faculty and convenes a discussion with the three faculty reviewers if their comments indicate that the essay may be unsatisfactory. Whether or not the student's paper is considered a pass is based on that discussion. Students whose papers are deemed unsatisfactory receive the reviewers' comments and are encouraged to talk to all of the reviewers about the perceived shortcomings of their essay. They are then required to submit a revised essay by week 8 of Fall Quarter of their third year, at which time the same review process takes place. While it rarely happens, students' whose papers remain unsatisfactory will be dismissed from the PhD program. Samples of completed rubrics and associated written comments are presented as Appendix 3.

Example 4: Environmental Science

The student learning outcome assessed this year (Ph.D. SO3 and M.S. SO4) was evaluated using data from a pre- and post-self-assessment as part of coursework assigned in ENSC 401 Professional Development in Environmental Sciences. ENSC 401 is a required class for our graduate students taken in their second quarter in the program. The pre-assessment was meant for students to gauge their own

ability in various topics covered in the class including their ability to give an oral presentation clearly and effectively and to present research to other scientists. For the post-assessment, students were asked to evaluate their own oral presentations given in the class after receiving feedback from their peers (both in a rehearsal session and during their presentation) and after watching a video recording of themselves giving the presentation. Because of the campus restrictions imposed by the COVID-19 pandemic, all presentations were conducted through Zoom. Students evaluated their own presentations with respect to the following aspects:

1. Clarity of the purpose of the presentations
2. Selection of appropriate topic and handling of the topic for the audience
3. Presentation given within the time and topic constraints given by the assignments
4. Significance and relevance of the presentation
5. Introduction (a) Attention getter (b) Topic introduction (clarity, context) (c) Establishment of credibility and goodwill (d) Central idea and preview
6. Body (a) Clarity of the main points (b) Limited to 2-4 main points (c) Organization (d) Sources cited and credible (e) Explanation of topic (f) Transitions between main sections
7. Conclusion (a) Clear summary (b) Strong closer
8. Delivery (a) Intonation (b) Vocal fillers (c) Rehearsed/practiced (d) Confidence (e) Articulation and grammar (f) Enthusiasm (g) Conversational (h) Stayed within time limits
9. Visual aid (a) Helpfulness of the visual aids (b) Professional style (c) Visual accessibility (d) Was the visual aid well used?

These assignments (i.e., the pre- and post-assessments) were chosen because this course is one of the first opportunities that students have in the curriculum to practice this student outcome (see the student experiences map attached). This assessment was conducted using student work from all 8 students in the Winter 2021 offering of this course and taught by a single faculty member in our Department (King-Fai Li).

Analysis of Findings

Undergraduate Examples

Example 1: Comparative Literature and Languages

To create an analysis of our evidence the instructors for CPLT 193 grade the final version of the students' research papers based upon the rubric: N/A = not applicable (this would indicate that a paper was not submitted, for example); N = not apparent; E = emergent; D = developed; H = highly developed.

During AY 2020-21, a total of 33 students took CPLT 193. 13 students' papers were rated at "H"; 13 at "D"; 3 at "E"; 3 at "N"; and 1 at "N/A." This data suggest that a substantial number of our students, nearly 40%, have demonstrated a capacity to create a "highly developed" critical essay around a research topic, which "contains a well-formulated argument based upon a research topic of the student's own design." This data also suggests that, during their years of study at UCR, many of our students have gained a sense of what it means to ask and develop a meaningful question, and to refine that question so that it can become a starting point for a complex research project; it suggests that our students have been able to elaborate their questions in writing through an engagement with primary and secondary sources; and it suggests that they have gained a sense of their own voice and intention in writing, and that their work makes manifest their intellectual labor as young scholars, writers, and thinkers. Our students, these results suggest, have transformed their own intellectual and social curiosity into writing projects of substantial complexity and clarity; these results also promise, we hope, that our students will bring the skills they have gained—the skill of transforming intellectual or social curiosity into meaningful and well-articulated written projects—into other domains and fields, and that it will nurture them in their lives and activities as they leave the university.

The data also suggest that a large portion of our students, also nearly 40%, have demonstrated this skill or capacity at the "developed" level, and that smaller number, 21%, have demonstrated these skills at the "emergent" or "not apparent" levels."

In sum, this data suggest that our students have been able to develop, plan, conceive, and write research papers, and what we have called "critical essays," of substantial quality and insight; and it also suggests that we might consider how to further enrich the work and study we pursue in our teaching, to further support our students so that increasing numbers of them will gain a "highly developed" and "developed" sensibility in relation to this learning outcome.

Example 2: Psychology

The results suggest that students overall are meeting (and perhaps even excelling at) SLO3 across Levels 1, 2, and 3. The data presented here were collected in Winter 2021, when entirely remote instruction was still ongoing as a result of the COVID-19 crisis. The average percentage of students receiving "excellent" or "proficient" ratings across all assessment category and items were 99% for Level 1, 97% for Level 2, and 97% for Level 3. The pattern suggests that students are highly proficient at all outcome Levels. Students are almost entirely proficient at demonstrating mastery in Levels 1 and 2 of SLO3. They are able to define psychological concepts based on empirical sources in psychology (Introduction: Introduces Topic, 99% Excellent or Proficient) and are able to review literature precisely and analytically (Introduction: Literature Review, 97% Excellent or Proficient). Importantly, this course is an upper-division course, with the focus of the SLOs at a higher level of mastery (SLO Level 3) than lower-division courses (thus why there were only 2 total items on the rubric dedicated to testing SLO3

Levels 1 and 2; 1 rubric item each). It is unsurprising that students at this upper-division course level excel at meeting SLO3 Levels 1 and 2. Students are also able to demonstrate mastery in Level 3 of SLO3. Indeed, they are able to clearly propose their own hypotheses based on the literature they reviewed (Introduction: Hypothesis Explanation, 94% Excellent or Proficient) and are able to clearly describe a research design that can provide data to test their proposed hypothesis (average across all Method items, 98% Excellent or Proficient). This demonstrates that students have a deep grasp of how to create and test their own claims in psychology (though this ability may be limited to creating empirical designs in the lab, and not creating/evaluating psychological claims in other settings more generally, as SLO3 defines). In sum, students are excelling at their ability to identify scholarly claims in their own words (Level 1), analyze psychological claims in existing scholarly work (Level 2), and creating their own testable claims (Level 3). Importantly, the assignment used to assess SLO3 this year was scaffolded across the entire quarter, with weekly assignments that received peer feedback (and targeted TA feedback). Thus, with appropriate support, students are able to meet and even excel at the proposed SLOs for the department.

Example 3: Biochemistry

BCH 98I is an internship course that consists of two major components: 1) students perform a minimum of 30 hours of humanitarian volunteer service outside the classroom, and 2) submit a term paper that links an aspect of their experience with data/discussion from an article from a reputable scientific journal. Because of the pandemic, many students were not able to find volunteer opportunities, so they were required to research topics in the current scientific literature and write a 4-5 page essay on the topic, supporting their analysis with reference to specific papers in the literature. The essays were graded with the rubric shown below. The course syllabus and an example of these essays is included in the Appendix.

	Attribution	Evaluation of Evidence	Communication of Evidence	Clarity of Writing
Highly Developed (4)	3	3	3	5
Developed (3)	2	3	2	4
Emerging (2)	0	3	4	0
Initial (1)	4	0	0	0

We found that, although some students had learned to support statements with reference to specific publications, most referred to these papers (listed on their essay's last page) little or not at all and tended to switch quickly to personal opinion or anecdotal evidence. Those who had learned how to properly attribute statements also were most developed with evaluating and communicating evidence. Happily, all students could write clearly.

BCH 162 is an advanced laboratory course. During this course, students complete written analyses of several multi-week experiments. This year, because BCH 162 was conducted remotely, students could not generate their own data. Consequently, students were given the same data (acquired in a previous year) to analyze. One such report was chosen for analysis on the basis of the rubric shown below. An example student report is included in the appendix.

	Understanding of procedures	Evaluation of Data	Communication of Evaluation	Clarity of Writing
Highly Developed (4)	80	37	34	40
Developed (3)	29	39	40	45
Emerging (2)		32	30	19
Initial (1)	1	1	5	5

We found that, while most students understood the procedures for carrying out the experiment, significant numbers of students did not evaluate the data to the full extent possible, although most could describe their conclusions. Happily, most students could write clearly.

Example 4: Microbiology

Evaluation Metrics:

1. Presentation Grades are Based on the Following Metrics (points in parentheses): The instructor and TA independently assessed the presentations and grades were collated and averaged for the final score (Average numbers and % total are presented below each metric in the table).

- Legible: Slides have fonts that are easy to read and avoid use of distracting colors or patterns.
- Accuracy: Reported information must be true.
- Organized: Presentation should have a logical flow.
- Rationale for Study: The hypothesis should be clearly stated and supported by the existing data.
- Describe Phenotype: The existing data that supports the hypothesis should be clearly and accurately presented.
- Graphs or Tables: All should be organized and visible. All values should have error and significance relative to wild type included.
- Data Analysis and Conclusions: Method used to analyze data should be well-supported. Conclusions should flow from the data.
- Time: The presentation should not extend beyond 5 minutes.

Metric	**Legible (5)**	**Accuracy (5)**	**Organized (5)**	**Rationale for Study (5)**	**Describe Phenotype (5)**	**Graphs or Tables (10)**	**Data Analysis and Conclusions (10)**	**Time (5)**	**Total (50)**
Average	4.50	4.13	4.75	4.20	4.39	8.28	7.70	4.86	42.81
% Total	90.0	82.5	95.0	84.1	87.8	82.8	77.0	97.2	85.6
% Scoring ≥80%	94	81	97	88	81	**75**	**47**	97	91

2. Overall Oral Presentation Score: The average grade for this assignment was 42.81/50 points (85.6%). The range was 38.5-46.5 points. The overall % of students scoring ≥80% was 91%.

Evaluation Goal:

Our goal is for 80% of the students to earn 80% of the points on each metric. For this cohort, all metrics were achieved, except for Graphs or Tables (75%) and Data Analysis and Conclusions (47%).

Variation between groups or subgroups of students: Although the class appeared to be ethnically diverse (estimated 12 Hispanic, 1 Black, 13 Asian and 6 Caucasian students), the only subgroups of students that could be rigorously analyzed were males and females. There were 21 female and 12 male students in the course, with one of the males not completing an oral presentation. Regarding PLO-3, the female students performed slightly better, with an average of 42.9 vs. 42.7 for male students.

