Annual Report of the Faculty Development Center

July 1, 2023 – June 30, 2024

UMBC

TABLE OF CONTENTS

Cover Photo: Dr. Ana Oskoz, Vice Provost for Faculty Affairs, congratulates and thanks Faculty Learning Community (FLC) participants and facilitators from 2023-24 as they prepare to share the outcomes of their work at the FDC FLC End of Year Celebration on May 10, 2024.

Attendance and participation statistics compiled by Sarah Swatski.
Quotes taken from Linda C. Hodges' retirement Kudoboard.

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- INNOVATE logo on page 21 created by Kerrie Kephart.

FDC STAFF

Kerrie Kephart, Ph.D.

Interim Director (January 1, 2024 – June 30, 2024)

Associate Director for Pedagogical Research, Innovation, and Assessment (July 1, 2023 – December 31, 2023)

Jennifer M. Harrison, Ph.D.

Associate Director for Assessment

Sarah Swatski, M.S.

Programming and Operations Administrator

Tory Williams, Ph.D.

Research Assistant Professor in CNMS Supporting the FDC (August 19, 2023 – June 23, 2024)

Assistant Director for Pedagogical Research (July 1, 2023 – August 18, 2023)
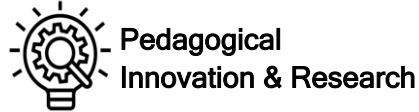
Linda C. Hodges, Ph.D.

Director Emerita (January 1, 2024 – June 30, 2024)

Director (July 1, 2023 – December 31, 2023)

BY THE NUMBERS, 2023-24

Supporting UMBC's mission of **excellence, innovation, and inclusion in teaching** by providing a **comprehensive program of services and resources** emphasizing:

Faculty Development

Pedagogical Innovation & Research

Assessment

Programming and Services to Promote Evidence-Based Teaching

836
Total attendees at 37 programs

139
Individual consults (includes midterm feedback & observations)

338
Unique participants in programs

725 Unique individuals used FDC programs & services 2021-2024

Initiatives for Learning, Growth, and Fostering Community

36	6	13
Faculty met in Faculty Learning Communities	Hrabowski Innovation Fund grants awarded	Faculty completed structured, cohort-based certificates

Support for Pedagogical Innovation, Research, and Assessment

7
New co-authored publications or presentations

9
External grants supported

13
Campus committees/groups supported

PURPOSE AND GOALS

The Faculty Development Center (FDC) supports the University in its mission of excellence, innovation, and inclusion in teaching by providing a comprehensive program of services and resources. The goals of the work of the FDC align with those of UMBC's 2016 Strategic Plan to:

- Provide exemplary support for educators in creating state-of-the-art undergraduate and graduate curricula delivered through innovative and effective approaches to teaching and learning.
- Continue to build a culture of academic assessment to support our faculty as the primary drivers of continuous improvement in student learning outcomes.

The Center's work has three synergistic and complementary areas of emphasis:

"The FDC has ... become a true exemplar of how to create a culture of faculty involvement and academic excellence."

-Principal Lecturer, CAHSS

Faculty Development

Pedagogical Innovation & Research

Assessment
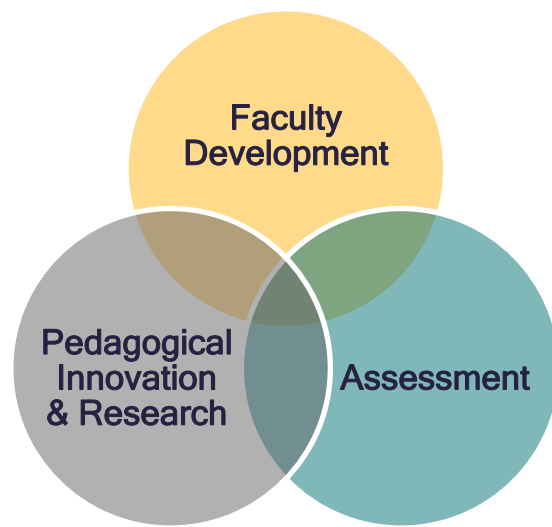
Efforts in 2023-24 focused primarily on:

- Planning and implementing programs in response to emerging faculty needs
- Consulting with individual faculty, departments, and other units
- Coordinating Faculty Learning Communities (FLCs) and faculty certificate initiatives
- Supporting research on teaching and learning initiatives on campus
- Supporting assessment of student learning outcomes campus-wide
- Coordinating the Hrabowski Innovation Fund (HIF) Award Competition

ASSESSMENT OF THE CENTER'S IMPACT

1. Faculty Development

General Programming and Services:
In AY24, the FDC continued to support faculty teaching in the mixed modalities of face-to-face, hybrid, and online, and to address timely and pressing issues, such as teaching and learning in the era of AI, cultivating students' sense of purpose to address disengagement and absenteeism, using curriculum mapping and closing the loop to support assessment efforts as we look ahead to our Middle States review, and connecting to UMBC's inclusive excellence mission by creating inclusive classroom environments that support all students. We continued to provide services in multiple formats and offer a flexible schedule of programming that allows faculty to share information and experience community via discussion with colleagues. A survey of faculty and informal conversations informed the teaching and learning topics we addressed. Anecdotal data show that many faculty appreciate the convenience and accessibility of online programming, and many others value the potential for making interpersonal connections and building community through attending programs in person.

> *"The FDC has been such an essential office on campus for promoting and supporting innovative and student-centered teaching."*
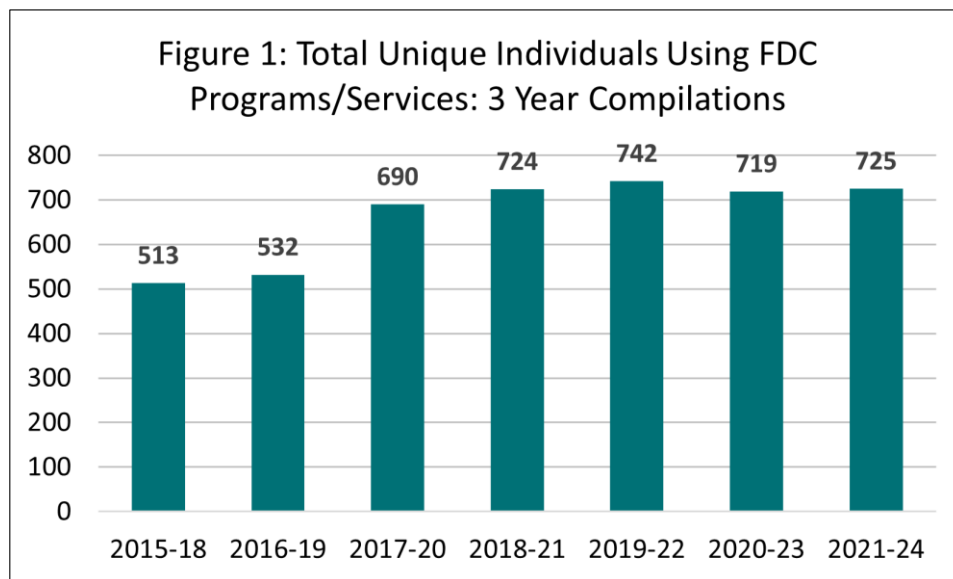>
> -Principal Lecturer, CNMS

Faculty and staff experiment with using FigJam for non-written and multi-modal reflection at the FDC Reflection Retreat on January 18, 2024.

