

ASSESSING STUDENT LEARNING AT CU BOULDER:

Campus resources for learning outcomes and assessment



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Agenda for Today

- Introductions
- Quick overview of “assessment cycle”
- Current work with Division of Social Sciences
- Timeline for future work with other academic units
- Tracking student learning using technology
- Resources on ODA assessment website
- Other campus resources



ODA Assessment Team

MISSION: The ODA Assessment Team provides leadership and centralized support to CU Boulder in the assessment of student learning and program effectiveness. Through collaboration with campus partners, we facilitate best practices that lead to data-informed decision making to promote student success at CU Boulder.

Amy (Biesterfeld) Nakatani, Ph.D.
Assistant Director for Campus Assessment



Kevin Hemer, Ph.D.
Assessment Analyst



Jessica Keating, Ph.D.
Assessment Analyst



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What is Assessment?

Assessment is an iterative process that collects data and uses the findings to determine next steps toward meeting a program's stated intentions. It is a cycle which allows for continuous improvement.



Assessment of Student Learning at CU Boulder

COURSE

- Course-Level Outcomes (CLO), e.g., listed on syllabus
- Are students learning what they should *in their class*?

PROGRAM

- Program-Level Outcomes (PLO), e.g., listed in CU catalog
- Are students learning what they should *in their major*?

INSTITUTE

- Institute-Level Outcomes (ILO), e.g. Baccalaureate LO
- Are students learning what they should *upon graduation from CU Boulder*?

**How ODA
Assessment
Team helps
with ARPAC
(initially
focusing on
undergrad
programs)**

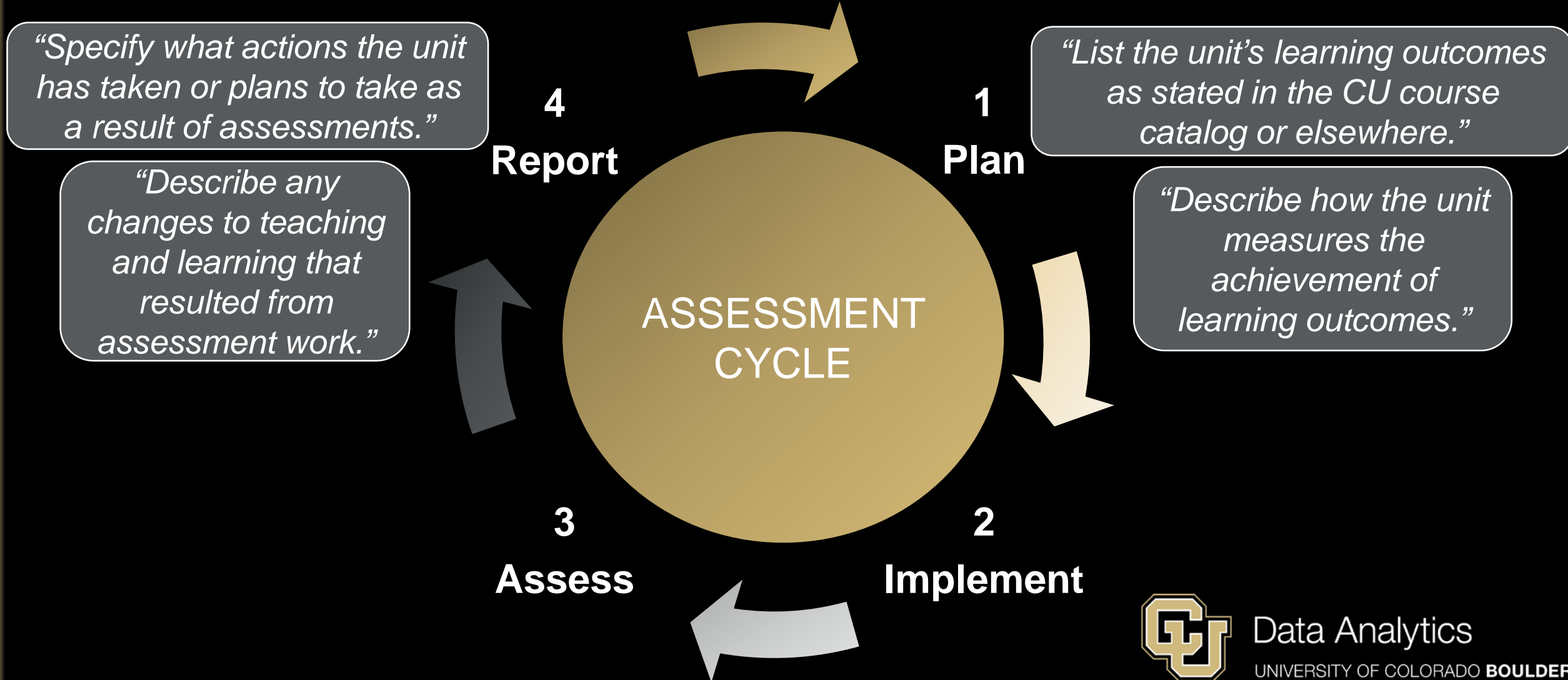


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ARPAC Self-Study Assessment Question