Graduate Examples

Example 1: Master of Fine Arts

3 out of 4 students demonstrated outstanding engagement in their personal research and studio practice by making and presenting a compelling body of work. These 3 students' presentation of work was ambitious in scale and production and relevant to issues and discourse relating to contemporary art practice. Students were able to identify both in their statements and through the work itself, pertinent influences as well as personal narratives, expressions and research interests. One student did not meet the outcome. They turned up 25 minutes late for the hour review meeting and did not prepare by having their presentation of work installed in advance. It was deemed by their committee that they were not adequately productive for a 2nd year grad student and that the work lacked conceptual or material rigor.

Some students were less able to articulate, in their statement writing, their process and intentions in making their work. These students instead wrote in a more poetic and evocative way which functioned as an additional art piece but did not help faculty gain a better understanding of the artistic intentions. This can be seen as relevant to the practice by some faculty and as a smokescreen by other faculty for students to obscure a candid discussion about their artistic intentions and rigor.

Example 2: Dance

For the PhD in Critical Dance Studies, we found that students did demonstrate comprehensive knowledge of the theoretical principles and methodological approaches that inform dance studies and were successful in applying these methods and theories to complex problems in dance studies.

From Anthea Kraut, chair of one of the PhD students' committees:
The student whose dissertation I chaired demonstrated a relatively firm grasp of dance studies methods and theories. Although the student's project changed radically over the course of her graduate career, her final project applied dance studies methods to questions of power and discipline in childbirth. The student used movement analysis and oral interviews (two core dance studies methods) as their primary methods to produce a nuanced argument about the discursive and corporeal tactics that women use during the prenatal, labor and delivery, and postnatal periods to navigate agency and push back against attempts to police their bodies. While the student was ultimately successful in articulating how her project utilized dance studies methods and theories, it did not seem to come easily to her and required careful guidance from the chair and committee members. This suggests that not all students, especially those who take a long time to degree, as in the case of this student, sustain an ability to articulate what dance studies methods and theories are between the time they are in coursework and the time they draft their dissertations.

From Jose Reynoso, chair of one of the PhD students' committees:
I chaired this student's qualifying exam and dissertation committees. The student consistently demonstrated ability to expand and adapt theoretical frameworks from dance studies and other relevant disciplines, first during his written and oral exam and later in the completion of his dissertation

on sociopolitical implications of *quebradita*, a Mexican American social dance form. As demonstrated in his written dissertation and defense, the student's theoretical foundation was complemented by the successful application of two core dance studies methodologies—ethnography (interviewing dancers and participating in *quebradita* activities in various cities in the US and Mexico) and choreographic analysis (analyzing how movement and other performance aspects around the dance form produce meaning with unique aesthetic qualities and sociopolitical implications). The student's dissertation argued that *quebradita* enabled dancers from the US and Mexico to form a bi-national community where they created diverse social and cultural identities in the midst of xenophobic and neoliberal forces. During the student's dissertation defense, members of the dissertation committee unanimously agreed that the student successfully applied his chosen theoretical frameworks and research methodologies in the development of the dissertation's central argument. The committee offered minor suggestions to be addressed before submitting the final version of the dissertation (the student submitted the revised dissertation to committee members before filing it) and suggestions to be expanded on in the future for an article publication and for a potential book manuscript.
For the MFA in Experimental Choreography, we found that students successfully demonstrated comprehensive knowledge of choreographic practice, methodological approaches to creating artistic work for built environments, mediated environments, and/or the concert stage.

Example 3: Chemistry

5.1 PhD program

Entrance Exams: The overall passing rate on the individual entrance exams was 67%. Student performance was not uniform, with a smaller fraction of students accounting for a significant fraction of the failed exams. In particular, 44% of students passed all four exams, 13% failed one exam, 23% failed two, and 13% failed three exams, and 8% failed all four. Looking at the individual sub-disciplines, passing rates for the analytical, organic, and physical sub-discipline exams ranges 68–73%, while only 56% of students passed the inorganic examination. The lower performance on the inorganic exam is not unusual in our experience, and it is attributed to the fact that the extent of student exposure to inorganic chemistry in undergraduate programs varies across institutions and within specific undergraduate majors (e.g. chemistry vs. biochemistry majors). At the other end of the spectrum, 37% of the exam outcomes were in the 75th percentile or better, indicating that a sizable fraction of our students are very well-prepared for graduate school. On the whole, the entrance examination data suggests that most students came in with reasonable mastery of undergraduate-level chemistry compared to their national peers, while about a quarter of the cohort were somewhat behind (failing 3–4 exams).

Coursework performance: Performance in coursework measures the extent to which students acquire the more advanced knowledge they need for their PhD research and remedy and deficiencies in their un- dergraduate training (as revealed by failing one or more entrance exams). Table 2 summarizes student performance as reflected in their course grades. The results are partitioned into the performance of students taking courses as part of their core sub-discipline (i.e. the sub-discipline which best fits their PhD research), courses taken to remedy failed entrance examinations ("deficiencies"), and all courses together. The core course GPAs reflect student performance in their chosen specialties, so it is unsurprising that these are rel- atively high. The lower mean GPAs in the physical and inorganic core courses are partially skewed by a handful of poorly performing students. A second possible explanation for the lower GPAs in these two sub- disciplines is that these two sub-fields represent the most likely concentration area for students working in materials chemistry. Materials chemistry is rapidly growing field which many of our faculty work in. How- ever, our department lacks a specific formal sub-discipline track for this area. Instead, students informally take a mixture of physical

chemistry, inorganic chemistry, and special topics courses. A sub-discipline that focuses more directly on those students' training needs would be beneficial.

Students taking courses to satisfy entrance exam deficiencies also perform fairly well. We interpret this to mean that while some students start the program with less preparation, they are intelligent and motivated enough to succeed. Individual student grades below a B are fortunately rare. Only four students in this cohort received grades below this threshold, spread out across 7 courses (3% of all grades assigned) These same students contributed disproportionately to the lower average GPAs in the physical and inorganic sub- disciplines. It is also worth noting that some of these courses receive appreciable enrollment from outside chemistry through cross-listings and other enrollments. In other words, the strong GPA data here is partially indicative of our students' successful performance in a larger pool of students beyond just chemistry.

Figure 1 examines the relationship between the entrance exams and coursework performance. While the correlation is modest, there is a general trend toward students who performed better on the entrance exams also earning higher grade-point averages in their coursework. This is encouraging on several fronts. It suggests that our entrance exams are reasonably successful in identifying students who are well-prepared for graduate school. In particular, students whose average entrance exam score is in the 50th percentile or better (i.e. passing) mostly have GPAs of 3.50 or better. Another fraction of students struggled on the entrance exams, with average scores in the 20–50th percentile, but many of them are able to succeed in their courses with hard work and faculty mentoring.

Finally, there were three problematic cases in this PhD cohort, as indicated by the green circles in Figure 1. These three students accounted for five of the seven grades below a B in the cohort. Two of these students were dismissed from the program for having GPAs below 3.0 after two quarters, and both performed poorly on the entrance exams. The third student has earned an overall coursework GPA of 3.25, but her progress through the program has been a challenge. She had a GPA below 3.0 in her first quarter, though she managed to raise it the following quarter to stay in the program. Since then, she failed the qualifying exam on the first attempt, and she is due to repeat it a second time in the near future. The students with the next two lowest entrance exam scores have done slightly better in courses, though they have both changed research groups along the way as a result of slower research progress and friction with their original dissertation advisors. One of those students also accounted for the remaining two course grades below a B.

Overall takeaways from the data are:

1. Students who perform well on the exams usually succeed in the program, while those failing 3–4 exams are more likely to struggle in the program. While student performance on entrance exams is an imperfect predictor of subsequent performance, they do provide valuable early information about student abilities and the supports that will be needed.
2. The vast majority of our students are acquiring the necessary foundational material in the courses. Even many of those who come in under-prepared (as measured by the entrance exams) are able to meet program coursework requirements and do subsequently pass the qualifying exam.

5.2 Plan II MS program

The low enrollment (three students) in the Plan II program makes detailed parsing of the statistics less meaningful. Nevertheless, we find that two of the three students passed all four entrance exams, while the third passed only one. However, all three were able to perform reasonably well in their courses,

earning a 3.45 average GPA in their core courses and 3.61 GPA overall. As shown in Figure 1, the performance of the Plan II MS students was consistent with that for students in the PhD program.

Table 1: Average percentile and student passing rates for students in the PhD and MS Plan II degree programs foreach of the four sub-disciplines and overall.

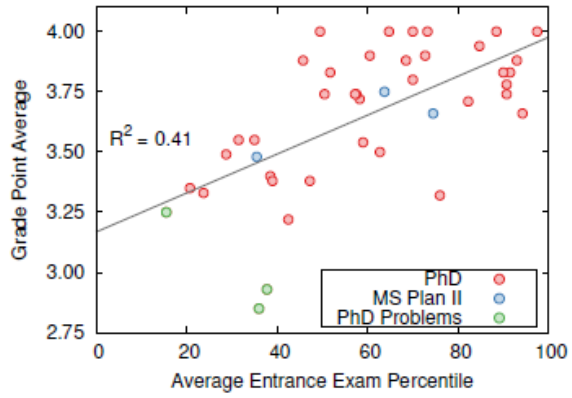
Sub-discipline	PhD (39 students) Mean Percentile	PhD (39 students) Fraction Passing	Plan II MS (3 students) Mean Percentile	Plan II MS (3 students) Fraction Passing
Analytical	56.7	68%	52.3	67%
Inorganic	54.5	56%	52.0	67%
Organic	64.8	71%	43.3	67%
Physical	62.7	73%	82.7	100%
Overall	59.7	67%	57.6	75%

Table 2: Average grade-point average (GPA) for students in this cohort for their core courses in the various subdisciplines, for courses they took to remedy entrance exam deficiencies, and overall. The number of students taking courses of each type is indicated.

Course type	# of Students	Mean GPA
PhD Core Courses: Analytical	8	3.74
PhD Core Courses: Inorganic	5	3.52
PhD Core Courses: Organic	9	3.93
PhD Core Courses: Physical	13	3.54
MS Plan II Core Courses: All[a]	3	3.45
Deficiency Courses:	16	3.58
PhD: All courses	39	3.66
MS Plan II: All courses	3	3.61

[a] MS Plan II data is aggregated across all four sub-disciplines due to the small number of students.

Figure 1: Correlation between average entrance exam score (percentile) and grade-point average in the graduate courses.



