Experiential Education & Engagement Center (EEEC)

2022 - 2023

ANNUAL REPORT

PR/Award #P031A190185

Grantee NCES ID #100830

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Executive Summary

2022-2023 was another successful year for Title III grant activities at Auburn University at Montgomery led by the Experiential Education and Engagement Center. We continued collaborations with AUM colleges and other units, such as the Civil Rights and Civic Virtues Society and Faculty Development Institute, to expand professional development opportunities and saw a significant increase in participation. Student engagement in experiential education activities increased, and data shows that retention, persistence, and graduation rates for these students was markedly higher than those not engaged. We strengthened partnerships with current community organizations and made new connections for service learning opportunities with Mercy House and Beacon Center to name a few, and increased the number of field experience and service-learning courses. The EEEC hosted the first-annual Service Learning Expo and Experiential Education Week; events that offered workshops for faculty and staff to implement experiential learning in the classroom and within departments, as well as opportunities for students to engage with community partners. Under the leadership of the EEEC, the university began the process of applying for the Carnegie Classification for Community Engagement by implementing a self-study. The Peer Advising Program grew and peer advisors connected with over 500 students. Peer mentor support has increased for students, as well as training for peer mentors. The EEEC student intern facilitated a leadership workshop for peer mentors and Flight School mentors attended development sessions focused on topics such as unconscious bias and cooperative learning. The impact experiential learning has had on students is positive and continues to improve, and we look forward to continuing to build on our successes and learn from assessment and feedback.

Performance Findings

1. **Project Objective:** Develop high impact practices to connect students to campus.

1.1 Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
Increase number of students participating in experiential learning opportunities. Baseline established for all undergraduate students in Fall 2019. This number will increase 10% each year.		**3,199**			**2,560 On schedule**		

1.2 Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
Increase number of students participating in undergraduate research opportunities. Baseline established for all undergraduate students in Fall 2019. This number will increase 10% each year.		**846**			**252 Not achieved**		

1.3 Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
Expand the presence of peer mentors within University Success Course. The number of peer mentors will increase by 5 each year.		**189**			**203 On schedule**		

1.4 Performance Measure	Measure Type	Quantitative Data					
		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
Increase number of faculty participating in professional development focused on experiential learning and undergraduate research. By Fall 2020, 40% of AUM faculty will have taken part in at least one professional development activity focused on incorporating experiential learning or undergraduate research into the classroom.			**161/230**	**70**		**169/230 On schedule**	**73**

1.5 Performance Measure	Measure Type	Quantitative Data					
Increase retention rates for first time freshman. Retention rates will increase 1% per year from Fall 2018 baseline.		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			280/384	**73**		**252/384 On schedule**	**66**
1.6 Performance Measure	Measure Type	Quantitative Data					
Increase persistence rates, 2nd year to 3rd year and 3rd year to 4th year. Persistence rates will increase 1% per year from Fall 2018 baseline.		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			211/370 **139/268**	**57** **52**		**273/370 On schedule** **215/268 On schedule**	**74** **80**
1.7 Performance Measure	Measure Type	Quantitative Data					
Increase graduation rates. Graduation rates will increase by 1% per year from Fall 2011 cohort baseline.		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			212/558	**38**		**200/558 On schedule**	**36**

Explanation of Progress

1.1) Target on schedule: 2560 undergraduate students participated in experiential learning during the 2022-2023 academic year, falling short of the target of 3,199. Experiential learning activities were tracked through surveys, course offerings, university mini-grants, informal interviews, and sign-in sheets. These activities represent both course-based experiential learning and activities completed outside of required coursework. While the target was not achieved in year four, it is a 7% increase over last year. Additionally, it is worth noting that the total number of service-learning and field experience course-based opportunities increased by 76 and 69 respectively.

1.2) Target not achieved: 252 students participated in undergraduate research during year four, falling short of the target of 846. Undergraduate research activities were tracked through surveys, research courses, faculty-led research activities, university mini-grants, and students who presented their research at conferences and symposiums. Prior counts included students in research methods courses. Current count only includes those students who are participating in faculty-led research activities.

1.3) Target on schedule: Due to the success of embedded peer mentors within the University Success course and the need to provide support to undergraduate students in other courses, we have continued to hire peer mentors to support students in introductory courses and those with higher DFW rates. 203 peer mentors were hired to support students in their courses, which exceeded the target of 189.

1.4) Target on schedule: 73% of active full-time faculty members participated in professional development on experiential learning or undergraduate research during the 2022-2023 academic year. This is a 3% increase over the target and a 30% increase over year three. 19 faculty development sessions were hosted by the EEEC, with an increase in offerings focused on course-based opportunities. This corresponds with an increase in course-based service-learning and field experiences. Along those lines, EEEC staff attended conferences to network, form collaborations, and learn more about strategies and techniques to utilize experiential education for student success at AUM. The Data Analyst and Assessment Specialist attended the Alabama Association for Institutional Research Conference and the Director attended the Society for Experiential Education Conference. Strategies learned

from these experiences have been incorporated into training sessions with faculty, staff, and peer mentors.

1.5) Target on schedule: The retention rate for first-time freshmen during the 2022-2023 academic year is 66%, a decrease of 4% from year three. Although 7% short of our target, data shows that sophomores, juniors, and seniors engaged in experiential education at AUM have a higher retention rate than those who are not.

Classification	Retained & Participated in Experiential Learning		Classification	Retained & No Experiential Learning
Sophomore	83%		**Sophomore**	66%
Junior	87%		**Junior**	74%
Senior	41%		**Senior**	38%

First-generation students who participated in experiential learning opportunities are also retained at a higher rate than those who did not.

Cohort	2019	2020	2021	2022
1st Gen w/ Exp. Learning	76.1%	68.3%	74.5%	53.8%
1st Gen w/o Exp. Learning	52.6%	41.7%	42.9%	20%

1.6) Target on schedule: The 2nd to 3rd year persistence rate of the fall 2018 bachelor's degree seeking, first-time, full-time freshman cohort is 74%. Baseline data for fall 2018 bachelor's degree seeking, first-time, full-time freshman cohort 3rd year to 4th year persistence rate is 80%.

Year 2-3 persistence rate target on schedule – 74% (273/370) of students persisted year two to year three. This exceeds the target of 57 % (211/370) of this student cohort. Data was collected and analyzed by the AUM Office of Institutional Effectiveness.

Year 3-4 persistence rate target on schedule – 80% (215/268) of students persisted year three to year four. This exceeds the target of 52% (139/268) students. Data was collected and analyzed by the AUM Office of Institutional Effectiveness.