Task: Describe the unit's undergraduate and graduate learning outcomes assessment procedures.



Student Learning Assessment Planning & Reporting

ASSESSMENT PLAN (BEGINNING OF CYCLE)

- **Learning Outcomes** – What knowledge & skills do students in your program gain?
- **Curriculum Mapping** – In what courses do students learn these outcomes?
- **Assessment Method & Timeline** – How and when will you measure outcomes? E.g., class assignment, survey, etc.
- **Metrics/Targets** – What measures & target values will indicate when outcomes are met?

Implement Assess

Revise

ASSESSMENT REPORT (END OF CYCLE)

- **Findings** – Report metric values and compare to targets. Where is your program seeing the most/least success in students achieving their learning outcomes?
- **Next Steps** – Based on findings, what changes will you make to improve your program?



2020 ARPAC Assessment Planning/Reporting Timeline (Social Science Units)

- **Initial Assessment Planning**
 - **Fall 2019** (and possibly Spring 2020): Assist with creating [Three-Year Student Learning Assessment Plan](#)
 - **Dec 2019:** ARPAC self-study due
- **Assessment Reporting (Three-Year Cycle)**
 - **August 2021, 2022 & 2023:** Annual mini-reports (e.g., findings & next steps)
 - Programs choose reporting timeline
 - At least one outcome each year
 - All outcomes reported by end of three-year cycle
 - **April 2024:** Mid-Cycle ARPAC report due
- **Ongoing ARPAC Assessment Planning & Reporting:**
 - **Fall 2023 – August 2026:** Repeat three-year assessment plan/reporting cycle
 - **December 2026:** Next ARPAC self-study due



ARPAC Assessment Planning/Reporting Timeline by Cohort Year (*TENTATIVE*)

**Accelerated
timeline so
assessment
plan and first
assessment
reporting cycle
complete by
ARPAC self-
study.**

ARPAC Cohort Unit	ARPAC Cohort Year
Social Sciences Units	2020
Professional Schools and CMCI Units	2021
Academic Affairs Units	2022
Arts and Humanities Units	2023
Physical Sciences & Mathematics Units	2024
Engineering and Applied Science Units	2025
Biological & Environmental Sciences Units	2026

**Same timeline as
SS units so
assessment plan
due by ARPAC
self-study and
first assessment
reporting cycle
complete by
ARPAC mid-
cycle report.**



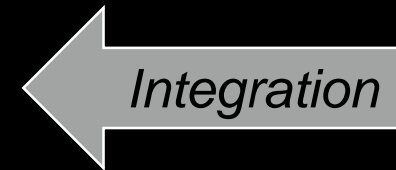
Looking Ahead: Tracking Student Learning Using Technology

Many Assessment Management Software (AMS)
options, with varying levels of utility and integration:



AMS can help programs more easily manage their
assessment planning & reporting process and
allow for better visualizations and insights into their
programs' efforts toward student learning.

**CU Boulder's Learning
Management Software (LMS)**



LMS can help
collect data used
to measure
student learning.



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Tracking Student Learning Using Technology: Canvas

- Use the Outcomes tool in Canvas track mastery of program- or course-level learning outcomes
 - Assess Outcomes in rubrics (e.g. for papers, presentations, etc)
 - Associate Outcomes with quiz questions



Tracking Student Learning Using Technology: Canvas

Find Outcomes

Office of Data Analytics

University of Colorado ...

Dept Outcome 1

Dept Outcome 2

Dept Outcome 1

Dept Outcome 1

Exceeds Expectations	Meets Expectations	Does Not Meet Expectations	Total Points
5 Points	3 Points	0 Points	5 Points

Mastery: 3 Points

Calculation Method: Decaying Average

Last Item: 65
Between 1% and 99%

Calculation Method:

65/35 Decaying Average

Example:

Most recent result counts as 65% of mastery weight, average of all other results count as 35% of weight. If there is only one result, the single score will be returned.