Example 4: Geological Sciences

A summary of the GEO 250 evaluations is presented below, using pie charts. The data is broken down into Winter (advanced students) versus Spring (first year students) Quarter. In general, all five evaluated areas (content, visuals, delivery, questions and overall) are consistently in the very good to excellent

category for both groups of students, with a very small percentage in the fair category. For example, 37.7% and 42.3% of the Winter evaluations ranked content as excellent and very good, respectively. Similar results exist for visuals with 39.9% excellent and 37.3% very good; and delivery with 35.7% excellent and 40.8% very good. As mentioned above, a lack of adequate time for questions resulted in 50.9% "N/A" evaluations for ability to address audience questions. The overall presentation evaluations for Winter Quarter are 34.7% excellent; 45.2% very good; 17.3% good; and 2.6% fair.

Surprisingly, Spring Quarter presentation evaluations (first year students) are very similar—if not better—than those during Winter Quarter. For example, 41.3% and 33.3% of the evaluations ranked content in Spring Quarter presentations as excellent and very good, respectively. Visuals yielded 46% excellent and 33.3% very good; Delivery yielded corresponding percentages of 34.9 and 47.6%. With more time for audience questions, Spring presentations yielded only 3.2% N/A, with excellent and very good rankings of 42.9 and 33.3%. Overall, Spring Quarter presentation evaluations yielded 44.4% excellent; 31.7% very good; 15.9% good; and 7.9% fair.

The very good to excellent evaluations of first-year student presentations suggests that our professional development courses are adequately preparing our new students to effectively communicate geoscience facts, theories and methods to colleagues, undergraduates and lay-people. This includes GEO 201A/B, which all first year students take in Winter and Spring Quarter of Year 1. The high evaluations may also show the value of individual mentoring from the student's PI—most faculty (if not all) have several one-on-one meetings with their new students regarding GEO 250 presentations, including practice GEO 250 talks.

One potential caveat in the similarity of the Winter and Spring presentation evaluations—less people participated in Spring Evaluations. Participation included both faculty, postdoc and students. So it is possible that less faculty (who might tend to provide more strict evaluations) participated in Spring. Evaluations, however, are anonymous, so this cannot be confirmed.

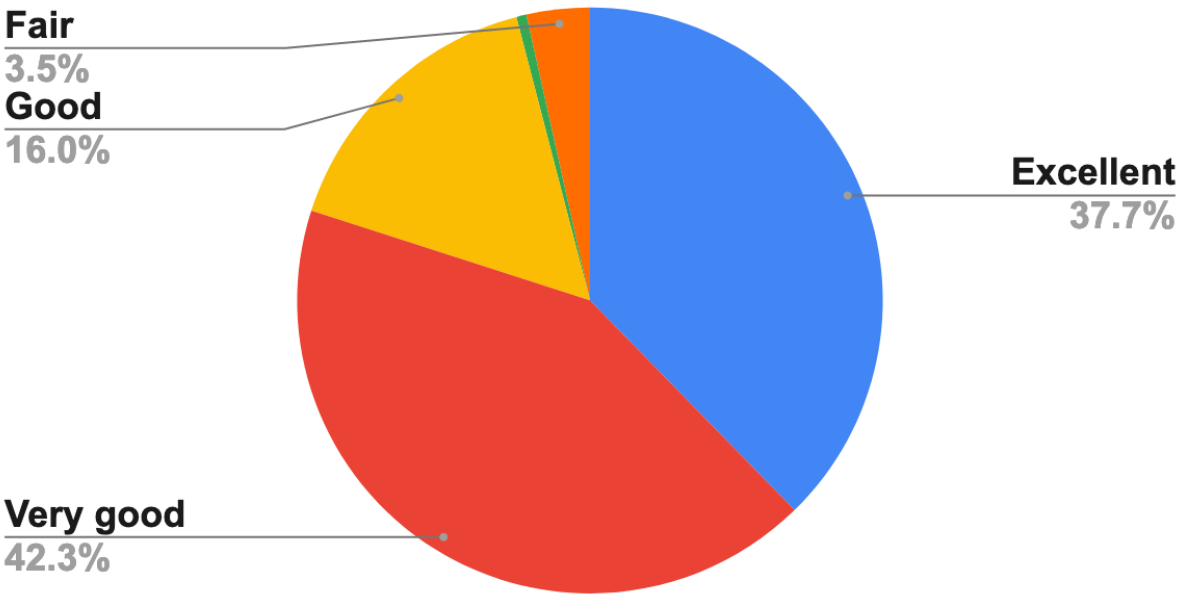
In addition to this data, evaluations also included short answer responses to address the strengths and the weaknesses of the presentation. Although difficult to summarize here, a few of the more common weaknesses include:

Content
More motivation of topic/research question in the beginning
Better description (in straightforward terms) of the implications of the work
Visuals
Slides too busy
Text too small
Delivery
Spoke too quickly
Too shy/spoke too softly

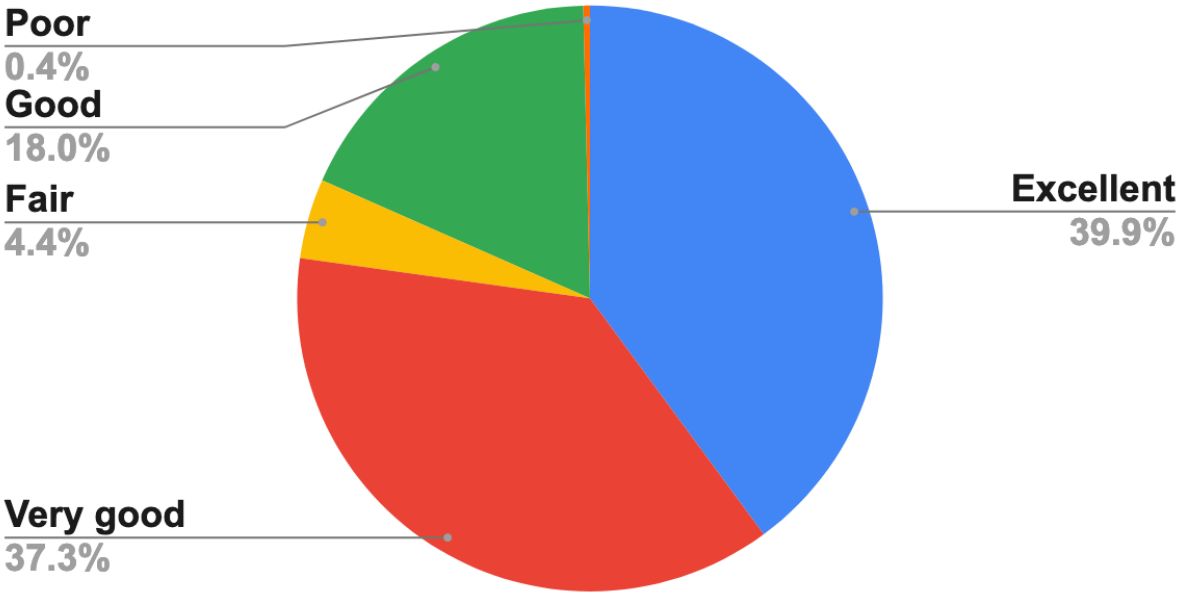
As mentioned above, students have received this detailed feedback, with the goal of improving their communication and ability to present research.

Winter 2021 (non-first year students)

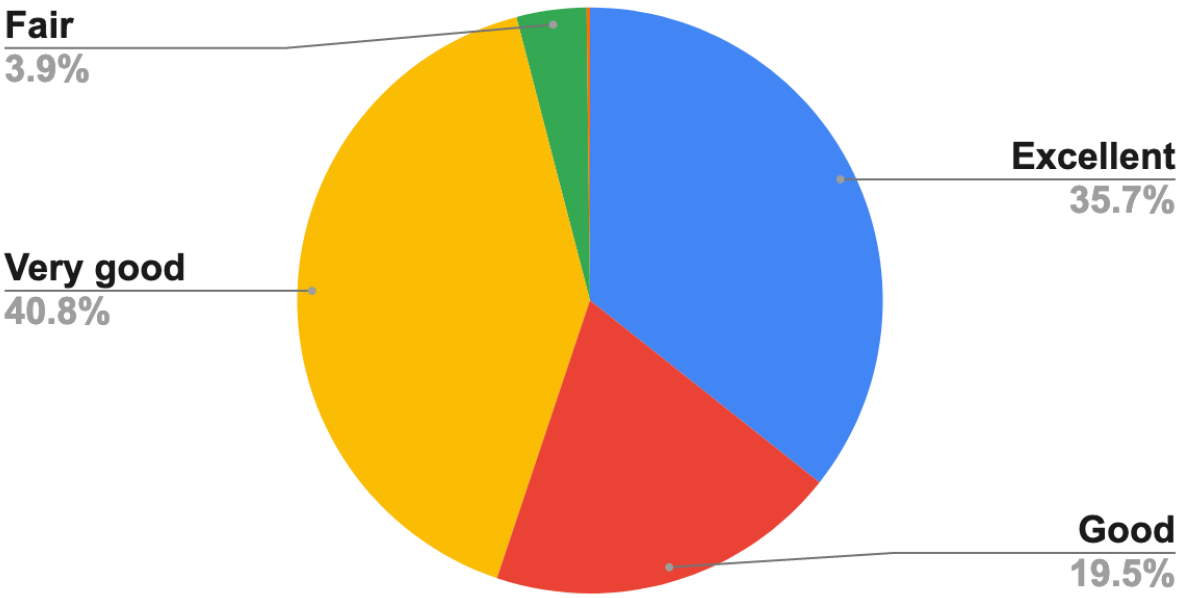
What is your assessment of the content of the presentation?