1.7) Target on schedule: Fall 2016 bachelor's degree seeking, first-time, full-time freshman cohort six-year graduation rate is 36% (200/558). This falls 2% short of the target of 38% (212/558). This data was provided by the AUM Office of Institutional Effectiveness. While small, this is an increase of 0.2% in graduation rates from year three.

2. **Project Objective:** "Close the loop" in student data tracking, management, and interpretation.

2.1 Performance Measure	Measure Type	Quantitative Data					
Increase faculty and staff access to timely student information. By Fall 2020, 20% of faculty and staff will have participated in professional development training on accessing engagement and persistence data. Percentage will increase by 10% per year.		Target			Actual Performance Data		
		Raw Number	Ratio	%	Raw Number	Ratio	%
			274/548	**50%**		**164/548 On Schedule**	**30%**

Explanation of Progress

2.1) Target on schedule: 30% of faculty and staff have been trained on accessing engagement and persistence data. Although this falls short of our target of 50%, it is an 18% increase over year three. Training included accessing data on our website, retention and persistence, peer mentor program effectiveness, and experiential learning data at AUM. Although the target was not met, twice as many faculty and staff were trained on accessing student data pertaining to experiential education than in year three.

Budget Information

As we move towards the last year of the Title III grant, and to make more and better use of funds, we requested and were approved for budget reallocations in the amount of $691,000. This allows us to provide additional student support by hiring peer tutors, engagement ambassadors, and mentors for first-year students.

$441,000 will support the expansion of peer mentoring opportunities:

a) Peer mentors for all core and selected other high DFW courses $75,000
b) Peer advisors $36,000
c) Tutors (online or in person) focused on high DFW courses $125,000
d) Mentors for incoming first-year students $155,000
e) Engagement ambassadors $50,000

We reallocated $250,000 into the Software category, as our next step requires that we leverage technology to continue to improve retention. Critical technologies will help us upgrade processes that impact student retention by facilitating additional student mentoring, advising, and clarity of course and catalog information. AUM will sustain the cost of these products after the funding period ends.

- Mentor Collective: $35,357

  We will continue our collaboration with Mentor Collective. As a structured, large-scale one-on-one peer mentoring program, Mentor Collective increases retention and persistence, increases a sense of belonging for mentors and mentees, and decreases melt because newly admitted students are paired with an upper-class student. Mentors provide a peer connection and timely support for student concerns. They are also are trained on the available AUM resources and also given a way to flag more serious concerns they might have for mentees.

- CRM Advise: $162,701

  For decades, leading educational researchers such as Richard Light have established the critical role academic advisors play in supporting student success in order to meet the

"diverse needs of an ever-changing student population." It's to this end that AUM is purchasing CRM Advise. This Ellucian product, which supports best practices for academic advising established by the Council for the Advancement of Standards in Higher Education, is designed to support student success by

- Identifying student risk again pre-configured benchmarks
- Providing early-alert warnings to academic advisors and student success advisors with instructions for outreach, follow-up, and other intervention strategies
- Customizing communication plans and workflows to individualize and measure outreach
- Establishing open and accessible student-record database that integrates with other Ellucian products, such as degree-auditing software; and
- Tracking data in real-time that facilitates monitoring and measuring high-priority issues and viewing trends and progress over time.

- CourseDog: $51,296.00

CourseDog is a software solution that is used to create interactive, web-based, catalogs that are easy for students to understand and navigate. The software consists of predefined tables that pull course lists and program information directly from the student information system (Banner) which boosts efficiency and accuracy while ensuring that catalog content is consistently up-to-date. In addition, web-based catalogs have content tools and filters that administrators can utilize to monitor and track interrelationships such as program requirements and requisites. This information can be used to address bottlenecks and improve student outcomes. Use of the software reduces the need for manual data movement and the likelihood of attrition and errors that can impact student success. Hence, web-based catalogs have become the industry standard for providing all university constituents with a highly visible, single source of accurate information for accessing the University's academic policies, programming, and curriculum data.

We have requested a sixth year no-cost extension and are waiting on a decision. Additionally, we are looking into applying for other grant opportunities. A Budget to Actual report for year three is included with his report (Appendix A).

Faculty and Staff Development

Based on feedback in the year three Evaluation Report, significant efforts have been made to expand and enhance faculty participation. As a result, 73% of active full-time faculty members participated in professional development on experiential learning or undergraduate research during the 2022-2023 academic year. This is a 3% increase over the target and a 30% increase over year three.

We continued our partnership with the Faculty Development Institute (FDI) and offered the following professional development sessions for faculty and staff:

- Curriculum Redesign Workshop (via Campus Compact) to help cultivate high-quality community-engaged learning courses and provide faculty an opportunity to draft a community-engaged course syllabus and plan for course implementation.
- Experiential Education Week panel presentation by faculty who have successfully incorporated undergraduate research, internships, service-learning, and peer mentors in their courses to encourage and support other faculty members to do the same.
- The Benefits of Experiential Learning for Student Success was presented to faculty and staff in speed-dating type sessions. The EEEC staff shared data and provided strategies and resources to help them engage students in these high-impact practices.

Collaborating with the Civil Rights and Civic Virtues Society (CRCVS) and the Howard Hughes Medical Institute (HHMI) program at AUM, we provided a speaker series and an annual teaching workshop at the end of spring semester focused on community-engaged learning and character education. As a part of the workshop, faculty fellows presented experiential education community engagement projects that they have implemented in their courses. The CRCVS Annual Teaching Conference Program is included with this report (Appendix B).

Other sessions hosted by the EEEC included New Faculty Orientation, Utilizing Peer Mentors Effectively, Applying for Funding via Research Mini-Grants, and How to Create a Research Project Poster.

We followed-up with year three participants of EEEC professional development and discovered that faculty incorporated more course-based service-learning and field experiences. As reported previously, data shows that AUM students engaged in experiential learning are retained

and graduate at a higher rate than those who are not. We are encouraged by the increase in these opportunities and the implications for continued positive outcomes for students and AUM.

Service Learning, Community Engagement, and Field Experiences

As previously mentioned, course-based service-learning and field experiences increased during year four. We took students, faculty, and staff to serve at Shady Street Park 12 times, and AUM Honors students designed, built, installed, and monitored nest boxes for Eastern Bluebirds. Graphic design majors created logos for park signage and t-shirts. We established the Service and Leadership Club and began the self-assessment process to apply for the Carnegie Community Engagement Classification. Beginning in year five of the grant, community-engaged students, faculty, and staff will be eligible for recognition in the newly developed Community Engagement Recognition program. One of the steps in the process was to create Student Learning Outcomes, for which we utilized the NSSE 2022 Topical Module Report for Civic Engagement. This assessment is administered every two years. The flyer announcing the CE Recognition program is included with this report (Appendix C).