1- Item scores:

1, 4, 2, 3, 5, 3, 6

2- Final score:

4.95

Cancel

Import



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Tracking Student Learning Using Technology: Canvas

Capstone Project				
Capstone Paper				
Criteria	Ratings			Pts
Introduction Section Literature review: uses 5 articles, integrates existing literature, describes research question(s)	20 to >0 pts Full Marks	0 pts No Marks		20 pts
Methods Section Describes methods	20 to >0 pts Full Marks	0 pts No Marks		20 pts
Analyses and Results Section Uses proper analysis; describes results including appropriate statistics and visualizations	20 to >0 pts Full Marks	0 pts No Marks		20 pts
Discussion	20 to >0 pts Full Marks	0 pts No Marks		20 pts
APA Style	20 to >0 pts Full Marks	0 pts No Marks		20 pts
🎯 CLO 3 threshold: 3 pts	5 pts Exceeds Expectations	3 pts Meets Expectations	0 pts Does Not Meet Expectations	--
🎯 Dept Outcome 3 threshold: 1 pts	2 pts Exceeds Expectations	1 pts Meets Expectations	0 pts Does Not Meet Expectations	--
Total Points: 100				



Tracking Student Learning Using Technology: Canvas



Boulder



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Courses



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Outcomes Test Course 1 > Grades

Grades **Learning Mastery**

Individual View Showing All Sections ▾

Course average ▾	1 / 1 	2.02 / 3 	2.8 / 3 	3.74 / 3 	4.5 / 3 	3.25 / 3 
Learning Outcome	Dept Outcome 3	Dept Outcome 2	Dept Outcome 1	CLO 1	CLO 2	CLO 3
 Outcomes Test Student 1	1 / 1 	3 / 3 	3 / 3 	1.95 / 3 	5 / 3 	0 / 3 
 Outcomes Test Student 2	2 / 1 	1.05 / 3 	5 / 3 	5 / 3 	5 / 3 	5 / 3 
 Outcomes Test Student 3	1 / 1 	0 / 3 	3 / 3 	5 / 3 	5 / 3 	5 / 3 
 Outcomes Test Student 4	0 / 1 	1.75 / 3 	0 / 3 	3 / 3 	3 / 3 	3 / 3 
 Outcomes Test Student 5	1 / 1 	4.3 / 3 	3 / 3 			

 Exceeds Mastery
 Meets Mastery
 Near Mastery
 Well Below Mastery
☐ Hide outcomes with no results
☐ Hide students with no results
[Export report](#)



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Outcomes Test Course 1 > Grades

Grades **Learning Mastery** 1

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Outcomes Test Course 1 > Grades

Grades **Learning Mastery**

Individual View Showing All Sections ▾

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 Outcomes Test Student 3	1 / 1 	0 / 3 	3 / 3 	5 / 3 	5 / 3 	5 / 3 	
 Outcomes Test Student 4	0 / 1 	1.75 / 3 	0 / 3 	3 / 3 	3 / 3 	3 / 3 	
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Outcomes Test Student 2	2 / 1	1.05 / 3	5 / 3	5 / 3	5 / 3	5 / 3
Outcomes Test Student 3	1 / 1	0 / 3	3 / 3	5 / 3	5 / 3	5 / 3
Outcomes Test Student 4	0 / 1	1.75 / 3	0 / 3	3 / 3	3 / 3	3 / 3
Outcomes Test Student 5	1 / 1	4.3 / 3	3 / 3			
			3			

Exceeds Mastery

Meets Mastery

Near Mastery

Well Below Mastery

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Outcomes Test Course 1 > Grades

Grades **Learning Mastery**

Individual View Showing All Sections ▾

4	Course average ▾	1 / 1 	2.02 / 3 	2.8 / 3 	3.74 / 3 	4.5 / 3 	3.25 / 3 
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 Exceeds Mastery
 Meets Mastery
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Outcomes Test Student 3	1 / 1					5 / 3
Outcomes Test Student 4	0 / 1					3 / 3
Outcomes Test Student 5	1 / 1					

Exceeds Mastery

Meets Mastery

Near Mastery

Well Below Mastery

☐ Hide outcomes with no results

☐ Hide students with no results

Export report

Dept Outcome 1

20%

20%

60%

Exceeds Expectations

Meets Expectations

Does Not Meet Expectations

Mastery set at: 3

Dept Outcome 1

Calculation Met...