Outcomes: Data on Attendance at Programming and Use of Services:

376

👤👤👤👤👤

Unique Individuals Using FDC Programs and Services 2023-2024

Below are 14-year summary data on UMBC faculty's interactions with the FDC. Table 1 lists the services provided and the number of instances, as well as the total count of programs implemented (see Appendix 1 for an itemized list of workshop/program topics). Table 1 includes the count of unique faculty with whom we consulted and/or who attended general programs; Table 2 gives the distribution of faculty who used services by rank; and Figure 1 shows three-year compilations. The FDC also coordinated the new faculty welcome and provided orientation materials and welcomes for part-time faculty. While the vast majority of our attendees are UMBC faculty and staff, we had limited attendance from UMBC students and from entities partnered with UMBC.

Figure 1: Total Unique Individuals Using FDC Programs/Services: 3 Year Compilations

Year	Individuals
2015-18	513
2016-19	532
2017-20	690
2018-21	724
2019-22	742
2020-23	719
2021-24	725

Website Development and Outreach: In AY24, the FDC worked to improve its web presence, updating many webpages and adding new webpages. Most notably, the FDC expanded our student-centered learning assessment resources by launching ten new webpages, including extensive template packages, tools, and resources to help faculty use direct evidence of learning to enhance teaching effectiveness in courses and programs. The Provost's Teaching & Learning Symposium webpage was also updated to cover the Symposium more comprehensively. The "Who are our students?" webpage was updated after it became a top growing page hit in search results. The Center continued to share relevant resources with faculty and staff through our email list.

Screenshot of the top of the new learning assessment resources webpage.

Table 1: Programs, Consultations, and Meetings with Faculty														
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020°	2020-2021	2021-2022	2022-2023	2023-2024
Total individual consultations*	50	93	121	117	134	268§	213	197	153	230	221	180	161	139
Total individ. consult. on assessment*	0	12	8	10	9	125§	97	73	17	45	14	20	28	9
Dept./unit discuss. on assessment ‡	3	2	4	5	12	40	26	21	41	33	36	20	23	22
Unique contacts on assessment	0	12	8	10	9	112	44	44	32	34	26	19	27	21
Class observations	8	14	6	16	18	9	19	26	33	28	38	24	26	25
Class/dept. small group feedback	8	2	37	15	21	46	44	48	64	74	71	51	32	51
Number of programs held**	28	32	30	27	30	37	38	45	50	57	48	43	39	37
Total attendance at programs**	414	576	462	490	472	757	718	851	995	1,558	1,096	788	936	836
Unique individuals at programs**	#	206	150	197	190	204	215	231	261	449	330	246	378	338
Unique individuals using consultations	45	67	85	83	89	142§	117	114	119	163	147	122	108	112
Total unique individuals**	#	234	202	241	231	270	262	274	301	494	371	295	413	376

\# Data are not available.
* Includes multiple consultations with same individual faculty on issues and includes email and telephone; does not include meetings for writing papers
** Does NOT include faculty attending orientations or individual FLC sessions; does include graduate students and staff
‡ Includes multiple meetings with representatives about program level assessment
§ Assessment consultations higher due to preparations for Middle States review
° Numbers of programs and attendance was higher in support of rapid shift to remote instruction during COVID-19

Table 2: Distribution of Distinct Faculty Using Consultation/Observation Services by Rank														
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016*	2016-2017	2017-2018	2018-2019	2019-2020**	2020-2021	2021-2022	2022-2023	2023-2024
Professor	5	3	8	7	8	15	8	9	8	15	14	18	14	9
Associate Professor	7	19	16	8	12	24	18	18	17	24	19	16	15	13
Assistant Professor	12	16	26	33	25	28	32	32	29	42	33	19	26	22
Lect./Inst./Prof. Prac./Res./Clin.	12	15	19	19	18	34	33	31	28	38	45	31	22	31
Pt-time/Adj./Visit./PD/GS	8	11	12	12	9	18	4	7	14	24	17	19	21	25
Staff/Administrators	1	3	4	4	17	23	21	17	23	20	19	19	10	12
Total	45	67	85	83	89	142	116	114	119	163	147	122	108	112

* Assessment consultations higher due to preparations for Middle States review
** Consultations higher due to shift to remote instruction because of COVID-19

Certificate Programs: In addition to the series of stand-alone programs open to all faculty, the Center offers two certificate programs that allow faculty to engage in sustained, structured, cohort-based experiences of reflection and learning around teaching: The *Active Learning, Inquiry Teaching* (ALIT) certificate for STEM faculty and the *Innovation for Teaching Effectiveness* (INNOVATE) certificate program for CAHSS, SOWK, and Library faculty. Requirements for these programs are found in Appendices 3 and 4. Table 3 gives numbers of faculty completing the certificates since they were established.

"The FDC ha[s] been invaluable in shaping me as an instructor and faculty member over the last 10 years."

-Associate Professor & Certificate Alumni

Table 3. Faculty Completing the ALIT and INNOVATE Certificates		
	ALIT *(2015-24)*	INNOVATE *(2016-24)*
-Tenure-track faculty	40	26
-Lecturers	37	18
-Adjuncts/Staff	11	9
Total faculty/staff completing	**88**	**53**

141 FDC Certificate Completers 2015-2024

Certificate Program Evaluation: A project to evaluate and assess the ALIT and INNOVATE certificates, led by the Programming and Operations Administrator, began in June 2024. The team will compare the pre- and post-data from Teaching Perspectives Inventory survey taken by participants, review participants' written reflections, survey certificate completers on their experiences, and conduct focus groups to gain further insight into the experience. The team plans to prepare a report for internal stakeholders, possibly to include a proposal for additional FDC-sponsored, structured opportunities to extend, expand, or share certificate completers' knowledge. We also intend to prepare a publication to share results of interest to a wider audience.

Faculty Learning Communities (FLCs): Under the leadership of the Interim Director, the FDC organized and coordinated four faculty-led FLCs during AY24. For this signature program of the FDC, groups of 8-10 faculty met 11-14 times during the year with the goal of learning about ways to improve their students' learning experiences. Each FLC participant is expected to develop a personal response to the FLC's topic–e.g., a new assignment, approach, or form of assessment–that will enhance their teaching and/or student learning. Participants and facilitators of each topical group in AY24 are listed in Appendix 2. Table 4 shows participation in FLCs since they began in spring 2014.

Members of the Re-engaging Students After the Pandemic FLC at their meeting on April 26, 2024.

Table 4: Participation in Faculty Learning Communities											
Numbers	SP 2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
FLCs	3	4	3	3	4	4	4	3	4	3	4
Participants	21	27	20	17	31	26	29	30	24	18	28
Facilitators	3	7	3	4	6	7	5	3	6	6	8
Total	24	34	23	21	37	33	34	33	30	24	36

147 Total Unique FLC Participants 2014-2024

2. Support for Pedagogical Innovation, Research, and Assessment

Support for pedagogical research and the scholarship of teaching and learning continues to be a substantial amount of our effort as shown below. However, due to staffing shortages since the retirement of the Director, this area of support has had to be somewhat curtailed, notably for the evaluation of funded projects. The Interim Director declined three new requests for paid evaluations of funded projects between January 1 and June 30, 2024.

Hrabowski Innovation Fund (HIF) Award: The FDC has administered the HIF award process since its inception in 2012, announcing the call for proposals, advising potential PIs, convening the review committee, notifying the Provost of committee recommendations, providing feedback on submissions, and tracking award requirements.

"[The FDC has] been my beacon for teaching, learning, and educational research."

-Assistant Professor, COEIT

Donald Snyder presents his Hrabowski Innovation Fund project to President Valerie Sheares Ashby at the Seventh Annual Provost's Teaching and Learning Symposium on April 21, 2023.