We hosted the inaugural Service-Learning Expo in the fall and Experiential Education Week Browse Session in the spring. Community organizations and AUM departments, faculty, and staff were invited to share their engagement opportunities with students. These included service-learning, research, field experiences, and internships. The Service Learning Expo survey results reveal that 72% of respondents reported that they found an opportunity in which to participate as a result of the expo; 76% said they would attend next year; 72% would recommend it to a friend or colleague; and 100% of the community partners in attendance reported that they connected with students and would attend this event next year.

Several field trips to the Equal Justice Initiative and Rosa Parks Museum were also available for students, faculty, and staff. Additionally, the EEEC supported several on-campus events, such as Breast Cancer Awareness and Hunger and Homeless Awareness. New community partnerships include Women in Training, Inc. and Service Dogs of Alabama.

Peer Support Programs

Classroom Embedded Peer Mentors

We have continued to expand embedded peer mentors at AUM. To date, they have served 9,861 students within 680 courses. Peer mentors who have served for two years or more were invited serve as facilitators at peer mentor training fall 2022 and spring 2023. The EEEC hired one of these peer mentors to work as an intern, and he developed and delivered a leadership workshop for other peer mentors. Data provided by the Office of Institutional Effectiveness shows that students in courses with peer mentors have a higher GPA than those without a peer mentor.

Auburn University at Montgomery
Course GPA Comparisons Spring 2023

Course	Title	GPA w/ Peer Mentor	GPA w/out Peer Mentor
ENGL 1010	English Composition I	2.93	2.34
MATH 1050	College Algebra	3.25	2.75
PSYC 1000	General Intro to Psychology	2.14	1.75

A fall 2022 mentee evaluation of peer mentors revealed that on average, students met with their peer mentor outside of class five times. 27% of students reported that they didn't have time to meet with their mentors, and 11% reported that their mentor was not engaging. 38% of mentees said they were interested in becoming a peer mentor in the future. We have used this feedback to improve peer mentor training and resources.

The EEEC collaborated again with the Warhawk Academic Success Center (WASC) during the Bridge summer camp summer semester 2023 by providing peer mentors support for incoming freshmen who wanted to improve their math or English placement scores and get a jump-start on the transition to college. 14 of the 27 participants self-reported as first-generation. Data indicates that this student cohort has a retention rate of 96%. Due to this high rate, we are looking to expand this camp in year five.

Mentor Collective

We have continued our contract with Mentor Collective who provide recruiting, training, matchings, engagement support, and assessment for 1:1 volunteer mentorships. In year four, over 1,158 conversations were logged and over 2,932 text messages were exchanged between mentors

and mentees. The top priority flags of concern included academic struggles, financial concerns, dropping out, housing or food insecurity, transferring schools, and considering switching majors. The following are year four assessment results for mentors and mentees.

Mentees

Data Point being Assessed	Percentage of Participants at 3, 5, or 5
Academic Self-Efficacy	50.7% (179/353)
Sense of Belonging	45.3% (160/353)

Mentors

Data Point being Assessed	Percentage of Participants at 3, 5, or 5
Academic Self-Efficacy	55.6% (69/124)
Sense of Belonging	55.6% (69/124)

Flight School: Co-Pilots and Navigators

As reported in year three and in collaboration with the EEEC, the Department of Biology and Environmental Science developed Flight School, a tiered mentoring program that trains upperclassmen to be leaders in the classroom while helping underclassmen be more effective learners. In this community we have learners (students), peer-mentors (Navigators and Co-pilots) and faculty. Co-pilots receive a $500.00 stipend funded by an NSF Improving Undergraduate STEM Education (iUse) grant, and Navigators are hourly student workers/peer mentors funded by the Title III grant.

Term	Co-Pilots	Navigators
Fall ‘22 (6 sections)	6	13
Spring ‘23 (5 sections)	5	10

These peer mentors participate in biweekly workshops that provide training on topics such as time management, unconscious bias, improving confidence, and cooperative learning.

The results of a recent study reveal a significant drop in DFW rates in introductory Biology courses. Prior to implementation, these courses had a 60% DFW rate. Courses that implemented Flight School DFW rates dropped to 33% first semester and 19% second semester Some courses had DFW rates as low as 4%. Additionally, questionnaires completed by students taking Flight School courses reported an increase in learning gains, sense of belonging, and engagement with faculty. The published article is included with this report (Appendix D).

Peer Advisor Program

The Peer Advisor Program was piloted spring semester 2023 with two peer advisors. Together, they logged over 500 student interactions and participated in advising events such as "Advising Fair." One peer advisor was hired during summer semester 2023. They participated in New Student Orientations and assisted over 50 new admits to the College of Sciences with questions related to the registration process.

Peer advisors assist students with academic planning, understanding degree requirements, navigating course options, connecting students with academic advisors, and sharing strategies for success with long-term educational planning.

Other Peer Support

As previously mentioned, a budget reallocation has allowed us to fund additional peer support positions for students, including student ambassadors and peer tutors.

During the month of July 2023:

- Student Ambassadors within the Student Affairs Division supported new student orientations, assisted students, guests, and recently admitted students by providing information concerning financial aid, scholarships, campus safety, and more. They participated in three new student orientations during the month, contacted several hundred newly admitted students through call campaigns, text messages, personalized postcards, and social media interactions. Ambassadors engaged students during extracurricular events to promote a sense of belonging and a welcoming campus environment. Student Ambassadors provided support to

students requesting university information, new student employee training, and transitioning from high school to college life. Student Affairs Ambassadors work in various locations including the Warhawk Resource Center, Global Education Center, Curtiss Connection, and the Student Affairs offices.

- Peer tutors assisted 61 students in 149 sessions for a total of 103.35 contact hours in July 2023.

Internships and Undergraduate Research

During year four, AUM Provost Dr. Mrinal Varma funded 29 undergraduate research projects led by 35 faculty in the amount of $87,422. These funds, managed by the EEEC, provided mini-grants for faculty that supported diverse projects as well as a research symposium in the College of Sciences. The Undergraduate Research and Creative Activity Committee reviews each application, completes a scoring rubric, and provides a recommendation regarding funding. Dr. Varma continued to incentivize student participation in undergraduate research by awarding 62 students $31,521.00 in scholarships for enrolling in research or internship courses. Additionally, he is planning additional ways to recognize faculty who participate in directed research with undergraduate students.