65/35 Decaying Average

Example:

Most recent result counts as 65% of mastery weight, average of all other results count as 35% of weight. If there is only one result, the single score will be returned.

1- Item scores:

1, 4, 2, 3, 5, 3, 6

2- Final score:

4.95

5



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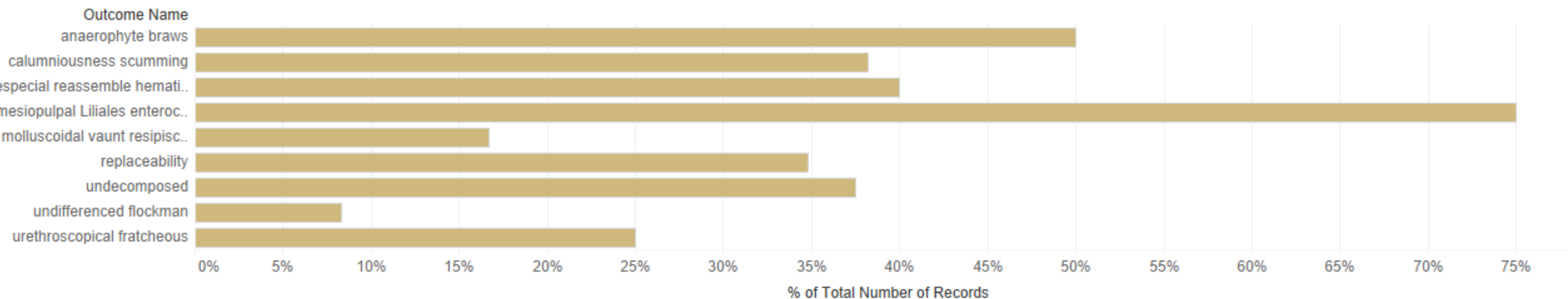
Canvas Learning Assessment (fake data)



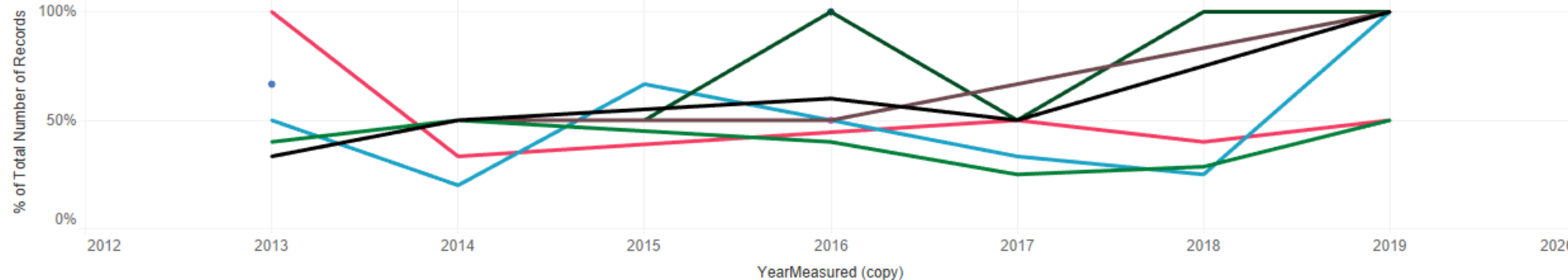
- User Pri Major Ld
- ☐ (All)
 - ☒ Biology
 - ☐ Business
 - ☐ Chemistry
 - ☐ Engineering
 - ☐ English
 - ☐ Math
 - ☐ Psychology

- Outcome Name
- ☒ (All)
 - ☒ anaerophyte braws
 - ☒ ansar perpetuana
 - ☒ Archichlamydeae dunderheadedness pr...
 - ☒ cachemic ferricyanogen racemocarbonate
 - ☒ calumniousness scumming
 - ☒ Ctenoidei
 - ☒ especial reassemble hematite
 - ☒ luteofulvous nantle cookbook
 - ☒ mesiopulpal Liliales enterocolostomy
 - ☒ Messiahship mesosoma
 - ☒ molluscoidal vaunt respiscence
 - ☒ physiologize Cryptophagidae piggishly
 - ☒ replaceability
 - ☒ shieldboard hollandite
 - ☒ supratrochlear thecaspore cubicone
 - ☒ tubeman garble
 - ☒ undecomposed
 - ☒ undifferented flockman
 - ☒ urethroscopical fratcheous