NSF-IUSE: Institutional and Community Transformation for Teaching and Learning Quantitative Reasoning in the Biological Sciences: This five-year project within CNMS involved the Director Emerita and Assistant Director for Pedagogical Research (contractual) as paid support personnel to facilitate faculty development efforts across the five colleges involved and provide data management and analysis for the project respectively. In this final, no-cost continuance year of the project, the Assistant Director conducted data analysis and contributed to manuscript and report writing.

Reflection Framework Development Group: The Interim Director leads an ongoing group of STEM faculty and a graduate student researcher in the design of an analytical framework for understanding reflection for teaching and learning. The group submitted two conference abstracts in AY24.

Scholarship of Teaching and Learning (SoTL) Project Support: The Director Emerita, Interim Director, Associate Director for Assessment, and Assistant Director for Pedagogical Research all met regularly with faculty planning and implementing SoTL research projects. Two ongoing projects include:

- Collaborating with HIF award recipient Dr. Kathleen Hoffman to study the effects of a new, intermediate math course aimed at scaffolding student learning within a major track with historically high rates of student failure and withdrawal. FDC staff collaborated on this project to support design and assessment of the interventional course, research design, data analyses, bridging of institutional data analytics to course-level learning data, presentation, and co-authorship of publication of results. Two manuscripts are currently under review from this project, one for the *Journal of Education Sciences* and the other for the *International Journal of Mathematical Education in Science and Technology*. This work resulted in changing the Math/Stats curriculum—the pre-proof course was added as a required course—and curriculum mapping work followed.

- Collaborating on a project with Dr. Tara Carpenter to gather feedback on students' use of spaced practice in chemistry. The Director Emerita conducted focus groups and co-authored a manuscript with Dr. Carpenter for the *Journal of Chemical Education* on the results.

"I have appreciated the FDC and all its fantastic programming. I have learned so much from [the FDC] … about teaching pedagogy, proving it is never too late to become a better educator."

-Assistant Director, UAA

NSF CAREER Grants: The Director Emerita and Interim Director consulted with three faculty on NSF CAREER proposals and provided a workshop on assessment for the educational portions of these grants.
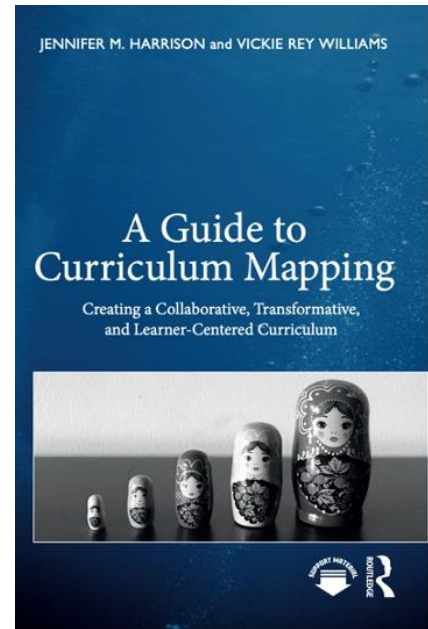
NSF REU Grants: The Director Emerita was evaluator on three current REU grants submitted by COEIT. The Director Emerita worked with contingent staff Lisa Beall to implement surveys and analyze results.

3. Support for Assessment of Learning Outcomes

The Director Emerita and Associate Director for Assessment worked with a variety of individuals and groups this year in supporting student learning outcomes assessment.

The Associate Director for Assessment:

- Published a book with Dr. Vickie Williams documenting UMBC's effective learning assessment practices and created a companion website for the publisher and for the FDC.

- Extended the FDC's relationship with Dr. Derek Bruff by working with him to create a podcast episode that explores how curriculum mapping centers learners. Their post on LinkedIn initially received 656 impressions and 399 unique views. From May 21-31, 2024, the FDC Curriculum Mapping webpage had 59 views from 41 unique viewers, with 29 new users. Additional higher education podcasts are in the planning stages.

Cover of the book written by the Associate Director of Assessment with Dr. Vickie Williams.

- Supported faculty in student-centered learning assessment, including outcome revision and development, curriculum mapping, alignment, direct measure development, and data-informed decision making.

- Continued to work with the Academic Affairs office to implement the Next Generation APR. Gave detailed feedback to each self-study draft submitted and implemented a rubric (shared and tested last summer and fall in the APR workshops) to give consistent feedback about required assessment reporting for the APR.

- Continued to work with CAHSS leaders to help faculty focus on learning assessment reporting in the Biennial Reports and APR work. Created and delivered customized workshops, offered consultations, and connected faculty to relevant resources.

- Worked with Math/Stats faculty and the Assistant Director to finish, submit, and revise an article demonstrating closing-the-loop interventions, double-loop analysis, and the student learning that resulted. The article is currently under revision for the *International Journal of Mathematical Education in Science and Technology*.

- Worked with BTA faculty to analyze, revise, and re-map program-level student learning outcomes in workshops, consultations, and discussion with the FDC audience in an embodied curriculum mapping workshop. Faculty have worked on multiple iterations of the program curriculum map. The program leads the way in communicating program-

level learning outcomes with students and other audiences by sharing these outcomes on their website. The program leaders have also followed best practices advice to analyze each of the courses in the degree program, looking closely at the learning outcomes, the overlaps and gaps that have emerged so far, and planning for consistency across sections. A follow-up workshop helped core course leaders to think through their course design as part of BTA's overarching degree-level learning outcomes, and each course leader is working with adjunct faculty and other teachers of multiple sections to create consistent learning across the sections and effective scaffolding and deliberate practice or interleaving across the series of core courses.

Faculty and staff discuss and demonstrate how program-level curriculum mapping can create a shared vision for student learning across courses and programs in an FDC workshop on February 20, 2024. Faculty from BTA and HCC literally walked participants through their program maps.

- Served as assessment faculty for the Post-Masters Certificate in College Teaching and Learning Science (CTLS). Extracted signature assignment data from student rubrics across the history of the program to offer evidence about how students in the program achieve student learning outcomes in PSYC 503. Since these are aligned to program-level learning outcomes, program leaders can analyze the learning results for how well students in the third class have achieved proficiency before they move into their practicum and their own teaching. These data were used as the central direct measure evidence in the CTLS annual report.

- Worked with CAHSS and the Global Center to design and deliver a workshop on course-level curriculum mapping to the 10 Global Learning Lab participants.

4. University Service and Scholarship

Representatives of the FDC met regularly with the following groups:
- Middle States Self Study Working Group 5 - Educational Effectiveness Assessment (JH, KK)
- Middle States Self Study Working Group 5 Subcommittees (five total) (JH)
- Middle States Self Study Evidence Inventory Committee (KK)
- General Education Committee (KK, LH)
- Instructional Space & Scheduling Improvements Initiative: Space Needs Team (KK, LH)
- Writing Board (KK, LH)
- McNair Scholars Mentor (KK)
- First Year Seminar Faculty Meetings (JH)
- Women's Center Advisory Board - Returning Women Scholars Committee (JH)
- Faculty Activity Work Group (JH)
- Inclusion Council Curriculum Work Group (TW, JH)
- Initiatives for Identity, Inclusion, & Belonging (i3b) Advisory Board (TW)

The FDC staff also participated in additional service where they:
- Serve as Interim Director, Writing Board (KK)
- Conducted workshops on learning assessment for CIRTL undergraduate students and SEA-CIRTL fellows (KK)
- Analyzed data and shared results of JEDI survey with CBEE Department (KK, TW)

In addition to supporting grants and research, FDC staff participate in various forms of scholarly activity, contributing to the fields of faculty development, student learning outcomes assessment, and effective teaching practices more broadly. See Appendix 5 for a complete list of publications, presentations, and grant activity for FDC staff from 2015-June 2024.