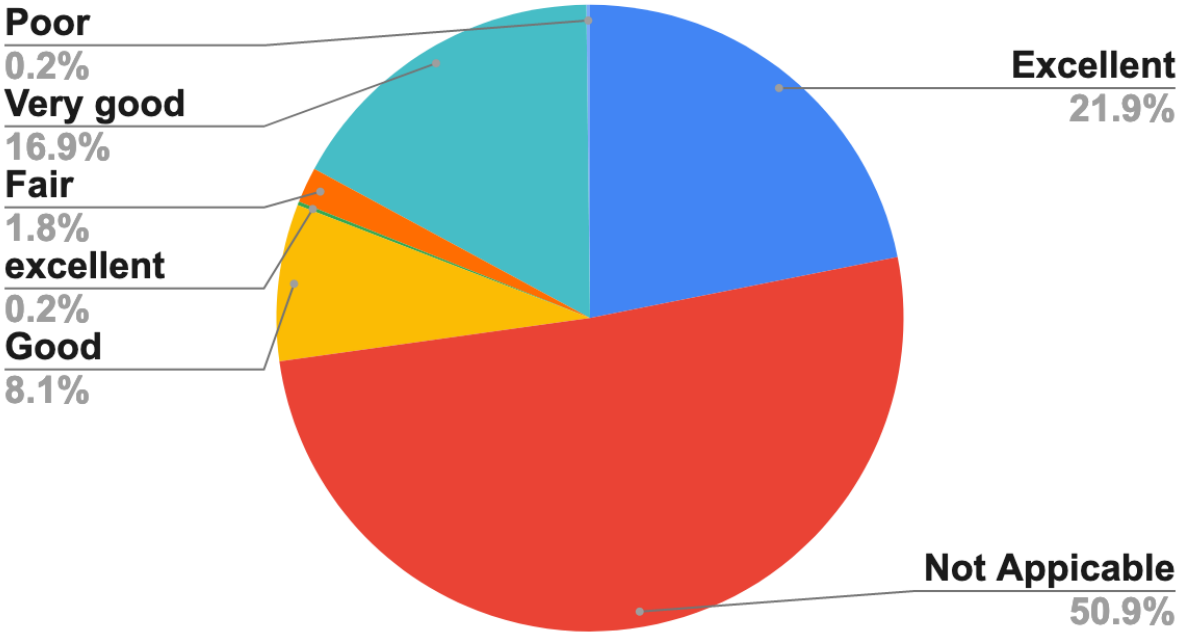
What is your assessment of the visuals of the presentation?

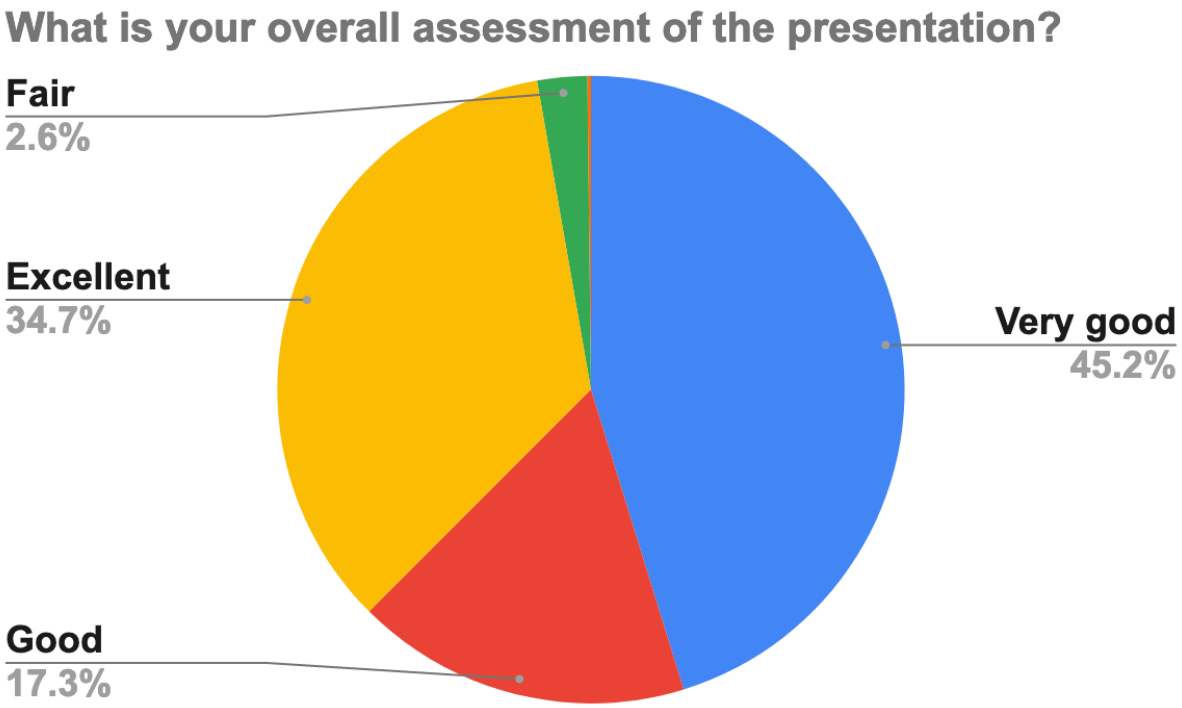


What is your assessment of the delivery of the presentation?

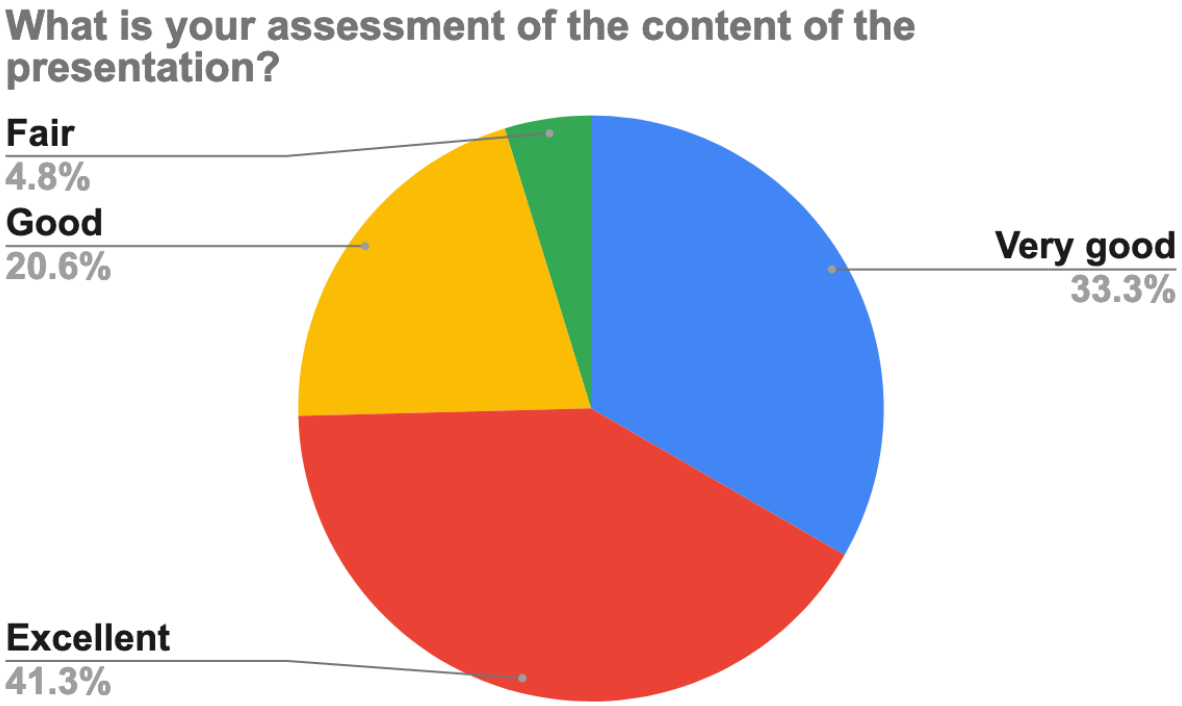


How well did the presenter answer audience questions?

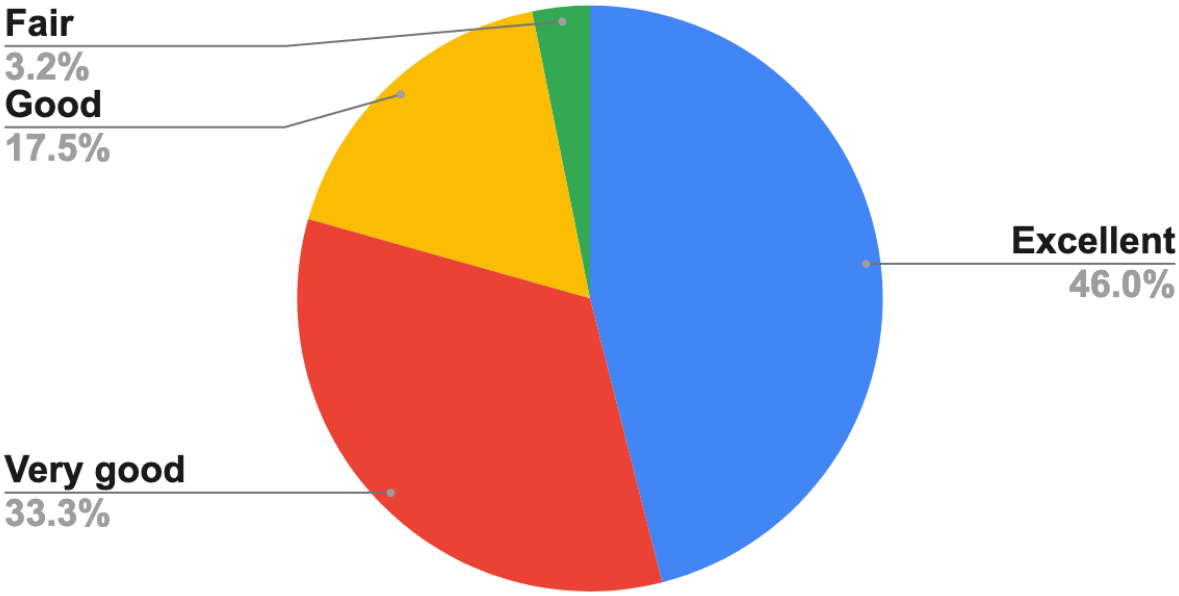




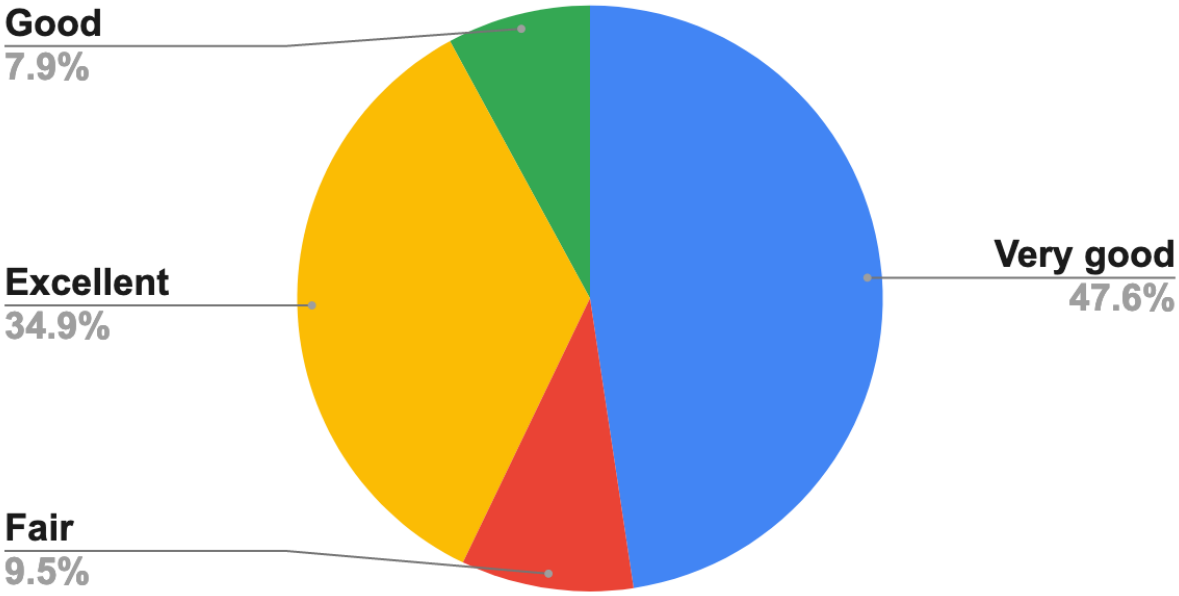
Spring 2021 (first year students)