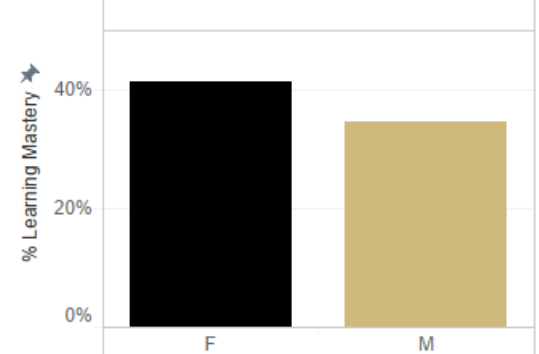
Mastery by Program Learning Outcomes



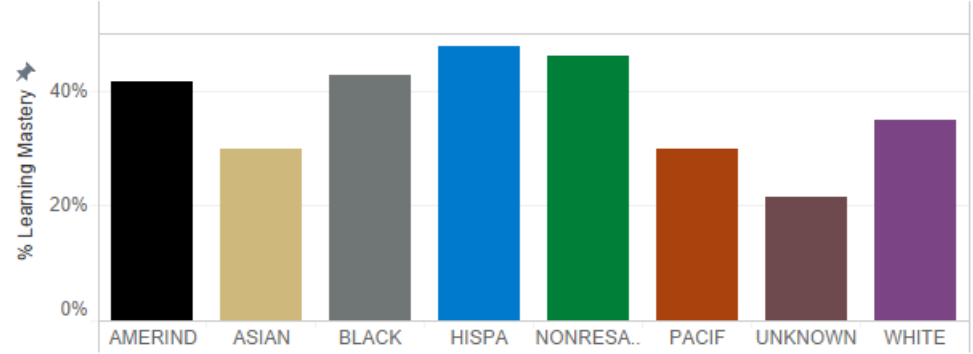
Learning Mastery over Time



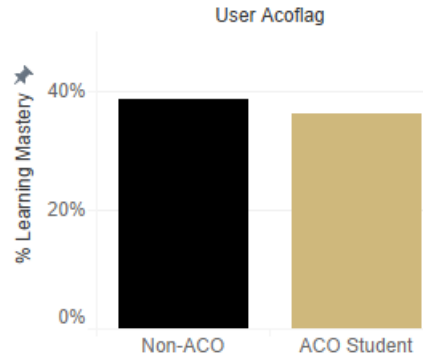
Mastery by Gender



Mastery by Race/Ethnicity



Mastery by ACO Status



Tracking Student Learning Using Technology: Canvas


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Outcomes Test Course 1 > Grades

Grades **Learning Mastery**

Individual View

Showing All Sections ▾

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 Outcomes Test Student 5	1 / 1 	4.3 / 3 	3 / 3 			

6

Export report

 Exceeds Mastery

 Meets Mastery

 Near Mastery

 Well Below Mastery

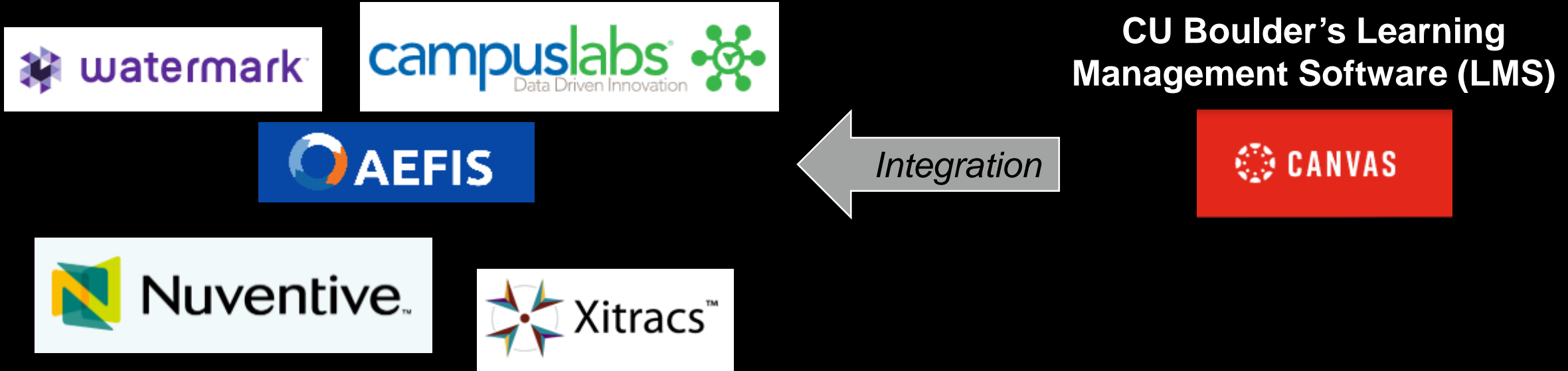
☐ Hide outcomes with no results

☐ Hide students with no results



Looking Ahead: Tracking Student Learning Using Technology





Many Assessment Management Software (AMS)
options, with varying levels of utility and integration:





Screenshots for Canvas-AEFIS integration on following pages taken from University of Wisconsin-Madison:
<https://assessment.provost.wisc.edu/documents/direct-assessment-with-aefis-and-canvas/>




Program Learning Outcomes (PLO) in AEFIS


 Programs    Sandra ▾

 Student Outcomes


 Courses


PROGRAM DESIGN

 Mapping By Course

 Mapping by Outcome


Doctor of Pharmacy


 Program Outcomes | Mapping Method: Outcomes


▼ 


Behavioral principles


Apply social and behavioral principles and theories in the design, delivery, and evaluation of pharmaceutical care.

 Does Not Meet Expectations

 Meets Expectations


 Exceeds Expectations


 Program


▼ 


Communication-Health Professionals


Communicate effectively in oral and written forms with patients, caregivers, healthcare professionals, and others. Demonstrate empathy, listening skills, and altruism in interactions. b. Communicate with health professionals and others to: i. Obtain, provides, and confirm accurate and concise patient and medication information.

 Does Not Meet Expectations

 Meets Expectations

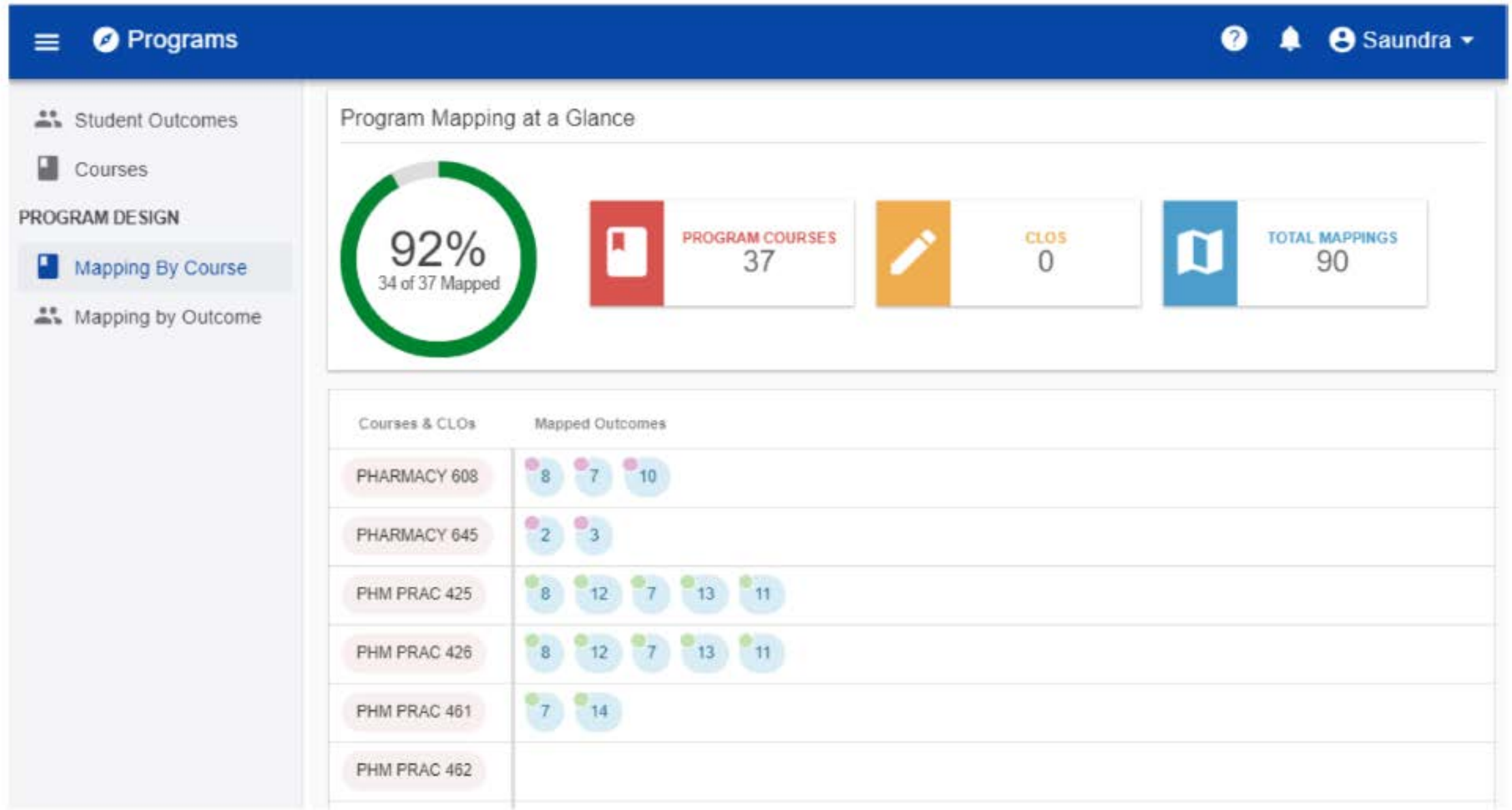
 Exceeds Expectations

 Program

▼ 




Communication-Patient

Mapping by Course to PLO in AEFIS



Assignment Linking in AEFIS

Assignments must be created and published in Canvas before they will appear in AEFIS.

 PHM PRAC 425 001 : Pharmacy Practice Experience I  

12

Identify causes of health disparities and incorporate principles of cultural awareness, sensitivity, and competence into plans to address these issues in practice.

1