The following are student research projects reported to the EEEC:

- 51 presentations with 92 presenters at the Celebration of Research and Creative Activity hosted by the Experiential Education and Engagement Center.
- 55 at the AUM College of Sciences Research Symposium
- 21 at AUM Research Day
- 3 at the Auburn Research Symposium
- 3 at the National Leadership Training Conference
- 5 at Financial Leaders Conference
- 5 students presenting on Artificial Intelligence
- 5 students presenting at the CFA Institute Research Challenge
- 6 students presenting at the Alabama Academy of Science
- 2 students presenting at the Southeastern Section of the Mathematical Society of America

To encourage more students to participate in undergraduate research, address areas for improvement, and assess students' research experiences, our center created a Qualtrics survey based on David Lopatto's SURE III reflection survey. Dr. Tara Beziat (Associate Professor of Educational Psychology), Debra Tomblin (Research Compliance Officer), and other AUM faculty and staff have reviewed the survey to ensure its effectiveness. The survey's purpose is to gather information in the following areas:

- Research areas (subject)
- Length of time spent on faculty-led research
- Attitudes towards obtaining post-graduate degrees
- Dissemination of research findings (presentations, written manuscripts, professional journals, articles, etc.)
- Research affecting other academic areas (courses, grade improvement, hard & soft skills, etc.)

The survey will be administered each semester to faculty, students, and those who present at symposiums. A copy of the assessment is included with this report (Appendix E).

The EEEC continued to work with the Career Development Center and meet with community organizations to secure internships. A listing of opportunities is updated regularly and can be viewed on our website by following this link: https://docs.google.com/spreadsheets/d/1KspdCgdU31TPcRS77mSQeFRsNe7O14QfuTbm6-N_kYg/edit#gid=1245446678

Communication & Marketing

Our Center continues to utilize Constant Contact to deliver the EEEC newsletter each semester to AUM faculty, staff, students, community, and alumni. During year four, we visited classes and made presentations to students about experiential learning opportunities and resources. We presented at the Academic Advisors Forum, Faculty Senate, Staff Council, AUM Alumni Board of Directors, and the Department Chairs Council.

In addition to participation in on-campus activities and events such as Warhawk Welcome, New Student Orientation, Club and Organizations Fair, the EEEC publicizes our activities with the greater community as we presented to the Lions and Rotary Clubs and participated in events such as the Adult Women's College Fair sponsored by TyTalks, Inc.

In response to the need to publicize to the wider community, and to obtain feedback from our community partners to assess the quality of our community engagement, we created a survey to distribute to community organizations during year five. This information will also be utilized in our application for the Carnegie Elective Classification for Community Engagement.

Challenges

We have continued to seek solutions to challenges. During year four, we experienced another staffing change. And although we have seen an increase in experiential education opportunities, tracking and reporting these activities - particularly internships and undergraduate research - has been challenging. One way we plan to address this challenge is through two recent policy changes. One was an update to the policy for reporting course-based experiential education by utilizing Form 2000 which is used to add an attribute to the course in our Learning Management System. Another was a policy to add community engagement denotation to students' transcripts.

Moving Forward

The Experiential Education and Engagement Center has made positive strides in the mission to increase student retention, persistence, and graduation rates through early engagement. We have benefitted from the support and guidance of our external evaluator and her participation in the year three strategic planning meeting. We look forward to hosting her again later this year. Awareness of and participation in experiential education at AUM is increasing, and we will continue to make new partnerships and build on current ones. We recognize the need to continue to invest in high impact practices beyond the grant and addressing student success holistically. We anticipate a receiving a 6th year no-cost grant extension and are committed to supporting students and enhancing their experiential learning experiences at Auburn University at Montgomery to better prepare them for success in college and beyond.

AUM Contracts & Grants Accounting
Budget to Actual Report
Year 4: 10/1/2022 - 09/30/2023

Project Information:	
Fund#	350196
Fund Title:	USDE Grant - Title III
P.I.	Mrinal Varma
Co-P.I.	Sameer Pande, Joy Clark
Term	10/01/2019 - 09/30/2024

Budget Category/Account Code	Carryover Balance from Year 3	Budget Year 4	Actual Expenses Year 4	Available Balance as of 9/30/2023
Personnel	39,330.53	84,686.34		
Program Coordinator -Amy Ingram			36,349.92	
Data Analyst/Assessment Specialist - Scott Sterling			17,625.03	
Learning Specialist - Brenda Plympton/Scott Sterling			15,987.27	
				54,054.65
Student Personnel 1)				
Student Success Coaches	158,033.50	306,010.00		
			132,909.91	
				331,133.59
Fringe Benefits 1)	15,806.85	15,826.00		
Fringe Rate Expense-Full Time			21,478.39	
				10,154.46
Travel 2)	5,807.74	3,000.00		
Individual In-State Travel - ALAIR			574.87	
Individual Registration Fee-Travel - ALAIR			130.00	
				8,102.87
Other 3)	-	-		
Individual Memberships - ALAIR			25.00	
Advertising cost			28.20	
Business meals			30.00	
				(83.20)
Contractual	40,977.03	20,580.00		
Honorariums - Hatcher, Julie A.			2,941.00	
Professional Services - Grant evaluator			3,200.00	
				55,416.03
Supplies 1)	281,781.62	13,000.00		
Office Printing			42.00	
Subscriptions			49.75	
Award Supplies			38.50	
Office Supplies			2,236.77	
Other Expendable Supplies			390.08	
Non-Capital Other Equipment			880.56	
Computer Software License Fees			48,349.94	
Shearwater (Mentor Collective)				242,794.02
Total	541,737.27	443,102.34	283,267.19	701,572.42

Note: **1) Budget reallocation 2 - approved 6/26/2023**

Budget reallocation 2 details: from student personnel budget category

75,000.00	Peer mentors for all core and selected other high DFW courses
36,000.00	Peer advisors
125,000.00	Tutors (online or in person) focused on high DFW courses
155,000.00	Mentors for incoming first-year students
50,000.00	Engagement ambassadors
441,000.00	No reallocation needed - funding within the current Student Personnel allocation to continue our previous activities and expand our use of peer mentors
35,357.00	Mentor Collective
162,701.00	CRM Advise
51,296.00	CourseDog
250,000.00	Reallocation to technology fee
20,000.00	Reallocation to Fringe benefits
270,000.00	**Total amount reallocated from student personnel carryover**