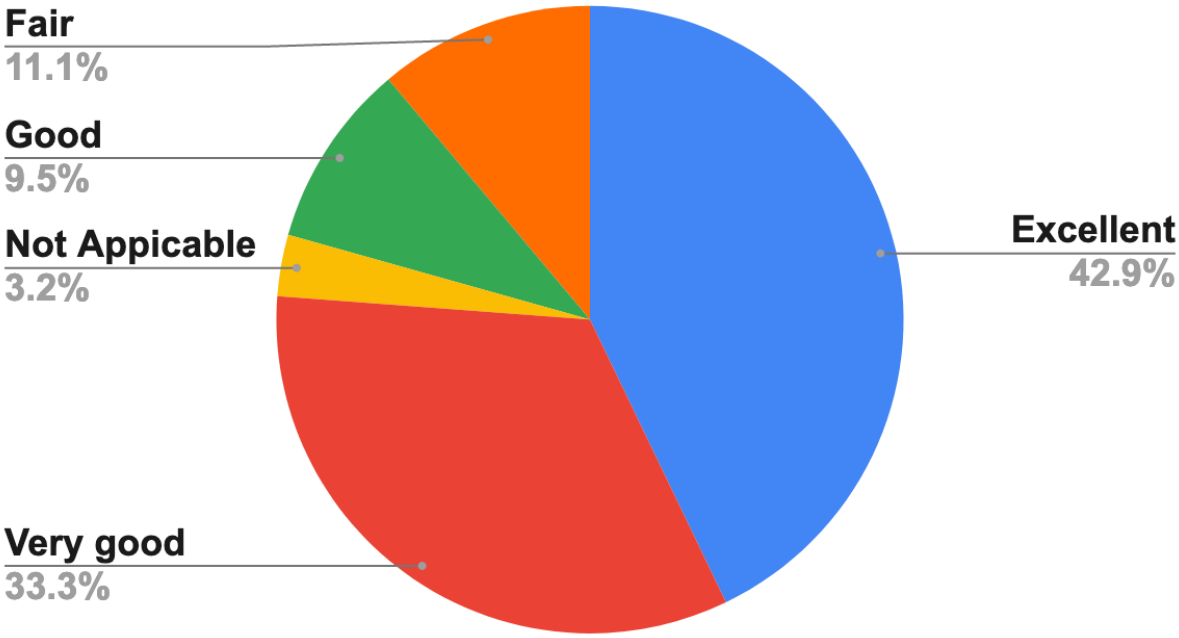
What is your assessment of the visuals of the presentation?



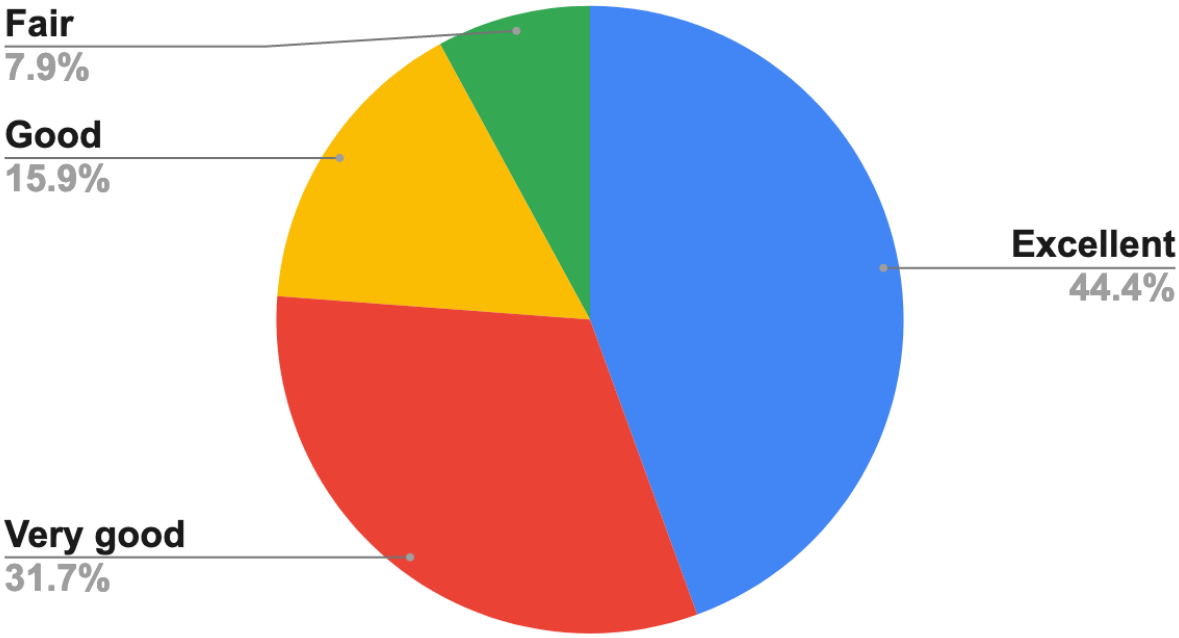
What is your assessment of the delivery of the presentation?



How well did the presenter answer audience questions?



What is your overall assessment of the presentation?



Recommendations

Undergraduate Examples

Example 1: Creative Writing

There are two possible strategies for addressing the concerns outlined above:

- **Curriculum redesign:** The department may want to consider a series of craft classes targeted by genre and craft element. This would ensure that all students receive instruction in all central elements of craft in their genre. While unlikely, the broad range of approaches makes it possible for a student to complete all coursework without having a central element of craft addressed.

- **Shared goals:** In the absence of a curriculum redesign, faculty may want to consider developing a list of central craft elements and techniques for each genre. This list could be used to coordinate offerings in 176 and other classes to ensure that some or all faculty are teaching items on the list.

- Revise learning objectives. Below is one suggested set, with 3 learning objectives:

CRAFT OF WRITING

1. **Sentence-level writing**
   Students will be able to effectively compose sentences that display the following:
   a. **Diction**: writing displays careful word choice to achieve distinctiveness of voice, point of view, imagery, figurative language, characterization, and perception.
   b. **Grammar**: writing displays a mastery of conventions of the English language, including *Intentional* "non-standard" syntax and grammar that contribute to the meaning. Writing is free of *unintentional* violations of conventions that do not contribute to the meaning.
2. **Whole-document level writing**
   Students will be able to effectively manipulate and control the structure in service of the intended meaning. The structure will vary by genre -- poetic form, argument, plot. This includes arrangement of the parts of the text that are mid-level – scenes, stanzas, or sections – in an order that progressively accumulates meaning.

3. LITERACY AND COMMUNITY
   service of their writing, students will be able to:
   a. conduct independent, curiosity-driven research and reading across genres, disciplines, literary schools, and cultures (Reading may include published or unpublished work);

and then communicate in writing their analyses and evaluations of the technical elements of writing encountered in their research and reading.

Example 2: History

We will continue to monitor the impact of our 2019 curriculum changes (freshmen seminar, new pathways) on learning outcomes. It will take at least 2-3 years to gain a more complete picture. But the preliminary results of this year's assessment demonstrate that we are on the right track, particularly with regard to the key areas of historical analysis and treatment of sources. We will continue to emphasis these areas in our teaching. However, there seems to be a serious need for improving

students' written performance. Again, this is a skill that is emphasized already in the freshmen seminar and we therefore hope to see some improvements in this area as well during the next years. But it is something we need to address more consciously. A good place to start would be having discussions about student writing in department meetings/workshops.

Several faculty members who participated in the assessment this year expressed concern that the ten weeks allotted for the HIST 197 research seminar do not allow sufficient time to develop a cogent research project. It remains a challenging balancing act for our students for three principal reasons. First, they need to become familiar with relevant secondary literature (historiography) to have sufficient contextual information to draw on; second, they have to select and analyze primary sources; and finally, they have to find enough time for writing and editing. Perhaps the relatively weak performance of our students in writing proficiency can in large part be attributed to the lack of sufficient time. This is something we need to discuss as a department.

Faculty members also agree that the creation of specific pathways within the History major allows students to focus on particular topics, regions, and time periods earlier in their careers. This will permit them to acquire contextual information early (both in terms of "historical knowledge" and "historical analysis") and enter capstone seminars with better preparation. Thus, there is a good chance that the new pathway approach will decrease the time pressure currently experienced by students; once they are more thoroughly prepared in their respective fields they should have more time for writing up the results of their research with greater cogency and clarity. Additionally, we believe that student engagement and 'ownership' will increase when they are following a pathway that they themselves crafted in consultation with a faculty member.

Example 3: Cell, Molecular, and Developmental Biology

The multi-year enrollment data and individual student surveys confirm that the CMDB program is generally healthy. The major has some challenges to becoming a more streamlined program of study, and meeting increased enrollments in the long run, for which our recommendations are:

1. Create more upper-division research experiences for CMDB students through research-based courses and increasing laboratory training options with individual labs.
2. Provide incentives for professors to have undergraduates in their labs and to advertise such opportunities through the courses they teach.
3. Increase the number of qualifying courses for the CMDB major by creating new courses and adding eligible courses from other departments.
4. Work with the life science majors to reduce lower-division requirements in Chemistry and Physics.
5. Find ways to streamline progress through the major to reduce dependence on academic advising, for example by introducing a third-year assessment of student progress that could be evaluated by the major steering committee.
6. The program is due for an external evaluation by the Committee on Education Policy. The results could help provide external resources to make changes to the major.