Linda C. Hodges, the Center's second full-time director, retired on December 31, 2023 after more than 13 years of service to UMBC. Linda drove the expansion of staff and services with a new focus on the scholarship of teaching and learning and support for pedagogical research to build a Center that provides programming and consultations related to all aspects of teaching, pedagogical innovation, and assessment of student learning outcomes. Faculty and staff shared their thanks for Linda's guidance, support, and mentorship, and transformative work with the Center on her retirement Kudoboard.

Faculty and staff gather to thank Linda C. Hodges (left) and celebrate her transformative work with the FDC at her Retirement open house on December 13, 2023.

5. Goals and Priorities for 2024-25

During AY25, we will continue our efforts and find new ways to reach our goals to:

1) Engage faculty to adopt evidence-based teaching practices that are inclusive of all students and address a dynamic teaching and learning environment.

2) Help faculty to prepare students to become AI literate for a changing labor market and support students to use AI to learn the content of their disciplines.

3) Help faculty to use AI to expedite and enhance curriculum development, grading, and administrative tasks.

4) Build and strengthen community among faculty around teaching, learning, and assessment across departments and disciplines by developing programs and services to attract and support a wide range of faculty, exploring both virtual and face-to-face opportunities.

5) Work with faculty to cultivate evidence-informed decision making and authentic assessment practices that clarify and align student learning outcomes, to develop research-based learning design through curriculum mapping, to measure and analyze student learning with direct measures bridged to student success analytics, and to implement closing-the-loop interventions.

FDC Interim Director Kerrie Kephart (in the pink sweater) attended the Middle States Self-Study Retreat on March 27, 2024.

6) Continue to support faculty, programs/departments, and the Middle States Working Group on Educational Effectiveness and Assessment to synthesize the data and tell the story of assessment of student learning outcomes.

7) Cultivate and support the scholarship of teaching and learning and pedagogical research, including exploring ways to help faculty publish pedagogical or curricular research/assessment results.

We will prioritize staffing, as we aim to:

1) Replace staff who retired and left for a new position, including one generalist faculty developer and one faculty developer who has background in quantitative pedagogical research.

2) Create a position for a full-time AI Specialist faculty developer to support faculty around AI in teaching and learning.

APPENDICES

Appendix 1: FDC Programs – AY 2023-24 (Held virtually via WebEx unless noted.)

Summer/Fall 2023 Programs	Attended
Orientation/Welcome Programs	
8/21/2023 New Full-Time Faculty Welcome (In Person)	40
Initiatives	
8/18/2023 FLC Kickoff (HyFlex)	24
9/8/2023 ALIT Certificate Kickoff	17
9/15/2023 INNOVATE Certificate Kickoff	13
Programs	
7/26/2023 Creating an Inclusive Syllabus using Learning Outcomes	35
8/23/2023 New Adjunct Faculty Welcome: Engaging Students	33
9/6/2023 Assignment Design in the Age of AI: Strategies to Promote Critical Thinking and Deep Learning (In Person)	19
9/12/2023 Assignment Design in the Age of AI: Strategies to Promote Critical Thinking and Deep Learning	56
9/14/2023 Helping Students Process and Apply Feedback	19
9/20/2023 Cultivating Student Self-Regulation with Rubrics and Test Maps	17
9/28/2023 Ungrading and AI: Congruence or Dissonance?	27
10/5/2023 Recognizing & Resisting Racism in the Margins: Revisiting Inclusive Writing across the Disciplines	20
10/10/2023 Scholarship of Teaching and Learning Discussion Group	10
10/12/2023 Creating a Visual Course Map for Students: Course-Level Curriculum Mapping	24
10/18/2023 Bring Your Best Idea: Best Uses/Positive Ways to Use AI	17
11/2/2023 Assessing Equity: Reflecting on an Inclusive Course Presentation by Dr. Bryan Dewsbury (HyFlex)	64
11/8/2023 From Outcomes to Evidence: Using ePortfolios to Document Learning Presentation by Dr. Helen Chen	30
Total Attendance at all 18 Summer/Fall 2023 Programs:	**465**

Winter/Spring 2024 Programs	Attended
Initiatives	
1/18/2024 — Reflection Retreat (In Person)	52
1/26/2024 — FLC Mid-Year Gathering (In Person)	20
4/2/2024 — INNOVATE and ALIT Mixer: Expanding Networks and Connecting with Potential Collaborators (In Person)	22
5/2/2024 — ALIT Certificate End of Year Celebration	11
5/3/2024 — INNOVATE Certificate End of Year Celebration	10
5/10/2024 — FLC End of Year Celebration (HyFlex)	39
Book and Book Chapter Discussions	
2/6/2024 — Awakening Students' Innate Desire to Learn: Re-Engaging Students	12
2/7/2024 — Awakening Students' Innate Desire to Learn: Re-Engaging Students (In Person)	6
2/28/2024 — Mapping Best Practices: A Guide to Curriculum Mapping Book Discussion	6
3/27/2024 — Do the "Devices We Can't Put Down" Affect Learning? Michelle Miller	21
Programs	
1/23/2024 — Clarifying Purpose through Transparent Student Learning Outcomes: A Pathway to an Inclusive Syllabus	17
1/24/2024 — New Adjunct Faculty Welcome: Engaging Students	27
2/14/2024 — Encouraging Academic Integrity in the Era of AI	43
2/20/2024 — Collaborating to Map Your Program: Program-Level Curriculum Mapping (In Person)	19
3/5/2024 — Scaffolding Proficiency through Deliberate Practice	20
3/12/2024 — Closing the Loop with Rubrics and Test Maps	16
4/10/2024 — Using the Science of Memory to Support Learning: Presentation by Dr. Michelle Miller	22
4/15/2024 — Scholarship of Teaching and Learning Discussion Group	6
4/22/2024 — Religious and Spiritual Identities in the Inclusive Classroom (In Person)	10
4/24/2024 — Bring Your Best Idea: Tapping Into Students' Passion	9
4/30/2024 — Faculty Fulbright Accelerator	23
Total Attendance at all 22 Winter/Spring 2024 Programs	**411**
Total Attendance at all 37 AY 2023-24 Programs (Excluding Welcome/Orientation)	**836**

Appendix 2: FLC Participants – AY 2023-24

Re-engaging Students After the Pandemic
1. Anna Berry Royack, IS
2. **Mariajosé Castellanos, CBEE, Facilitator**
3. Dina Glazer, IS
4. Kathy Glyshaw, PSYC
5. Matthias Gobbert, MATH & STAT
6. **Sarah Leupen, BIOL, Facilitator**
7. Louise Murray, ESAS
8. Lauren Price, ESAS
9. Neha Raikar, CBEE
10. Susanne Sutton, MLLI

Teaching in the Era of AI: A Multidisciplinary Conversation (Online Group)
1. **Elisabeth Arévalo-Guerrero, MLLI, Facilitator**
2. **Karen Chen, IS, Facilitator**
3. Nandita Dasgupta, ECON
4. Abhijit Dutt, CSEE
5. Shin Yon Kim, ASIA
6. Jeffrey Robinson, TLST @USG
7. Aharona Rosenthal, JDST
8. Bill Ryan, IS
9. Craig Saper, LLC