Does Not Meet Expectations


2


Meets Expectations

3

Exceeds Expectations

 Linked Assignments and Weights



**No Linked Assignments**

Assignments have not been linked.
To link assignments, click the add button.

Assignment Linking to PLO in AEFIS

FA18 PHMPRAC 425 001 > PHMPRAC425: Pharmacy Practice Experience I (001) FA18

Full 2018-2019

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Syllabus
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People
Outcomes
Files
Pages
Collaborations
Assignments
Discussions
Quizzes
Modules
Settings

PHM PRAC

+ Edit Assignment Link

7

Does Not Meet Expectations

Total Weight: 100%

<input type="checkbox"/>	Assignment	Max. Score	Weight
<input type="checkbox"/>	Visit 1 Group Reflection Area link rubrics	4.01	0
<input checked="" type="checkbox"/>	Visit 2 Group Reflection Area link grade	4.01	50.00

Criteria

Total Weight: 100%

<input checked="" type="checkbox"/>	Reflection Completion	4.01	100.00
<input type="checkbox"/>	C2650	5	0

Total Score Rubric Settings

50% 100%

0 10 20 30 40 50 60 70 80 90 100

1 Does Not Meet Expectations 0% to 49%

2 Meets Expectations 50% to 99%

3 Exceeds Expectations 100% to 100%

☒ Use these rubric values when linking new assignments

Save and Replace Cancel

Future Visual Dashboard 1st Quarter 2019 in AEFIS

Assessment Visual Dashboard

EXIT DASHBOARD

Outcomes

- ☐ Accreditor
- ☐ Institution
- ☒ Program

Academic Year

- ☐ 2014
- ☐ 2015
- ☐ 2016
- ☐ 2017
- ☐ 2018

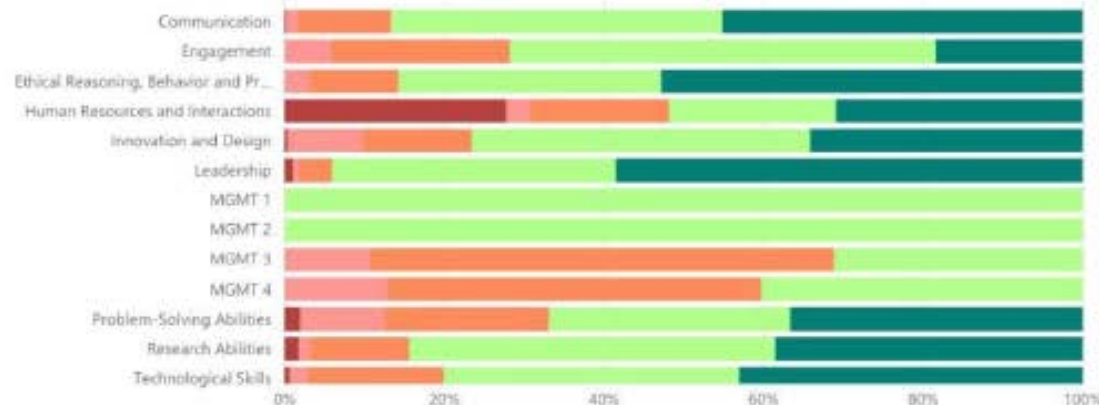
Total Response by Organizational Hierarchy