Example 4: Mathematics

We will try to have some instructors use initial background assessments to identify the topics that the incoming class might need help with and to identify students who are at risk of struggling with the class due to background reasons that could frequently be easily corrected if identified timely.

We will further encourage the use of Microtutorial videos in the calculus classes to connect the abstract material to real-world applications. We will work to find ways to help students as our assessment found that they do not perform as well on questions that have to do with making a connection between the theory and the real world, compared to how they perform in computational questions.

We will move the oral presentations in the undergraduate research program to the ninth week of the spring quarter, and we will explore strategies to give useful feedback on these to the students.

This response is expanded further below in the response to question 8.

Graduate Examples

Example 1: Dance

For the PhD in Critical Dance Studies: The assessment shows that the methods the program is using to cultivate proficiency in dance studies methods and theories are, for the most part, effective. By progressing from coursework to qualifying exams to researching, drafting, and revising the dissertation, students are able to ground their projects in dance studies methods and theories, adapt these methods and theories to the particular needs of their own project, and articulate how projects draw on and contribute to dance studies as a field of methods and theories. This suggests several things that are working well: 1) students are exposed to sufficient dance studies scholarship during coursework and during their qualifying exams; 2) the requirements for the composition of qualifying exams and dissertation committees (at least 3 inside members for oral exam committees; at least 2 inside members for dissertation committees) is helping to ensure that students remain grounded in dance studies; and 3) committee chairs are ensuring that students identify dance studies methods and theories in the framing of their projects. All of these practices are worth preserving and continuing.

At the same time, the difficulty one student had articulating dance studies methods and theories without input from her committee suggests that students don't always maintain a clear sense of these methods and theories over the course of their graduate career. The PhD Affairs Committee in the department has begun conversations about revising our PhD core courses, which currently are not explicitly framed as methods and theories courses. In some cases, this would involve re-naming core courses (Historical Approaches to Dance Studies, for example, could become Archival Methods in Dance Studies). In other cases, it would involve converting electives into core courses (i.e., making Oral History and Ethnographic Methods a required core course). The PhD Affairs Committee plans to continue these conversations about how a possible re-organization of our core courses around cornerstone dance studies methods and theories and *naming them as such* might facilitate greater success in Learning Outcome 1.

For the MFA in Experimental Choreography: The assessment shows that the methods the program is using to cultivate comprehensive knowledge of choreographic practice and methodological approaches to creating artistic work are working.

Example 2: Political Science

Both faculty and students in the program are generally well aware of the department's goal of improving employment outcomes. As such, much of the labor of mentoring individual students in their employment-seeking has traditionally been done by individual faculty advisors. In recent years, the department has recognized that a more systematic approach may be required. We have held regular workshops addressing the job market in different sectors (ie. 4-year vs. 2-year institutions), which students report they have benefited greatly from. This year, the Department has created a new position

of Director of Placement—in this role, the appointed colleague will work directly with students seeking employment. While placement and employment outcomes are partially a reflection of the Department's standing in the discipline, it must also be recognized that they are simultaneously a reflection of individual students' (and their mentors') specific projects, plans, capabilities and fit with available opportunities. Along with this comes the recognition that the COVID-19 pandemic is likely to produce a new era of reduced employment opportunities, particularly in academia. This, combined with general trends that shift hiring increasingly toward contingent faculty, causes us to inject a note of realism into our preparations moving forward. While we intend, of course, to continue our best efforts in training, mentoring and preparing our students for excellent employment outcomes, we do them a disservice if we do not identify alternatives to academic careers for which many of them may be well-suited, and assist them in pursuing such alternatives. Therefore, much of our work moving forward will be geared toward a two-pronged strategy of continuing our ongoing training of students in the pursuit of academic opportunities (both R1 and liberal arts, including both 2-year and 4-year institutions), while concurrently investigating and encouraging the pursuit of non-academic opportunities among those interested in or suited to such employment.

Example 3: Chemistry

7.1 PhD Program

Based on the data here, the following recommendations are made:

1. ***Utilize entrance exam scores to advise first-year graduate students.*** While some chemistry graduate programs at other institutions have dropped entrance examination requirements, we believe the assessment data here highlights the value of these exams for our program. The Graduate Advisor relies heavily on student entrances exam scores in first-year student advising, and that process should continue.
2. ***Address student weaknesses in inorganic chemistry.*** As discussed above, the comparatively poor performance on the inorganic chemistry entrance exam has been a consistent feature in recent years. In response, instructors in the introductory course in the inorganic sequence (CHEM 231A) have adapted their instruction to train students who need a stronger background in inorganic chemistry in addition to those specializing in the field. The department also retains the option to allow students to petition to take undergraduate inorganic chemistry instead of the graduate-level course, if needed.
3. ***Consider entrance exam and coursework performance during the qualifying exam.*** While the primary assessment of Learning Outcome #1 occurs through the entrance exams and individual courses, the qualifying exam at the end of Year 2 represents a milestone where this knowledge is applied. It is standard practice for the exam committee to review this information prior to starting an exam to understand which aspects of a student's knowledge should be assessed during the exam. This practice should be continued.
4. ***Establish a fifth sub-discipline in Materials chemistry.*** This topic has been discussed within the department for several years, but progress has been stymied by the lack of faculty FTE who could teach these new courses regularly without interfering with our other departmental teaching obligations. The department will continue petitioning the administration for the faculty hires needed to grow our program and address this need.

7.2 MS Plan II

The Plan II MS program appears to be functioning as intended. Students often perform slightly worse on the entrance exams and in coursework compared to their peers in the PhD program, but this is not surprising. No specific recommendations were identified.

Example 4: Entomology

Overall, our graduate students are meeting our outcome #5: are effective teachers. We were especially impressed with the overall positive comments on iEval and the clear excellence of our three Outstanding Teaching Assistant Award nominees. Our analysis identified that ENTM 302 -Teaching Practicum is underutilized and that our graduate students feel that opportunities for pedagogical training is uneven, so there is clearly room for improvement. We therefore plan to:

1) Clearly communicate to all faculty and students the purpose and availability of ENTM 302. It is clear that not all students and faculty utilize this course, which formalizes feedback and pedagogical training for our teaching assistants. ISAC will send email announcements to both faculty and graduate students before the 2021/22 AY begins to put this class on their radar. We will also work with EGSA (the Entomology Graduate Student Association, which has a representative on ISAC) to be sure that the graduate students know of this course. Finally, we will act upon last year's recommendation to add explicit mention of ENTM 302 to the graduate student annual report/individual development plan.

2) Continue to solicit feedback from our graduate students. While the response rate was low, our survey allowed us to identify the unevenness of pedagogical training that our students receive. We will therefore send out an annual survey to our students to continue to elicit feedback.

3) Reward excellence in student teaching. This year we provided monetary awards to three students for their excellence in teaching. The Department of Entomology will continue to provide a $500 award to the recipient of the Outstanding Teaching Assistant award.

Multi-Year Assessment Plans

Undergraduate Examples

Example 1: Business Administration

We follow the practice of annually assessing all learning outcomes. The Undergraduate Academic Program Committee reviews the previous year assessment plan and revises it if needed. In general, consistency across years (e.g., using the same course and assignment to assess a specific learning goal) is desirable, hence, methodological changes for year to year are unlikely.

Please note that in this academic year (20/21) we will also assess the other three learning outcomes (Problem Solving Skills, Professional Integrity / Ethical Reasoning Skills and Global Context Skills). The assessment has been done at the end of the Spring term and the results are not available yet. The results will be available during the summer and the Undergraduate Academic Program Committee would review the results in the Fall term (2021) and would decide if any changes/revisions to the curriculum are warranted.

Example 2: Comparative Literature and Languages

Our learning outcomes are interlinked, and each relates back and forward
to more than one other outcome: SLO #1, proficiency in one language other than English, contributes to historical, social, and cultural knowledge, and it forms a basis for textual analysis, which is a crucial dimension of critical study and interpretation; SLO #2, close reading, is a foundational interpretive experience and way of interacting with language and literary, social, media, and cultural objects, which informs how one engages in research and writing; SLO #3, research, is the nexus that links SLO #1 and #2 to SLO #4, because it trains students in the understanding and use of primary and secondary sources in the framing of questions and the crafting of writing projects; SLO #4, writing, is an initiating, culminating and ongoing practice that integrates language competencies with close reading and research.

Beginning in AY 2021-22, we'll initiate a several-year-long collective reflection on writing, beginning with an emphasis on SLO #4; in a several-year cycle we will move toward an emphasis on SLO #3, and then to SLO #'s 2 and 1—all the while circling back to each as we discuss the particular dimensions of any one of them. This integrated and focused approach will enrich our pedagogical practice as a community of teachers, learners, and scholars, and our students' experience—across linguistic and cultural fields—as writers, readers, and learners.

Plan outline:

2019-2020: Revised Student Learning Outcomes
2020-21: Revised structure of required courses, replace CPLT 2 with "any lower-division CPLT course" (discussed above, under #1).

2021-22: Initiate a focused conversation on SLO #4 (Writing), with a particular attention on student learning and assessment, at a faculty meeting in Fall 2021. Develop a collaborative plan regarding how to move forward. Assess our plan in Spring 2022.

2022-23: Discuss, at a Fall faculty meeting, how our collaborative plan may have impacted our approaches to teaching writing, structuring assignments, student assessment, and other matters that

may have arisen in Fall 2021 and Spring 2022 (all of this with a focus on SLO #4). Discuss how this may impact our teaching during AY 2022-23. Assess this impact in Spring.

2023-24: Discuss, at a Fall faculty meeting, how we might link our conversations about SLO #4 (Writing) to SLO #3 (Research); open a conversation about how we teach the use of primary and secondary courses in research and writing projects, and how that may enhance and support our approaches to teaching writing (SLO #4). Develop a collaborative plan regarding how to move forward, with an emphasis on SLO #3. Assess the plan in Spring.

2024-25: Shift our focus to SLO #3 (Research), while also maintaining an attention to its relation to SLO #4 (Writing). Open a conversation in Fall regarding how we teach students to use primary and, in particular, secondary sources in scholarship in literature studies writ large. Develop a collaborative plan regarding how to move forward. Assess our plan in Spring.