Teaching in the Era of AI: A Multidisciplinary Conversation (In-Person Group)
1. Margie Burns, ENGL
2. Gautom Das, CBEE
3. Angela Katenkamp Shiplet, PSYC
4. Kathryn Kein, GWST
5. Paige Rogers, BIOL
6. **John Schumacher, SAPH, Facilitator**
7. **Donald Snyder, MCS, Facilitator**
8. Mohan Sundaram, IS
9. Pengwang Zhai, PHYS

Thinking Critically about Critical Thinking
1. Bindu Abraham, CHEM
2. **Nicki Belfiore, SOWK @USG, Facilitator**
3. **Janet Gross, ENGL, Facilitator**
4. Tomoko Hoogenboom, MLLI
5. Keyimu Kalibinuer, ECON
6. Dann Malihom, SAPH
7. David Mitch, ECON
8. Mina Seat, MLLI

Appendix 3: Active Learning, Inquiry Teaching (ALIT) Certificate for STEM Faculty

The Active Learning, Inquiry Teaching (ALIT) Certificate program is designed to support faculty in adopting teaching approaches that foster the retention of students in STEM majors and support the development of their students as STEM professionals. These approaches, informed by the extensive body of research on learning, help faculty provide <u>all</u> students with deliberate practice in the skills and habits of mind necessary for learning, inquiry, and research. This program is open to all instructional faculty—tenured/tenure-track, lecturers, and adjunct—who teach courses in the College of Natural and Mathematical Sciences or the College of Engineering and Information Technology and is funded by the Colleges, the FDC, and the NIH-funded STEM BUILD at UMBC initiative.

The requirements for the two-year certificate program consist of:
- Attendance at a minimum of 12 programs, including a kickoff mini-retreat. Programs may be chosen from designated FDC sessions, and/or sessions at the Provost's Teaching and Learning Symposium, the Biology teaching circle, the Mathematics and Statistics teaching circle, or other campus pedagogy discussion events (with approval). *No more than 4 such programs outside of those offered through the FDC (e.g., teaching circles; other pedagogy discussions) may count for the certificate.*
- Participation in the FDC's CATALyst program to gather midterm feedback.
- Participation in a class observation cycle with the FDC.
- Completion of a survey provided by the FDC at the beginning and end of the program that fosters participants' reflection on the effect of the program on their teaching choices.

Faculty who complete the ALIT Certificate program will receive a letter copied to the department chair and Dean documenting their accomplishment for purposes of promotion or tenure along with a $500 professional development award.

Faculty attend the ALIT Certificate End of Year
Celebration on Friday, April 27, 2018.

Appendix 4: Innovation for Teaching Effectiveness (INNOVATE) Certificate for CAHSS and SOWK Faculty

The Innovation for Teaching Effectiveness (INNOVATE) Certificate supports faculty in the Arts, Humanities, and Social Sciences (CAHSS) and Social Work disciplines as they adopt and refine evidence-based teaching approaches that challenge students, foster their persistence, and cultivate their development as 21st century professionals and engaged citizens. These approaches, informed by the extensive body of research on learning, help faculty provide *all* students with deliberate practice in the skills and habits of mind necessary for learning, inquiry, creativity, and research. This program is open to all instructional faculty—tenured/tenure-track, lecturers, and adjunct—who teach courses in the College of Arts, Humanities, and Social Sciences or the School of Social Work and is funded by the College, School, and the FDC.

The requirements for the two-year certificate program consist of:

- Attendance at a minimum of 12 programs, including a kickoff mini-retreat. Programs may be chosen from designated FDC sessions, and/or sessions at the Provost's Teaching and Learning Symposium, the MLLI teaching circle, or other campus pedagogy discussion events (with approval). *No more than 4 such programs outside of those offered through the FDC (e.g., teaching circles; other pedagogy discussions) may count for the certificate.*
- Participation in the FDC's CATALyst program to gather midterm feedback.
- Participation in a class observation cycle with the FDC.
- Completion of a survey provided by the FDC at the beginning and end of the program that fosters participants' reflection on the effect of the program on their teaching choices.
- Completion of a non-evaluative peer observation.
- Completion of a teaching improvement project developed throughout the program. Such a project could be a course redesign, integration of active learning approaches to existing courses, introduction of project-based learning to courses, development of sample modules for other faculty on effective use of technology in the classroom, etc.

Faculty who complete the INNOVATE Certificate program will receive a letter copied to the department chair and Dean documenting their accomplishment for purposes of promotion or tenure along with a $500 professional development award.

Appendix 5: FDC Publications/Presentations and Participation in Funded Research – AY 2015 – 2024

Part I: Publications/presentations

Multiple Center Staff

Hoffman, K., Williams, T., Webster, J., Harrison, J. M., & Nanes, K. Assessing the impacts of an interventional proof-writing course. In revisions (2024) for the *International Journal of Mathematical Education in Science and Technology.*

Hoffman, K., Williams, T. H., & Kephart, K. The use of guided reflections in learning proof writing. Resubmitted after revisions (2024) to a special issue of *Innovations in Mathematics Education: Evaluation, Research and Practice.*

Hodges, L.C., Swatski, S., & Kephart, K.L. (2024). Collegiality and community in FLCs as catalysts for pedagogical change. In K. Rainville, D. Title, & C.G. Desrochers (Eds.), *Expanding the Vision of Faculty Learning Communities in Higher Education: Emerging Opportunities for Faculty to Engage Each Other in Learning, Teaching and Support* (pp. 139-162). Information Age Publisher.

Hoffman, K., Williams, T., Webster, J., Harrison, J. M., Kephart, K., & Nanes, K. (2023). Impact of an interventional proof-writing course [Poster Presentation 2023 UMBC Provost's Teaching & Learning Symposium].

Hodges, L. C., Harrison, J. M., Kephart, K., Swatski, S. & Williams, T. H. (2020). Supporting academic continuity by building community: The work of a faculty development center during COVID-19. *Journal on Centers for Teaching and Learning, 12*, 26-45.

By Linda Hodges:

Leupen, S., Williams, T.H., Hodges, L.C., Ott, L.E., Anderson, E.C., Cui, L., Nanes, K.M., Perks, H.M., & Wagner, C. (2024). Disciplinary differences in STEM faculty and student use of learning objectives: Implications for teaching and learning. *Journal of College Science Teaching*, 1-10.

Carpenter, T.S., & Hodges, L.C. (2024). Student responses to spaced practice in two large gateway chemistry courses. *Journal of Chemical Education*, *101*(2), 429-437.

Goolsby-Cole, C., Bass, S.M., Stanwyck, L., Leupen, S., Carpenter, T.S., & Hodges, L.C. (2023). Issues with question equivalence in online exam pools. *Journal of College Science Teaching, 52*(4)*,* 24-30.

Hodges, L.C., & McDermott, P. (2022). Building community from faculty development to pedagogical innovation and beyond. In O.J. Neisler (Ed.), *Palgrave handbook of academic development centers* (pp. 393-403). Palgrave MacMillan UK.

Hodges, L.C. (2022). Community building as pedagogical imperative in STEM: The role of faculty development post COVID-19. In M. Strawser (Ed.), *The COVID-19 impact on higher education stakeholders and institutional services* (pp. 53-68). Lexington Books.

Sun, S., Else-Quest, N.M., Hodges, L.C., French, A.M., & Dowling, R. (2021). The effects of ALEKS on mathematics learning in K-12 and higher education: A meta-analysis. *Investigations in Mathematics Learning*. https://doi.org/10.1080/19477503.2021.1926194

Carpenter, T.S., Beall, L.C., & Hodges, L.C. (2020). Using the LMS for exam wrapper feedback to prompt metacognitive awareness in large courses. *Journal of Teaching and Learning with Technology 9*, 79-91.