2) Individual Memberships for $150 was charged to the fund in Year 2 and reported in APR Year 2. Since this charge is unallowable and was moved off from the fund, after Year 2 carryover balance increased by $150.00

3) Institutional membership was charged to the fund in Year 2 and reported in APR Year 2. Since this charge is unallowable and was moved off from the fund after Year 2, carryover balance increased by $297.00

Voluntary committed cost- share: 102004-210094 Budget Category/Account Code	Actual Expenses Year 4
Executive/Admin/Mgr. Salaries FT	
Dr. Varma - 2%	6,275.17
Dr. Panda 5%	7,914.48
Dr. Stallings 5%	5,709.00
Fringe Rate Expense-Full Time	
Fringe Rate Expense-Full Time	6,189.96
Total	26,088.61

Teaching & Learning

To learn from and with each other

PHOTO CREDIT: WILL FENN

CREATING A CULTURE OF LEARNING

Aaron D. Cobb, Project Director

The mission of the Civil Rights & Civic Virtue Society is to foster civic identity, commitment, and civic-mindedness through community-engaged learning experiences. Toward this end, we seek to support pedagogical and curricular innovation through our Faculty Fellows Community of Practice. This community is a small group of faculty who commit to work with each other over the course of an academic year to develop and implement a new pedagogical or curricular initiative related to civil rights, civic virtue, and character formation.

The culminating event of this year's work was the "Out of the Box Teaching Workshop" co-hosted with a team of faculty in the College of Sciences who have been working on a grant that aims to increase inclusive teaching practices in Science, Technology, Engineering, and Mathematics (STEM) education. The conference featured presentations by Dr. Hyemin Han on the pedagogical uses of moral exemplars and a workshop by Dr. Aaron Richmond and Dr. Christopher Was focusing on maximizing student study skills through effective teaching strategies. Additionally, six of our faculty fellows led workshops related to their year-long projects. This booklet presents a brief snapshot of some of this exciting work!

Highlights from 2022-2023

JOHN TEMPLETON FOUNDATION
Inspiring Awe & Wonder


PHOTO CREDIT: WILL FENN

DR. CLARISSA ARMS-CHAVEZ

Dr. Arms-Chavez redesigned elements of her online course on the Psychology of Prejudice and Discrimination. Her goal centered around increasing the impact of empathy and helping students conceptualize a plan of action for change. The final reflection paper required students to attend either the Civil Rights Memorial or the Equal Justice Initiative's Legacy Museum and reflect on and apply the class concepts with the information gained from the museums. She encouraged students to also reflect on disturbing parallels with the current treatment, hateful legislation, and increasing murders found within the transgender community. The final course discussion invited students to develop a concrete plan to enact positive change within their community. Students were prompted to search online and identify two local organizations or volunteer opportunities where they may want to be involved in the near future. To do this, students were prompted to search online and identify two local organizations or volunteer opportunities where they may want to be involved in the near future. Students discussed this in an open class discussion and ended the class with a plan for action in their own lives.

PROF. BREUNA BAINE

Professor Baine engaged students in an interactive exhibition design project for the future Mt. Zion AME Zion Church Memorial Annex, which will commemorate the creation of the Montgomery Improvement Association and the election of Martin Luther King, Jr. as its first chairman. Her class also focused on Peacock Tract, a historic community that was central to the freedom struggle in Montgomery in the 1950s and 1960s. Churches and spaces within this community were central to strategy meetings and to the mass meetings held during the bus boycott. ITowards the culmination of the projects, a presentation and class critique from exhibition design expert L'Rai Arthur Mensah helped students revisit essential research and refine the graphic details of their exhibition design pieces.

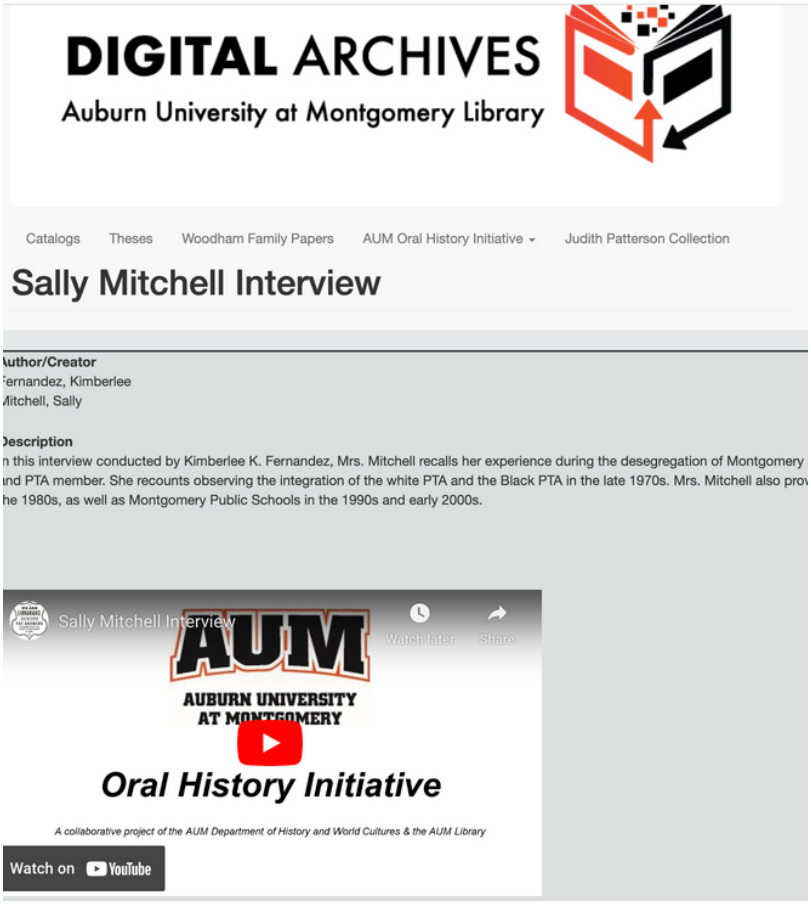

PHOTO CREDIT: WILL FENN

PHOTO CREDIT: BREUNA BAINE

The exhibit pictured to the left was created by one of Professor Baine's students. This is one of three pieces related to Peacock Tract and the land purchases connected to the construction of highways through Montgomery.