Example 3: Entomology

We plan to continue to assess our LO1, LO2, LO4, and LO5. We will continue using the survey methods for LO1. LO2 will be evaluated through extraction of scores from examinations or collections in our ENTM 107 (identification of ~145 common insect families). ENTM 107 typically covers a) sight identification (i.e. insect specimen is identified by the student without the help of identification keys, etc.) to order level (Quiz 1); b) sight identification to family level (Quizzes 2-9; Final); c) identification of insects collected and curated by the student, using identification keys and software (insect collection grade). We will utilize following rubric: Sophisticated (S) insect identification skills (no or very few incorrect identifications for both sight ID and key/software-aided ID): 90-100%; Competent (C) insect identification skills (some incorrect identifications): 80-90%; Needs work (NW) insect identification skills (incorrect identifications relatively frequent): 70-80%. LO4 will be assessed by using ENTM 180 Capstone Research Seminar in Entomology for 2020-2021 academic year. Quantitative reasoning component in LO1 and LO4 will be assessed using Insect Ecology class (ENTM 127). LO5 will be assessed with Exit Interview Survey with graduating seniors. The bioassessment exercise carried out in ENTM 114 will be used to assess LO3. The students discuss the rationale and approach/methods, collect the data, do some analyses (though the instructors do most of the analyses), and then interpret their findings in a report. It contains a research exercise that includes a writing component.

Example 4: Earth and Planetary Sciences

The assessment plan was simplified for this year compared to that proposed in the previous (2019-20) LO report, and this new simplified plan will be used going forward. In consists of a sliding window in LO space, that is advanced each year by 1 LO. The window width is 2 (LOs). This is to catch courses that do not run ever single year and to ensure that for a particular LO, a course will be evaluated in at least 1 of 2 successive years. (The obvious alternative, whereby a single LO is chosen and evaluated 2 years in a row, would mean that it would take 14 years to fully evaluate all 7 LOs in the program.) The proposed assessment cycle is hence now: 2021-22 – LO5, LO6 2022-23 – LO6, LO7 2023-24 – LO7, LO1 2024-25 – LO1, LO2 2025- 26 – LO2, LO3 2026-27 – LO3, LO4 2026-27 – LO4, LO5 To help ensure that data is obtained from all r levant courses, the Google Forms will be made available at the start of the new academic year (rather than just much closer to when the report is due).

Graduate Examples

Example 1: Art

Attached is a multi-year plan that will allow all outcomes to be assessed before the next program review and the suggested program activities where we should be collecting the evidence for assessment of the outcome.

Where a specific course is mentioned the Graduate Advisor would work with the instructor(s) to make a plan for student work collection and/or proper documentation in place for collecting evidence.

Program Outcome	Stage	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Program Outcome 1	Planningand Data Collection	X					
Engagemant in making	Assessment and Analysis	X					
1st and 2nd Year Review statements, presenations and letters	Reflection and Closing the Loop		X				
Program Outcome 2	Planning and Data Collection	X	X				
Analysis of theoretical and historical Issues	Assessment and Analysis		X				
ART 240 Essay and or thesis written document	Reflection and Closing the Loop		X	X			
ProgramOutcome 3	Planning and Data Collection				X		
Critical self and peer evaluation	Assessment and Analysis				X		
Art 285 (work with instructor to collect evidence)	Reflection and Closing the Loop					X	
Program Outcome 4	Planning and Data Collection				X	X	
Proficiency in art making	Assessment and Analysis					X	
1st and 2nd Year review/exhibition and or thesis exhibition	Reflection and Closing the Loop					X	X
Program Outcome 5	Planning and Data Collection					X	
Professional Preparedness	Assessment and Analysis						X
Thesis exhibtion installation documentation	Reflection and Closing the Loop						X

Example 2: Evolution, Ecology, and Organismal Biology

Our assessments will have a four year- cycle as follows: Year 1 (2019-20): Outcome 5 – This assessment was a review of the training and performance of the recent graduates from our program. Year 2 (2020-21): Outcomes 1 and 2: This assessment will be based either on the written qualifying exam or on the term papers produced in the graduate core courses. Year 3 (2021-22): Outcomes 1 and 2: This assessment will be based on student performance in the oral qualifying exam. It covers similar ground to the prior assessment, but involves reviewing student progress at a later stage in the students' careers plus an assessment of the oral research presentation that begins the oral qualifying exam. Year 4: (2022-23): Outcomes 3 and 4: This assessment will be based on formal presentations of completed research. Students have the opportunity to present research as part of our regular lunch bunch meetings (EEOB 265), at the annual GradFest, which takes place in March and is aligned with our recruitment of new graduate students, or at professional conferences. We will track the participation of all student presentations and will attend and evaluate those that happen on campus. We will expand our evaluation by reviewing videos of presentations at professional conferences if they are available. We are currently developing a rubric for these evaluations. We aspire to see all students present every year once they have advanced to candidacy and hope that these will include presentations at professional conferences. As we developed our multi-year evaluation plan we discovered that it was difficult to come up with definitive ways of evaluating learning outcomes 6 and 7. These represent aspirations for what we hope students will gain from their training here, but do not readily lend themselves to quantifiable or easily evaluated outcomes. We are currently considering revising our learning outcomes accordingly.

Example 3: Chemistry

The table below shows the multiyear plan for assessing the seven, six, and five learning outcomes in the Chemistry PhD, Plan I MS, and Plan II MS programs, respectively. The most challenging aspects on these will be collecting data regarding student publications, external fellowships, and conference presentations (e.g. PhD Learning Outcomes 3 and 6). Sufficient lead times will be needed to collect the data from individual faculty mentors. We also need to increase efforts to measure graduate satisfaction through exit interviews. Those efforts have faltered in recent years.

	Learning Outcome(s) Assessed		
Academic Year	PhD	MS Plan I	MS Plan II
2019–20	2 & 4	2 & 4	2 & 3
2020–21	1	1	1
2021–22	3 & 6	3 & 5	4
2022–23	7	6	5

Appendix 1: Annual Assessment Report Feedback Rubric

	Emergent (1)	Developed (2)	Highly Developed (3)	Unknown (0)
Reflection and Closing the Loop	Report only lists suggestions that were made for addressing assessment findings from the previous year.	Report indicates the recommendations that were made and the steps that were taken to address the recommendations from the previous year's assessment.	Report indicates the recommendations that were made and the steps that were taken to address the recommendations from the previous year's assessment. In addition, the report indicates the potential impact the implementation of the recommendations have had on achievement of the specific outcome.	
Student Outcomes	Student outcomes are vague or overly broad; outcomes do not suggest what students might be able to do to show mastery.	Most outcomes are reasonably clear and specific; some outcomes suggest what students might be able to do to show mastery.	Outcomes have unambiguous content; outcomes suggest what students would be able to do to show mastery.	
Alignment Between Outcomes and Learning Opportunities **(Map)**	Alignment between outcomes and learning opportunities is incomplete. Some outcomes not addressed in coursework and/or some coursework addresses no outcomes.	Alignment between outcomes and learning opportunities are articulated. Each outcome is addressed in at least one course and each course addresses at least one outcome.	Alignment between outcomes and learning opportunities is well articulated, and clearly shows where outcomes will be introduced, developed and practiced.	
Evidence of Learning **(Assessment Methodology)**	Quality of evidence is of questionable reliability or validity; limited amount of student evidence is used; only one type of evidence is used.	Quality of evidence is adequate or limited by practical concerns; amount of evidence used seems reasonable; more than one type of evidence was used.	Evidence is of good quality and/or steps were taken to overcome limitations; there is explicit justification for the quantity of evidence collected; more than one kind of evidence is used to add value to the overall process.	
Analysis of Evidence	Analysis is limited to totals or overall averages and/or analysis simply reports statistics with no reflection; analysis does not examine various dimensions of learning or performance across subgroups of students.	Analysis conveys a relatively complete picture of the evidence by making connections between various features of the assessment process; analysis looks at more obvious dimensions of learning or subgroups of students.	Analysis is insightful and makes connections between issues and higher level (e.g.: campus/disciplinary) trends; analysis examines various dimensions of learning in ways that are sophisticated.	
Sharing/Collaboration of Results (Covered in reporting process and not in actual report template)	Collaboration/sharing of results is limited, with little to no sharing of assessment findings across faculty in the program.	Collaboration/sharing of results is adequate, with the findings from the reports being shared across multiple to all faculty in the program.	Collaboration/sharing of results is exemplary, with the findings from the report being shared with all faculty in the program. In addition, all faculty are included in discussions that lead to the creation of recommendations/next steps in addressing findings from the report.	
Use of Assessment Results **(Recommendations)**	Recommendations are not evident or are disconnected from the analysis; there is no discussion of prior assessment work or follow up on previous recommendations.	Recommendations are clearly connected to the outcomes assessed or issues uncovered; there is some discussion of how assessment links to other issues or developments in the department; there is follow up or discussion of earlier cycles of assessment.	Recommendations are clearly connected to the outcomes assessed or issues uncovered; there is meaningful discussion of how assessment links to issues in the department; recommendations from previous cycles of assessment clearly support improvement.	
Multi-year Assessment Plans	There is no convincing discussion of plans for future assessment.	Outcomes to be assessed in the future are named; there is some understanding of when and where evidence will need to be collected.	Outcomes to be assessed in the future are linked to a multi-year plan for assessment; plans or discussions guide assessment efforts, including when and where to collect evidence.	

Appendix 2a: Undergraduate Annual Assessment Report Template

UNIVERSITY OF CALIFORNIA, RIVERSIDE
ANNUAL ASSESSMENT REPORT OF OUTCOMES FOR UNDERGRADUATE PROGRAMS
AY 2020-2021

All programs are required to a) have student outcomes, b) gather evidence to assess if students are meeting those outcomes, c) reflect and make recommendations pertinent to the unit based on assessment findings, and d) formally report on the process and their findings. The Annual Assessment Report is designed to facilitate the reflective aspect of teaching and learning, and to be supportive of the program review process at UCR.

The following questions/prompts will guide you through the submission of the Annual Assessment Report, which is focused on the direct assessment of at least one student learning outcome in your department. The sections below align with major expectations and the blue underlined text provides links to relevant sections of an online Assessment Handbook. The resources in the handbook are meant to provide general information about assessment, it is not intended to dictate how assessment should be carried out in every situation.

The Annual Assessment Report is due May 3, 2021.

Deans will review findings from Annual Assessment Reports and discuss the following with the Provost beginning in late summer, 2021:

1. Report findings and recommendations/next steps
2. Assessment process implementation
3. How to support identified recommendations/next steps

The Office of Evaluation and Assessment will provide assessment support to programs to perform direct assessment of student work. If you have questions or would like some support, please contact the office of Evaluation and Assessment at assess@ucr.edu. Workshops will also be provided throughout the year to support campus-wide assessment efforts including program-level completion of this report. For more information, please refer to the UCR Assessment Website, and be on the lookout for workshop announcements in your email.