Hodges, L.C., Beall, L.C., Anderson, E.C., Carpenter, T.S., Cui, L., Feeser, E.A., Gierasch, T.M., Nanes, K.M., Perks, H. M., & Wagner, C.R. (2020). Effect of exam wrappers on student achievement in multiple large STEM courses. *Journal of College Science Teaching*, *49*(6), 76-86.

Leupen, S., Kephart, K., & Hodges, L.C. (2020). Factors influencing quality of team discussion: Discourse analysis in an undergraduate team-based learning biology course. *CBE-Life Sciences Education, 19*(1), ar7.

Ott, L.E., Hodges, L.C., & Lacourse, W.R. (2020). Supporting deaf students in undergraduate research experiences: Perspectives of American Sign Language interpreters. *Journal of Microbiology and Biology Education*, *21*(1), 1-5.

Hodges, L.C. (2020, July 23). The challenge of choices when teaching during COVID-19. *The Scholarly Teacher*. https://www.scholarlyteacher.com

Hodges, L. C. (2020). Student engagement in active learning classes. In J. J. Mintzes & E. M. Walter (Eds.), *Active learning in college science: The case for evidence-based practice* (pp. 27-41). Springer Nature.

Carpenter, T.S., Bass, S., & Hodges, L.C. (2019). A personalized automated email tool to connect faculty with students in large STEM courses. *The Chemical Educator*, *24*, 183-188.

Hodges, L.C. (2019). Becoming the distraction in the classroom. *National Teaching and Learning Forum*, *28*(5), 1-4.

Hodges, L.C. (2019). Sit a spell: Embracing the liminality of pedagogical change through the scholarship of teaching and learning. In S. Mader & C. Gibson (Eds.), *Building teaching and learning communities: Creating shared meaning and purpose*. Chicago: Association of College and Research Libraries.

Hodges, L.C., Kephart, K., & Swatski, S. (2019, October). *Effects of a Certificate Program on Teaching Perspectives of University STEM Faculty.* Poster presented at the International Society for the Scholarship of Teaching and Learning (ISSOTL) Annual Meeting, Atlanta, GA.

Hodges, L.C. (2019). Active learning for inclusive teaching: The what, why, and how. Syracuse University.

Hodges, L.C. (2019). Transforming students into learners: Helping students learn on their own. Emory Oxford College, Oxford, Georgia.

Sun, S., Dowling, R., French, A., Else-Quest, N. & Hodges, L. (2019, April). *The effects of ALEKS on mathematics learning from K-12 to higher education: A meta-analysis*. Presentation at the 2019 annual meeting of the American Educational Research Association, Toronto, Canada.

Hodges, L.C. (2018). Designing the denouement in active and flipped classes. *National Teaching and Learning Forum*, *28*(1), 1-4.

Hodges, L.C. (2018). Contemporary issues in group learning in undergraduate science classrooms: A perspective from student engagement. *CBE-Life Sciences Education*, *17*(2), es3.

Hodges, L.C. (2017). A mantra for teaching: Three M's of learning. *National Teaching and Learning Forum*, *27*(1), 6-8.

Hodges, L.C., Anderson, E.C., Carpenter, T.S., Cui, L., Feeser, E.A., & Gierasch, T.M. (2017). Using clickers for deliberate practice in five large science courses. *Journal of College Science Teaching*, *47*(2), 22-28.

Hodges, L.C. (2017). *Ten Research-Based Steps to Effective Group Work* (IDEA Paper #65). Retrieved from The IDEA Center website: https://ideacontent.blob.core.windows.net/content/sites/2/2020/01/PaperIDEA_65.pdf

Hodges, L.C. (2017, November). *Transforming students into learners: Helping students learn on their own*. Presented at University of Texas Dallas and at the Dallas County Community College District.

Hodges, L.C. (2017, June). *From Millennials to Generation Z: How to get your students to do what you want*. Presented at University of Maryland Baltimore, School of Social Work, Baltimore, MD.

Hodges, L.C. (2016). Three common demands from students in large courses and what to do about them. *National Teaching and Learning Forum*, *25*(5), 1-4.

Hodges, L.C. (2016, February). *Overcoming obstacles to student learning in STEM education*. Presented at Trinity Washington University, Washington, DC.

Hodges, L.C. (2016, February). *Active learning: What's the big deal?* Presented at Georgetown University, Washington, DC.

Hodges, L.C., Anderson, E.C., Carpenter, T.S., Cui, L., Gierasch, T.M., Leupen, S., Nanes, K.M., & Wagner, C.R. (2015). Using reading quizzes in STEM classes–the what, why, and how. *Journal of College Science Teaching, 45*(1), 49-55.

Hodges, L.C. (2015). Making our teaching efficient: Flipping the classroom. *National Teaching and Learning Forum*, *24*(5), 1-4.

Hodges, L. C. (2015) *Teaching undergraduate science: A guide to overcoming obstacles to student learning*. Stylus.

By Kerrie Kephart:

Kephart, K. (2022, November). Non-evaluative Peer Observations of Teaching: Reflections toward Change. Poster presentation at the Professional and Organizational Development (POD) Network annual meeting. Seattle, WA.

McDonald, N., Akinsiku, A., Hunter-Cevera, J., Sanchez, M., Kephart, K., Berczynski, M., & Mentis, H. M. (2022). Responsible Computing: A Longitudinal Study of A Peer-led Ethics Learning Framework. ACM Transactions on Computing Education (TOCE).

Kephart, K. (2021, May). Communicating quantitative information: The quantitative comparison statement. An asynchronous presentation by video for faculty at Kazakhstan State University under the auspices of the University of Nebraska-Omaha Office of International Programs through a contract with the Central Asia University Partnerships Program (UniCEN) and American Councils for International Education.

Sanchez, M., Kephart, K., Jones, K., & desJardins, M. A. (2020, October). A methodology to analyze self-reflection in e-portfolios. *IEEE's Frontiers in Education conference proceedings*.

Leupen, S., Kephart, K., & Hodges, L.C. (2020). Factors influencing quality of team discussion: Discourse analysis in an undergraduate team-based learning biology course. *CBE-Life Sciences Education, 19*(1), ar7.

Kephart, K., Kaufman, B., Castellanos, M., & Trueba, L. (2018, June). Toward a taxonomy of reflective moves in learning journals. Paper presented at the International Writing Across the Curriculum conference, Auburn, AL.

Ott, L., Kephart, K., Stolle-McAllister, K., & LaCourse, W. (2018). Students' understanding and perceptions of assigned team roles in a classroom laboratory environment. *Journal of College Science Teaching*, *47*(4), 83-91.

Kephart, K. & Hodges, L. (2017, November). *Fostering effective pedagogical change: Findings from a certificate program for STEM faculty*. Poster presented at Transforming STEM Higher Education: Discovery, Innovation, and the Value of Evidence conference, San Francisco, CA.

Kephart, K. (2017, October). *Kick-starting faculty learning communities: Guided collaborative brainstorming to generate topics*. Poster presented at the Professional and Organizational Development (POD) Conference, Montreal, CA.

Kephart, K. (2017, May). *Scaffolding reflection: Analyzing learning journals in materials engineering*. Poster presented at the Literacies in Engineering for Access and Participation (LEAP) Conference, San Antonio, TX.

Hoffman, K., Leupen, S., Dowell, K., Kephart, K., & Leips, J. (2016). Development and assessment of modules to integrate quantitative skills in introductory biology courses. *CBE–Life Sciences Education, 15*, 1-12. DOI:10.1187/cbe.15-09-0186.