PROF. JESSICA HAYES

Professor Jessica Hayes worked collaboratively with Dr. Keith Krawczynski (History & World Cultures) and his Oral History Class. In the context of this course, students received instruction on the importance and fundamentals of oral history collection and collected oral histories from individuals who experienced the desegregation of Montgomery (Alabama) Public Schools. Professor Hayes worked with the students and their oral histories to make them publicly available through the AUM Library's Digital Collections. An example of our work can be seen here: https://digitalarchives.aum.edu/oralhistory_mitchell



DR. DANA COMI

Dr. Dana Comi's goal in this project was to work toward the development of sustainable partnerships with organizations in Montgomery that could promote "students' identities as justice and equity-minded professional and technical communicators." Her workshop focused on an exercise she conducted with her students to think through the accessibility of voter registration documents in Alabama. She invited her student to think about how they might design better forms to encourage voting and voter registration.

DR. CASEY GIORDANO

Dr. Casey Giordano embedded discussions of the Civil Rights Movement within a course on Industrial and Organizational Psychology. One of the central subjects in this course is personnel selection and staffing and the ways discrimination and biases bleed through, blocking the employment of the best candidates.

As context for this study, students discussed the impact of the Civil Rights Act of 1964. This act prohibited employment discrimination based on race, color, religion, sex, or national origin, and laid the foundations of a fair, equitable, and inclusive workforce. In learning about this act in presentations and discussions, students sought to describe the actions necessary to push our nation to adopt such strong and lasting change.

DR. CATHERINE GOOCH

PHOTO CREDIT: WILL FENN

Dr. Catherine Gooch asked students in an advanced course on Women in Literature to create a documentary or a TikTok series about a woman/women/women-run organization in Montgomery with the primary goal of exposing lesser-known histories of Montgomery while illuminating the narratives of local women who have actively participated in making our community better in some way. The assignment required both secondary and primary research, and encouraged students to conduct interviews as their primary research in an effort to get them more engaged with the local community. Students took a class field trip to the Legacy Museum to gather ideas and inspiration on our trip. One of the goals of this project is to expose students to the city's rich cultural history. Another goal is to encourage students to actively engage in community-based work in the process. About the experience, Gooch observed "The results were incredible. Students created insightful, well-researched, analytical documentaries that highlighted the narratives of lesser-known women from Alabama. Most importantly, though, students felt like they had a stake in this assignment. So many of them were invested in the project because they wanted to do their topic justice, and they wanted to ensure the audience took away specific ideas, historical information, and knowledge. This also led to significant community engagement throughout—and beyond—the projects. About 90% of students conducted an interview with a local community figure or someone on campus. About one fourth of students volunteered with a local organization and many of them committed to continued volunteer work beyond class. All of the documentaries were thought-provoking and justice driven."

PROF. ELIZABETH BURROWS

sought to introduce freshmen to the concept of Civil Rights and Civil Virtue by engaging with the Equal Justice Initiative in both its mission and its design. After studying key concepts and doing some historical research, students visited the EJI and took notes about content and design elements. This field trip was the most significant moment for students, as they took their time delving into the museum not only as a place of history but one of intentional and conceptual design. In class, students used their experiential learning as the foundation for their major project. That assignment challenged students to expand a current museum exhibit or suggest a new one for the museum. Their choices had to include secondary sources, keep within the aesthetic of the EJI, and fit within the museum's stated mission. Many students chose exemplars to base their exhibits around, while others chose to design around mission concepts or statements. This exhibit project really pushed students to think more critically about research writing but also about the value of museums in shaping our historical moments and general lived experiences.

The exhibit pictured to the right was created by one of Professor Burrows's students. This is a proposed exhibit featuring Claudette Colvin, an exemplar of courage in the face of injustice.

PHOTO CREDIT: ELIZABETH BURROWS

Community Engagement Recognition

Citizenship and community engagement (CE) are core values at AUM. We define *community engagement* as AUM's collaboration with our larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity. The purpose of community engagement is the partnership of AUM knowledge and resources with those of the public and private sectors to enrich scholarship, research, and creative activity; enhance curriculum, teaching, and learning; prepare educated, engaged citizens; strengthen democratic values and civic responsibility; address critical societal issues; and contribute to the public good.

Beginning in the 2023-2024 academic year, community-engaged students, faculty, and staff will be eligible for recognition. For recognition in the April ceremony, click here to apply by March 1st.

Students

Community Engaged Learners

Complete

- Six hours of community-engaged courses (e.g., UNIV, internships, Study Abroad/Away)
- Active involvement in service or civic engagement activities (document at least 8 hours)

Recognition:

- Recognition at ceremony
- Recognition on transcript
- Honors Cord

Community Engaged Leaders

Complete

- Community Engaged Learner in previous year
- Three more hours of community-engaged courses
- Active leadership in service or civic engagement activities (document at least 8 hours)

Recognition:

- Recognition at ceremony
- Recognition on transcript
- Honors Cord (different color)
- Award for exemplary case, which might include leadership, innovation, impact, or commitment over time

Community Engaged Faculty

Complete

- Participate in civic service or engagement for at least eight hours/academic year

At least one of these:

- Community-engaged professional service (related to professional expertise)
- Community-engaged teaching (offers a course that is recognized as CE by the EEEC)
- Community-engaged scholarship (presentation or submission of manuscript)

Recognition:

- Recognition in ceremony
- Consideration in reviews
- Award for exemplary case, which might include leadership, innovation, impact, or commitment over time

Community Engaged Staff

Complete

- Participate in service or civic engagement for at least eight hours/academic year
- Community-engaged professional presentations or submission of manuscripts
- Organizing/supporting programs or events for students related to CE
  - For those who teach, teaching CE courses that are verified can count.

Recognition:

- Recognition in ceremony
- Consideration in annual review
- Award for exemplary case, which might include leadership, innovation, impact, or commitment over time

Round Tables: STEM

Flight School, A Tiered Peer-Mentoring Program That Benefits Students And Faculty

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Auburn University at Montgomery

Abstract

While research on mentoring has been extensive, research on tiered peer mentoring is limited, particularly at regional comprehensive institutions like ours, where the majority of the students are from populations that are underrepresented in STEM fields. Here, we describe and report preliminary results from our NSF-funded conceptual model "*Flight School*," a model that utilizes a tiered peer-mentor structure, allowing students and mentors to engage directly with their learning experience, provide feedback, and make real-time adjustments to their learning process. The tiered structure includes a Pilot (faculty member), one Co-Pilot (peer-mentor), and three Navigators (peer-mentors) in a class. Peer mentors and faculty are trained in community building, communication, lesson planning, and concepts from educational and cognitive psychology. During the semester, faculty and peer-mentor feedback about students' learning is used to accomplish real-time adjustments in the classroom. We evaluate the effectiveness of Flight School using multiple measures, including curriculum inventories, questionnaires about mentoring, belonging, and motivation, as well as DFW rates. Results from the Flight School model in Anatomy and Physiology and Introductory Biology courses over two semesters showed an increase in learning gains, sense of belonging, engagement with faculty, gains in mentoring skills, and reductions in DFW rates. Anecdotal evidence indicates that peer mentors increased their content knowledge and leadership skills, and had a more enjoyable class. Faculty in Flight School also reported a more satisfying experience facilitating learning experiences. We think that Flight School can emerge as a mechanism to increase minority representation in STEM jobs and careers because it empowers students to advocate for their learning and provides equitable education in groups that have been historically oppressed.