Responsible college/school:

Insert response here.

Responsible department/program:

Insert response here.

Major(s) being assessed with this report:

Insert response here.

Report authors (names and email addresses):

Insert response here.

Additional faculty/personnel involved in the assessment
(Please list names and their involvement):

Insert response here.

Assessment Report Sections

1. **Reflection on any changes resulting from last year's assessment.**
    - Please share any decisions that were made and/or implemented as a result of last year's assessment findings. You should also share how those changes have impacted student learning or faculty teaching or both. This is meant to be a qualitative reflection on the application of assessment findings.

Insert response here.

2. **Student Learning Outcomes** (See STEP 1: Identify Outcome(s) to be Assessed in the Assessment Handbook)
    - If any of the outcomes have changed since last year, please list all of your student outcomes highlight the outcomes that were revised. Please describe the reason for the change and the process you utilized for changing the outcome(s).
    - Name the outcome that was, or the outcomes that were, assessed this year. (Reminder: You must assess at least one student outcome per year)

Insert response here.

3. **Alignment between outcomes and learning opportunities** (See STEP 2: Providing Aligned Student Experiences to Outcomes in the Assessment Handbook)
    - If there have been any changes to your program (addition or removal of a course, significant changes to a course that impact its alignment to program-level student outcomes, changes to your student outcomes, etc.) please provide a revised curriculum map indicating the change.
    - Please provide an explanation for the changes in the box below.

Insert response here.

4. **Method for Assessing Student Learning** (See STEP 3: Gathering Evidence of Student Achievement of Outcomes in the Assessment Handbook)
    - For each student outcome being assessed this year, please describe the form of direct assessment completed, (e.g., thesis/dissertation, comprehensive exam, assignment, embedded test questions, oral or written exam/paper, project, presentation, display, etc.), the process, and why this method was chosen.
    - Be sure to mention the numbers of courses, instructors or students involved.
    - If you only used a sample of student work, please describe how you chose the sample.

Insert response here.

5. **Analysis of Evidence** (See STEP 4: Analyzing Evidence in the Assessment Handbook)
    - Please summarize in written, tabular, or graphical form the results of the assessment. If relevant, include any performance expectations or benchmarks. Additional details to consider might be:
        - Patterns across major dimensions of learning analyzed
        - Variation between groups or subgroups of students
        - If established benchmarks were met
    - Details of who was involved in the analysis and in what ways would be very helpful.
    - Please include any relevant assessment criteria as an appendix (criteria, rubric, answer key, etc.)

Insert response here.

6. **Sharing Results** (See STEP 5: Documenting and Sharing Results in the Assessment Handbook)
    - How have the results been shared? When, and with whom, were the results shared? Was a version of this report circulated within the department? Was assessment discussed at a faculty meeting?

Insert response here.

7. **Recommendations/Next Steps** (See STEP 6: Using What You Have Learned in the Assessment Handbook)
    - How will you use what you have learned? Actions may include changes to individual courses or assignments, changes in course sequencing, increased cooperation among instructors, seeking co-curricular support for student learning, expanding student experiences, and/or communicating expectations better to students, among other possibilities.

Insert response here.

8. **Multi-year plans** (See information about Program Assessment Timelines)
    - What outcome(s) will be assessed in future years? Is there a multi-year plan that will allow all outcomes to be assessed before the next program review?
        - What steps might need to be taken to be sure the right kinds of student evidence can be obtained for the next cycle of assessment? This may mean working with instructors to ensure assignments are aligned, that student work is collected and archived, and/or that proper analytic tools (i.e.: rubrics, software, etc.) are in place when the time for their use comes.

Insert response here.

9. **Expanding Assessment Efforts**
    - In what ways have faculty in your department supported assessment efforts at UCR for the current academic year? Please check all that apply:
        - ☐Participated in an On-Campus Assessment Workshop
        - ☐Submitted Student Work for Assessment of Core Competency
        - ☐Participated on the Meta-Assessment Committee
        - ☐Participated on the Assessment Advisory Committee
        - ☐Participated on an Assessment Jury for Institutional Level Assessment
        - ☐Participated in an Assessment Professional Development or Conference Off Campus
        - ☐Mentored Another Program on Assessment Practices

10. WASC Core Competencies (See information on Core Competencies online) (Only for Undergrad)

- Please indicate 2 to 3 upper division course(s) in which each of the five WASC Core Competencies are addressed and reflected in student work from that course. A single course can meet, one, multiple, or none of the core competencies.
    - Written Communication

      Insert response here.

    - Oral Communication

      Insert response here.

    - Quantitative Literacy

      Insert response here.

    - Information Literacy

      Insert response here.

    - Critical Thinking

      Insert response here.

11. Appendices

Please make use of appendices to include other documents that seem relevant. You might include rubrics, assignments, examples of student work (with names removed), and documentation of discussion of assessment within the department or other documentation as it seems relevant.

Appendix 2b: Graduate Annual Assessment Report Template

UNIVERSITY OF CALIFORNIA, RIVERSIDE
ANNUAL ASSESSMENT REPORT OF OUTCOMES FOR GRADUATE PROGRAMS
AY 2020-2021

All programs are required to a) have student outcomes, b) gather evidence to assess if students are meeting those outcomes, c) reflect and make recommendations pertinent to the unit based on assessment findings, and d) formally report on the process and their findings. The Annual Assessment Report is designed to facilitate the reflective aspect of teaching and learning, and to be supportive of the program review process at UCR.

The following questions/prompts will guide you through the submission of the Annual Assessment Report, which is focused on the direct assessment of at least one student learning outcome in your department. The sections below align with major expectations and the blue underlined text provides links to relevant sections of an online Assessment Handbook. The resources in the handbook are meant to provide general information about assessment, it is not intended to dictate how assessment should be carried out in every situation.

The Annual Assessment Report is due May 3, 2021.

Deans will review findings from Annual Assessment Reports and discuss the following with the Provost beginning in late summer, 2021:

4. Report findings and recommendations/next steps
5. Assessment process implementation
6. How to support identified recommendations/next steps

The Office of Evaluation and Assessment will provide assessment support to programs to perform direct assessment of student work. If you have questions or would like some support, please contact the office of Evaluation and Assessment at assess@ucr.edu. Workshops will also be provided throughout the year to support campus-wide assessment efforts including program-level completion of this report. For more information, please refer to the UCR Assessment Website, and be on the lookout for workshop announcements in your email.

Responsible college/school:

Insert response here.

Responsible department/program:

Insert response here.

Major(s) being assessed with this report:

Insert response here.

Report authors (names and email addresses):

Insert response here.

Additional faculty/personnel involved in the assessment
(Please list names and their involvement):

Insert response here.

Assessment Report Sections

12. Reflection on any changes resulting from last year's assessment.

- Please share any decisions that were made and/or implemented as a result of last year's assessment findings. You should also share how those changes have impacted student learning or faculty teaching or both. This is meant to be a qualitative reflection on the application of assessment findings.

Insert response here.

13. Student Learning Outcomes (See STEP 1: Identify Outcome(s) to be Assessed in the Assessment Handbook)

- If any of the outcomes have changed since last year, please list all of your student outcomes highlight the outcomes that were revised. Please describe the reason for the change and the process you utilized for changing the outcome(s).
- Name the outcome that was, or the outcomes that were, assessed this year. (Reminder: You must assess at least one student outcome per year)

Insert response here.

14. **Alignment between outcomes and learning opportunities** (See STEP 2: Providing Aligned Student Experiences to Outcomes in the Assessment Handbook)
    - If there have been any changes to your program (addition or removal of a course, significant changes to a course that impact its alignment to program-level student outcomes, changes to your student outcomes, etc.) please provide a revised curriculum map indicating the change.
    - Please provide an explanation for the changes in the box below.

Insert response here.

15. **Method for Assessing Student Learning** (See STEP 3: Gathering Evidence of Student Achievement of Outcomes in the Assessment Handbook)
    - For each student outcome being assessed this year, please describe the form of direct assessment completed, (e.g., thesis/dissertation, comprehensive exam, assignment, embedded test questions, oral or written exam/paper, project, presentation, display, etc.), the process, and why this method was chosen.
    - Be sure to mention the numbers of courses, instructors or students involved.
    - If you only used a sample of student work, please describe how you chose the sample.

Insert response here.

16. **Analysis of Evidence** (See STEP 4: Analyzing Evidence in the Assessment Handbook)
    - Please summarize in written, tabular, or graphical form the results of the assessment. If relevant, include any performance expectations or benchmarks. Additional details to consider might be:
        - Patterns across major dimensions of learning analyzed
        - Variation between groups or subgroups of students
        - If established benchmarks were met
    - Details of who was involved in the analysis and in what ways would be very helpful.
    - Please include any relevant assessment criteria as an appendix (criteria, rubric, answer key, etc.)

Insert response here.

17. **Sharing Results** (See STEP 5: Documenting and Sharing Results in the Assessment Handbook)
    - How have the results been shared? When, and with whom, were the results shared? Was a version of this report circulated within the department? Was assessment discussed at a faculty meeting?

Insert response here.

18. **Recommendations/Next Steps** (See STEP 6: Using What You Have Learned in the Assessment Handbook)
    - How will you use what you have learned? Actions may include changes to individual courses or assignments, changes in course sequencing, increased cooperation among instructors, seeking co-curricular support for student learning, expanding student experiences, and/or communicating expectations better to students, among other possibilities.

Insert response here.

19. **Multi-year plans** (See information about Program Assessment Timelines)
    - What outcome(s) will be assessed in future years? Is there a multi-year plan that will allow all outcomes to be assessed before the next program review?
        - What steps might need to be taken to be sure the right kinds of student evidence can be obtained for the next cycle of assessment? This may mean working with instructors to ensure assignments are aligned, that student work is collected and archived, and/or that proper analytic tools (i.e.: rubrics, software, etc.) are in place when the time for their use comes.

Insert response here.

20. **Expanding Assessment Efforts**
    - In what ways have faculty in your department supported assessment efforts at UCR for the current academic year? Please check all that apply:
        - ☐Participated in an On-Campus Assessment Workshop
        - ☐Participated on the Assessment Advisory Committee
        - ☐Participated on an Assessment Jury for Institutional Level Assessment
        - ☐Participated in an Assessment Professional Development or Conference Off Campus
        - ☐Mentored Another Program on Assessment Practices

21. **Appendices**

    Please make use of appendices to include other documents that seem relevant. You might include rubrics, assignments, examples of student work (with names removed), and documentation of discussion of assessment within the department or other documentation as it seems relevant.