Ott, L., & Kephart, K. (2016, October). *Perceptions of assigned roles in a team laboratory learning environment*. Presented at the annual meeting of the International Society for the Scholarship of Teaching and Learning, San Francisco, CA.

Kephart, K. (2016, October). *The FDC at UMBC*. Presentation to the Towson University Faculty Development Center Task Force.

By Jennifer M. Harrison:

Bruff, D. (2024, May 21). Curriculum Mapping with Jennifer M. Harrison and Vickie Rey Williams. Intentional Teaching Podcast Episode 39. https://intentionalteaching.buzzsprout.com/2069949/15102893-curriculum-mapping-with-jennifer-m-harrison-and-vickie-rey-williams

Harrison, J. M., & Williams, V. (2024). A guide to curriculum mapping: Creating a collaborative, transformative, and learner-centered curriculum. Routledge.

Harrison, J. M., & Williams, V. (2020, October). *Virtual Curriculum Mapping: Collaborating to scaffold & integrate student learning outcomes.* An Online Pre-Conference workshop presented at the Assessment Institute, Indianapolis, IN.

Harrison, J. M., & Braxton, S.N. (2020, April). *Synthesizing outcomes at scale: Connecting the dots to inform institution-wide decision making.* Association for the Assessment of Learning in Higher Education webinar series.https://www.youtube.com/watch?v=9-_yMf0-fyI&feature=youtu.be

Harrison, J. M., & Williams, V. (2019, October). *Embodied curriculum mapping: Activating faculty collaboration for student success.* A Pre-Conference workshop presented at the Assessment Institute, Indianapolis, IN.

Harrison, J. M., & Braxton, S. N. (2019, September). *Making your data count: A taxonomy, process, and rubric to achieve broader institutional impact.* Presented at the Drexel Conference for Teaching and Learning Assessment, Philadelphia, PA.

Harrison, J. M., & Braxton, S. N. (2019, September). *Making your data count: A taxonomy, process, and rubric to achieve broader institutional impact.* Presented at the Maryland Association for Institutional Research, Largo, Maryland.

Harrison, J. M., & Williams, V. (2019, June 10). *Embodied curriculum mapping: Overcoming curricular fragmentation.* A Pre-Conference workshop presented at the Association for the Assessment of Learning in Higher Education 2019 Conference, St. Paul, MN.

Braxton, S. N., & Harrison, J. M. *Got data–now what?: Synthesizing outcomes, measures, and success to inform institution-wide decision making.* (2018, November 14). Presented at the 2018 OLC Accelerate Conference, Orlando, Fl. https://onlinelearning consortium.org/attend-2018/olc-accelerate-2018-session-page/?session=5397&kwds=braxton

Harrison, J. M., & Braxton, S. N. (2018, November 2). Defining and dashboarding student success: Jumpstarting data-driven decision making. Presented at the 2018 EDUCAUSE Annual Conference, Denver, CO. https://events.educause.edu/annual-conference/2018/agenda/defining-and-dashboarding-student-success-jumpstarting-datadriven-decision-making

Harrison, J. M., Braxton, S. N., & Williams, V. (2018, October 23). *Connecting the dots: Synthesizing outcomes, measures, and success to inform institution-wide decision making.* Presented at The 2018 Assessment Institute, Indianapolis, IN.

Harrison, J. M., & Williams, V. (2018, October 23). *Mapping student success: Activating faculty imagination in collaborative curriculum mapping.* Presented at The Assessment Institute, Indianapolis, IN.

Harrison, J. M., & Braxton, S. N. (2018, September 21 and 28). *Selecting effective assessment technologies webinar series.* University System of Maryland. https://www.usmd.edu/cai/selecting-effective-assessment-technologies-webinar-series-part-i and https://www.usmd.edu/cai/selecting-effective-assessment-technologies-webinar-series-part-ii

Harrison, J. M., & Braxton, S. N. (2018, September 13). *Making your data count: A taxonomy, process, and rubric to achieve broader institutional impact.* Presented at the Drexel Conference for Teaching and Learning Assessment, Philadelphia, PA. https://drexel.edu/aconf/about/past-conferences/2018-leading-a-collaborative-revolution-for-change/schedule/

Harrison, J. M., & Williams, V. (2018, September 12). *Overcoming Curricular Fragmentation: An Experiential Learning Approach to Curriculum Mapping.* A Pre-conference Workshop presented at the Drexel Conference for Teaching and Learning Assessment, Philadelphia, PA. https://drexel.edu/aconf/about/past-conferences/2018-leading-a-collaborative-revolution-for-change/pre-conference-workshops/pre-conference_harrison/

Harrison, J. M., & Braxton, S. N. (2018, September). *Technology solutions to support assessment.* (Occasional Paper No. 35). Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment (NILOA. https://www.learningoutcomesassessment.org/wp-content/uploads/2019/02/OccasionalPaper35.pdf

Harrison, J. M., & Braxton, S. N. (2018, June 6). *Taking outcomes to scale: Tools to align, systematize, and use assessment data.* Presented at the Association for the Assessment of Learning in Higher Education 2018 Conference, Salt Lake City, UT.

Harrison, J. M. (2018, March 29). *Integrating student learning results: EAC visual data & blackboard.* Presented at TechFest, UMBC Instructional Technology. https://my.umbc.edu/groups/doit/events/58269

Harrison, J. M., & Braxton, S. N. (2018, January 29). *Identifying effective assessment technologies.* Poster presented at the EDUCAUSE Learning Initiative (ELI) Annual Meeting, Achieving Student Success through New Models of Learning https://events.educause.edu/eli/annual-meeting/2018/agenda/identifying-effective-assessment-technologies.

Harrison, J. M., & Williams, V. (2017, October 24). *Crafting authentic measures to promote double loop improvements in graduate programs.* Presented at The 2017 Assessment Institute in Indianapolis, IN. http://assessmentinstitute.iupui.edu/

Harrison, J. M., & Williams, V. (2017, Summer). *Mapping the curriculum: A low-tech model for synthesizing assessments and improving learning at multiple levels.* AAHLE Intersection. 40-46.

Bishop, M. J., Braxton-Lieber, S., & Harrison, J. M. (2017, Apr 19). *Exploring assessment technologies.* Presented at Taking Student Learning Outcomes to the Next Level. University System of Maryland Symposium. Bowie, MD. (*As a result of this presentation, Jennifer and Sherri were invited to submit a NILOA Occasional Paper, manuscript submitted November 2017.*)

Harrison, J. M., & Williams, V. (2016, December). *Embedding assessment in everyday practices.* Presented at the Middle States Commission on Higher Education Annual Conference 2016, Philadelphia, PA.

Harrison, J. M., & Williams, V. (2016, October). *Mapping common ground: Connecting curricular and co-curricular learning.* Presented at The 2016 Assessment Institute in Indianapolis, IN.

Harrison, J. M., & Williams, V. (2016, June). *Creating direct measures for a diverse division.* Presented at Lilly International 2016, Bethesda, MD. (Features UAA assessment work.)

Harrison, J. M., & Williams, V. (2016, June). *Mapping direct measures across a diverse division: An interactive session.* Presented at the Association for the Assessment of Learning in Higher Education 2016 Conference, Milwaukee, WI. (Features UAA assessment work.)

Harrison, J. M., & Glade, F. (2016, February). *Engaging faculty in assessing general education courses and programs.* Presented at the University System of Maryland (USM) General Education Symposium, Towson, MD.