Introduction & Literature Review

For centuries, Black Alabamians were denied, even killed, for attempting an education. When Black Alabamians were allowed to attend schools, they were forced into underfunded separate spaces that lacked basic resources. The decision of the Supreme Court in Brown vs. the Board of Education (1954) had the objective of ending segregation in schools, but instead, in 1963 Governor George Wallace was still able to claim that "there is not a single integrated school in Alabama yet." Integration finally started in 1964, when the Civil Rights Act gave the federal government the power of withholding funds to schools that were not integrated; as a result, white families sent their kids to 'segregation academies', private schools that were independently funded and were able to select their pupils (white pupils). As a consequence, the Montgomery Public School (MPS) population turned mostly African American, a ratio that has not changed much today (~8% of MPS students were white in 2022). Currently, many Alabama public schools are insufficiently funded by property taxes collected from homes whose values were depressed from historic redlining, a policy that restricted property values primarily in African-American neighborhoods (Hamill, 2008). A significant number of public schools in Montgomery lack basic resources and are housed in decrepit buildings that, in some cases, still have the names of Confederate leaders. Because of this deliberate lack of funding, it is not a surprise that the scores in mathematics, reading, science, and writing for Alabama students are among the worst in the country (www.nationsreportcard.gov).

Unfortunately, when new students enter many of our university STEM courses, they encounter an educational environment that does not address their academic or psychological needs. Classes are usually delivered unidirectionally, not addressing (nor gathering) student feedback in time for change, and require students to complete much of their learning with minimal prompting, feedback, or support. Usually, in these classes, there is a disconnect between faculty and students' expectations, resulting in high DFW rates. High DFW rates are problematic and discouraging not only for students but also for faculty. When a large number of learners consistently perform poorly in a faculty's course, the administration begins to question the effectiveness of the faculty. It uses these DFW rates to justify poor performance evaluations, withhold raises, and deny promotion. The mixture of systemic inequities in K-12 education and a lack of pedagogical training for college faculty, results in DFW rates in freshman STEM courses that are among the highest in the department (in some cases, more than 50%). Sadly, most students who fail their first Biology class never graduate.

Our 4-year university is a comprehensive institution in the Southeast, with ~5000 students and an acceptance rate of 97%. Roughly, 53% of our students are minorities, 25% are over the age of 25, 50% are Pell Grant eligible, 50% are first-generation college students, and most of our students have at least one job. The majority of our students attended Alabama public schools and are the product of its traditional systemic inequities, leading to a significant segment of students that enter our institution lacking some academic skills, content knowledge (incoming freshman ACT scores ~20), and agency. At our institution, we understand that our students are a product of an educational system that, by design, underprepared them to succeed in college.

"Access is nothing but a cruel joke if we simply define it as allowing students in the front door and then letting them drift through campus and curricula as they may" (Gannon, 2020, p. 74). At our institution, we want to do more than just grant access. We are implementing a vast body of strategies that have been scientifically proven to promote inclusivity and increase student learning, which are briefly described here. The design and implementation of an active learning framework that is inclusive and uses anti-racist pedagogies increases student learning and the representation of minorities in STEM education (Wilson et al., 2015; Dewsbury & Brame, 2019). Faculty need to develop a solid community as a foundational step to building knowledge and trust (McWilliams et al., 2008; Wilson et al., 2012). Additionally, faculty need to set and communicate attainable learning objectives that are aligned with activities and assessments, along with continuous formative assessments that move away from 'deficit thinking' (Smith, 2012) and will result in growth mindsets in students.

Growing evidence demonstrates the fundamental role that a peer mentor can play in students' success in college (Wilson et al. 2012). At our institution, peer mentors are students that have successfully completed a course and are hired to go back into those courses to provide guidance to learners and serve as models of successful student behavior. Mentors have the potential to open channels of communication with faculty and summarize learners' understanding, increasing the amount of formative assessment used, and allowing faculty to guide the class more effectively. Our model also has the potential to develop agency in students, because as learners' recommendations are implemented, students realize that their voices are being heard, their opinions are important, and that they have the power to improve their own educational experiences (Callender et al., 2016).

Here, we propose an integral change in the way we facilitate learning in gateway courses in Biology. In this approach, a tiered peer-mentoring structure, coupled with training, and regular support, is implemented in the college classroom. We call this model '*Flight School*'. Here, we describe our model and present some of our preliminary results supporting the pedagogical changes that can improve student academic outcomes and faculty enthusiasm (Dewsbury & Brame, 2019; Hebert, 2019).

Content

What is Flight School?

Flight School uses a tiered peer-mentoring structure (Figure 1). This structure includes three Navigators, one Co-Pilot, and one Pilot in a course capped at 24 learners (from here on, we use the term 'learners' to identify the students that are enrolled in the course and not the peer-mentors, who are also students). Learners work in Squadrons facilitated by a Navigator.

The Navigators (represented by red triangles in Figure 1) build community, model successful student behavior, and facilitate student participation within the Squadrons. 'Navigators formulate questions and celebrate accomplishments, helping learners identify gaps in their understanding and increasing student agency.. Navigators can also provide advice on learning skills and help learners traverse the in-class experience. Navigators collect feedback from their Squadron, observe whether teaching and assessment strategies are effective, and report this information to the Co-Pilot and faculty

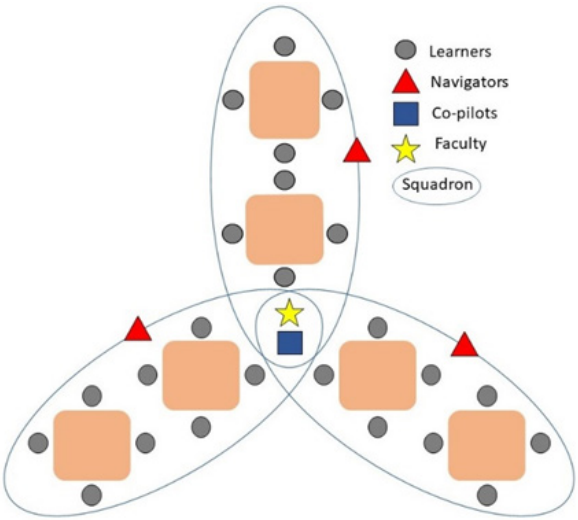
The Co-Pilot (represented by a blue square in Figure 1) is a peer-mentor that is a content expert (needs to have earned an A or a B in the course); the main responsibility of the Co-Pilot is to oversee the work of the Squadrons and provide faculty with feedback. Co-Pilots possess content knowledge, hold office hours, and are peer models of how to be successful in college and STEM specific courses. Co-Pilots are the main point of contact for Navigators and loop feedback to the faculty member.