Program ● Biomedical Engineering

Program Rubric by Outcome

Rubric Name ● 0-Does Not Meet ● 1-Novice ● 1-Unsatisfactory ● 2-Apprentice ● 2-Satisfactory ● 3-Exceeds Requirements ● 3-Proficient ● 4-Master



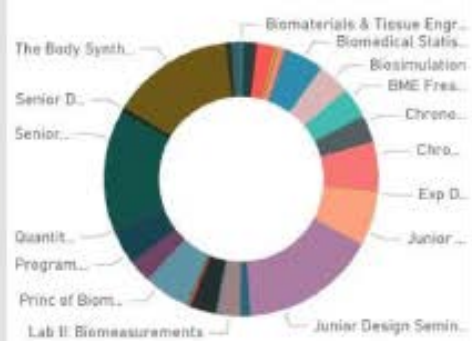
Gender



Ethnicity

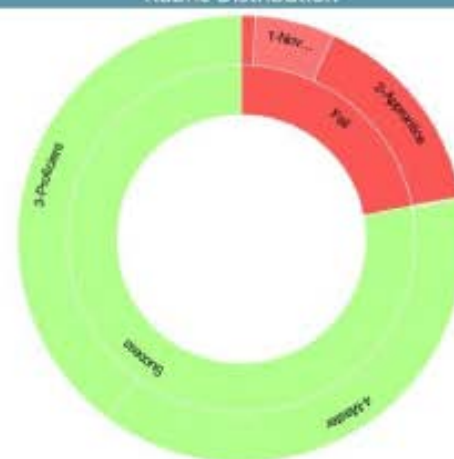


Total Response by CourseSection Hierarchy



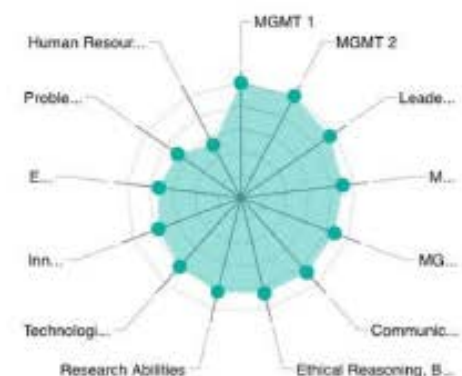
Course ● Biomaterials & Tissue Engr ● Biomaterials I ● Biomaterials II ● Biomaterials III

Rubric Distribution



Success by Outcome

Success by %



ODA Assessment Website

Assessment Website: www.colorado.edu/oda/assessment



Data Analytics

PART OF FINANCE & BUSINESS STRATEGY

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Assessment

The ODA Assessment group provides leadership and centralized support to CU Boulder in the assessment of student learning and program effectiveness. Through collaboration with campus partners, we facilitate best practices that lead to data-informed decision making to promote student success at CU Boulder.

[+ What is assessment?](#)

[+ Why do assessment?](#)

[+ How does the ODA Assessment group support CU Boulder?](#)

[Conducting Assessment](#)

[Resources](#)

Our group is new and excited to develop partnerships on campus. Let's start a conversation around learning outcomes and assessment at CU Boulder!

[Partner With Us!](#)



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Other Resources for Learning Assessment

Internal Resources:

- [Center for Assessment, Design, Research, & Evaluation \(CADRE\)](#)
- [Center for Teaching & Learning \(CTL\)](#)
- [Center for Integrated Research, Teaching, & Learning \(CIRTL\)](#)
- [Departmental Action Team \(DAT\) Project](#)
- [Faculty Teaching Excellence Program \(FTEP\)](#)
- [LinkedIn Learning via MyCUInfo portal](#) (formerly Lynda.com)
- [Science Education Initiative \(SEI\)](#)
- [Student Affairs Planning & Assessment](#)
- [Teaching Quality Framework \(TQF\)](#)
- [Transforming Education, Supporting Teaching & Learning Excellence \(TRESTLE\)](#)

External Resources:

- [AAC&U VALUE Rubrics](#)
- [Association for the Assessment of Learning in Higher Education \(AALHE\)](#)
- [National Institute for Learning Outcomes Assessment \(NILOA\)](#)
- [Student Assessment of their Learning Gains \(SALG\)](#)



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Questions/Comments?

Contact Info

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Jessica.Keating@Colorado.edu (303)735-8499



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