Snyder, D., & Harrison, J. M. (2016, February). *Using rubrics to measure learning at multiple levels: Social media reading reflections: Utilizing Facebook in the classroom.* Presented at the Conference on Higher Education Pedagogy, Center for Instructional Development and Education Research, Blacksburg, VA. (Features MCS assessment work.)

By Tory Williams

Beall, L.C., Hodges, L.C., Randles, C.J., Williams, T.H., Anderson, E.C., Bass, S.M., Johnson, B., Miller, S.M., & Wagner, C.R. Intentional instruction of metacognition and its impact on first-year student success. Manuscript submitted to *Journal of College Science Teaching*.

Leupen, S., Williams, T.H., Hodges, L.C., Ott, L.E., Anderson, E.C., Cui, L., Nanes, K.M., Perks, H.M., & Wagner, C. (2024). Disciplinary Differences in STEM Faculty and Student Use of Learning Objectives: Implications for Teaching and Learning. *Journal of College Science Teaching*, 1-10.

Kastanos, E., Takacs, J., Williams, T. H., Thomas, R. "Learning Cellular Respiration, pH, and Quantitative Skills Together: Curriculum from a Two-Year / Four-Year Faculty Collaboration," 2023 National Association of Biology Teachers Professional Development Conference, November 2023.

Hoffman, K., Williams, T. H., "Integrating Quantitative Skills into Biology Courses," Society for Mathematical Biology, July 2023.

Williams, T. H., "Effects of a Certificate Program on Teaching Perspectives of STEM Faculty," 2023 Annual Meeting of the American Educational Research Association, Virtual/Remote, May 2023.

Donald Snyder, Jason Loviglio, and Kristin Anchor, and Tory Williams, "Metacognition Modules: Teaching Self-Regulation in MCS 101," Seventh Annual Provost's Teaching & Learning Symposium Program, UMBC, April 2023.

Sarah Leupen, Tory Williams , Linda Hodges, Laura Ott, Eric Anderson and Lili Cui, Kalman Nanes, Mark Perks, and Cynthia Wagner, "Disciplinary Differences in STEM Faculty and Student Use of Learning Objectives: Implications for Teaching and Learning," Seventh Annual Provost's Teaching & Learning Symposium Program, UMBC, April 2023.

Evdokia Kastanos, Julie Takacs, Tory Williams. "Development, Implementation, and Analysis of a Module on Osmosis which Incorporates Math Core Competencies in Introductory, College-level Biology Courses, Across Multiple Institutions". National Association of Biology Teachers. November 2022.

Leupen, S., Hoffman, K., Williams, T., Pie, H., Turner, P., Starz-Gaiano, M. "The IUSE Project: Implementing Quantitative Biology Modules Across Institutions," Society for Industrial and Applied Mathematics, Pittsburgh, PA, July 2022.

Lauman, B., Williams, T. H., & Chase Martin, A. "Designing Assessments of Quantitative Reasoning in Biology: An Inter-Institutional Collaboration," Innovations Virtual Conference, March 2022.

Lauman, B., Chase Martin, A., Wesley, G., & Williams, T. H. "Designing Assessments of Quantitative Competencies in Biology Curriculum," AAC&U's Annual Meeting - "Educating for Democracy," January 2022.

Heimann, J. E., Williams, T. H., Bennett, J. W., & Rosenzweig, Z. (2021). Baltimore SCIART: A Fully Virtual Undergraduate Research Experience at the Interface of Computational Chemistry and Art. *Journal of Chemical Education*, *98*(10), 3172-3179.

Williams, T. H., & Hodges, L. C., (2020, November). *Effects of a certificate program on teaching perspectives of STEM faculty.* Poster presented at the AAC&U PKAL Virtual Conference on Transforming STEM Higher Education.

Zempo, B., Yamamoto, Y., Williams, T., & Ono, F. (2020). Synaptic silencing of fast muscle is compensated by rewired innervation of slow muscle. *Science Advances*, *6*(15), eaax8382.

Williams, T., Krikorian, J., Singer, J., Rakes, C., & Ross, J. (2019). A High Quality Educative Curriculum in Engineering Fosters Pedagogical Growth. *International Journal of Research in Education and Science*, *5*(2), 657-680.

Williams, T., Singer, J., Krikorian, J., Rakes, C., & Ross, J. (2019). Measuring pedagogy and the integration of engineering design in STEM classrooms. *Journal of Science Education and Technology*, 1-16.

By Sarah Swatski

Swatski, S. (2022, April 28). *Imparting Your Value through Sharing Your Story* [Conference Presentation]. University System of Maryland (USM) Administrative Professionals Conference (APC) - Reclaim - Rediscover - Renew in '22, Virtual.

Part II: Grant Submissions/Participation

Active

1) Project title: IGE: Track 1: Caselet: Deliberate Practice with Scalable Case-based Learning to Enhance Data Science Problem Solving Competency
PI: Lujie (Karen) Chen
Advisory Board Member: *Kerrie Kephart*
Source of support: NSF
Total award amount: $365,905
Award period covered: 10/1/2024-9/30/2027

2) Project title: Collaborative Research: RETTL: Story Studio: Coaching Data Storytelling at Scale
PI: Lujie (Karen) Chen
Paid support personnel: *Kerrie Kephart*
Sources of support: NSF
Total award amount: $369,610
Award period covered: 8/1/2023-7/31/2026 (estimated)

3) Project title: CAREER: TEaching to EMpower (TEEM): Towards Learning Analytics for Students by Students
PI: Lujie (Karen) Chen
Paid support personnel: *Kerrie Kephart*
Sources of Support: NSF
Total award amount: $667,611
Award period covered: 1/1/2023 - 12/31/2027

4) Project title: BPC-DP: PeerSIST - Peer Support for IS Transfers
PI: Carolyn Seaman
Paid support personnel: *Kerrie Kephart*
Sources of support: NSF
Total award amount: $294,726

Award period covered: 10/1/2022-10/1/2024

5) Project title: REU Site: Biochemical, Environmental, and MOlecular Research in Engineering (BEMORE)
PI: Lee Blaney
Paid support personnel: *Linda Hodges*
Sources of support: NSF
Total award amount: $389,827
Award period covered: 9/2021-8/2024

6) Project title: REU Site: Research Experiences for Undergraduates in Smart Computing and Communications
PI: Nirmalya Roy
Paid support personnel: *Linda Hodges*
Sources of support: NSF
Total award amount: $404,932
Award period covered: 02/2021-01/2024

7) Project title: REU Site: Online Interdisciplinary Big Data Analytics in Science and Engineering
PI: Jianwu Wang; Co-PI: Matthias Gobbert
Paid support personnel: *Linda Hodges*
Sources of support: NSF
Total award amount: $290,530
Award period covered: 02/2021-01/2024

8) Project title: HDR DSC: Collaborative Research: Creating and Integrating Data Science Corps to Improve the Quality of Life in Urban Areas
PI: Aryya Gangopadhyay
Paid support personnel: *Jennifer Harrison and Linda Hodges*
Source of support: NSF
Total award amount: $615,955 (for UMBC)
Award period covered: 09/01/2019-01/2024 (no-cost extension)

9) Project title: Collaborative Research: A Model of Institutional and Community Transformation for Teaching and Learning Quantitative Reasoning in the Biological Sciences (The IUSE Initiative)
PI: William Lacourse; Co-PI, Jeff Leips
Paid support personnel: *Tory Williams (39%) and Linda Hodges*
Source of support: NSF IUSE
Total award amount: about $1,500,000
Total award period covered: 09/1/2018-08/31/2023

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