The Pilot (represented by a yellow star in Figure 1) is the faculty instructor. The instructor facilitates learning, taking into consideration the peer-mentor feedback, that they receive. Co-Pilots, Navigators and Pilots meet regularly to discuss observations made in class, collate suggestions, problem solve, and prepare changes for

future class periods.

Figure 1:

Diagram of the structure of Flight School.



Learners (gray circles) are grouped into 8-person Squadrons, each with a Navigator (peer-mentor represented by red triangle). All Squadrons work with a Co-Pilot (peer-mentor represented with a blue square) and Faculty (Represented with a yellow star).

What support is provided in Flight School?

Three to six months before fall or spring semester begins, enrolled faculty are provided with information describing the program and are coached in recruiting peer-mentors. We have found that the highest recruitment of peer-mentors occurs when faculty directly approach their students and ask for them to participate in Flight School, explaining the needs and benefits of the tiered mentoring model, and what their own qualities are that made the faculty choose them to be peer-mentors. Remaining peer-mentor positions are filled by the department mentor coordinator (always verifying that the instructor and peer-mentors are agreeable). Faculty are trained and paid a stipend to implement the model. Navigators receive a scholarship each semester that they serve in Flight School; and Co-Pilots are hired as employees that are paid by the hour. Before class begins, all participants get ~20 hours of training spread over several sessions (workshops) over the course of 3-5 days. The main objectives of the workshops are to: (1) make and demonstrate the importance of building a classroom community; (2) learn and implement concepts from educational and cognitive psychology; (3) understand the need to develop lesson plans that utilize active learning aligned with formative assessments; and (4) understand the roles, limitations, and responsibilities of all Flight School members (training materials are available upon request from Dr. Ward at cward3@aum.edu.) During the semester, we carry out bi-weekly meetings with peer-mentors. These meetings serve many purposes: including (1) continue working with peer-mentors to improve group dynamics; (2) reinforce understanding of the concepts from educational and cognitive psychology; (3) discuss and practice facilitation; (4) discuss and assess implicit bias; and (5) gather feedback that is looped back to the faculty. In addition, we conduct monthly meetings with faculty to provide supportive guidance, collect faculty feedback, and encourage the continued implementation of the Flight School model in the classroom.

What are the expectations of Flight School participants?

Navigators and Co-pilots are expected to attend training and class meetings. In addition, Co-Pilots are expected to hold office hours and review sessions for learners throughout the semester. Pilots are required to attend training, plan with their peer-mentoring team, and implement science-based pedagogies that maximize student learning. It is also important for faculty and peer-mentors to meet regularly during the semester to design lesson plans for upcoming classes. We have found that these lesson plans lead to modifications of learning facilitation that include changes to class materials, and incorporation of small group learning. For example, during one of these meetings, a Co-Pilot mentioned that learners shared information between Squadrons and it was really beneficial to their learning. Sharing allowed learners to see multiple examples of concept maps and drawings that were different from their own, promoting learning and increasing understanding. As a result, the lesson plan was modified and class time was set aside to share Squadron

information. These team meetings increase the self-confidence of peer-mentors and allow Pilots to hear the feedback that peer-mentors have gathered. All members of Flight School (Pilot, Co-Pilot, Navigators, and learners) are required to participate in assessments of the effectiveness of the program. Flight School organizers (all four authors of this article) are expected to be knowledgeable, provide training and support, assess the effectiveness of the program, and disseminate the results.

Initial Results

To evaluate the impact of the Flight School pre-semester workshop for peer-mentors, we used the Undergraduate Research Student Self-Assessment (URSSA) (Hunter et. al., 2009; Weston & Laursen, 2015) and Institutional Integration Scale (IIS) (Pascarella and Terenzini, 1980; French and Oakes 2004) questionnaires. During fall semester 2022, we hosted our pre-semester workshop in three training sessions; after the workshop, the URSSA and IIS surveys were given to participants. A total of 22 mentors completed the survey and results indicated that the majority of mentors were very satisfied with various aspects of the training including: the application process (91%), support and guidance from the program staff (86.3%), support and guidance from other group members (86.4%), and group social activities (86.4%). Every mentor who participated was satisfied with the support and guidance from their faculty mentor. Almost 40% of the mentors were not satisfied with the financial support. We followed up with the mentors and found that their dissatisfaction was primarily with the time that it took to get paid. We have remedied this issue.

The mentors were also asked to reflect on their personal gains associated with attending the Flight School workshop. Nearly 90% of the mentors noted that they gained confidence in their ability to do well in future science courses and to work independently. About 80% reported gains in their comfort with discussing scientific concepts and working collaboratively. One area that seemed to lag in gains was in their ability to contribute to science (<70%); however, this may change as they participate in Flight School and work with the faculty and other mentors now and into the future.

Table 1 shows the descriptive statistics for the Institutional Integration Scale (IIS) that was used to measure the mentors' sense of belonging on campus after the initial Flight School workshop. The results indicated that our mentors prioritized institutional goals and commitments including getting good grades but also that they were satisfied with their college selection. They also felt comfortable interacting with the faculty and felt they gained from these experiences. Specifically, mentors noted that their non-classroom interactions with faculty have had positive influences on their "intellectual growth and interest in ideas" (*M*=4.67, *SD*=.617) and "personal growth, values and attitudes" (*M*=4.67, *SD*=.488)

Table 1:
Descriptive Statistics for Institutional Integration Scale (IIS)

	M (N=15)	SD
Academic and intellectual development	4.06	0.776
Faculty concern for student development and teaching	4.40	0.849
Institutional goals and commitments	4.51	0.516
Interactions with faculty	4.51	0.606
Peer-group interactions*	4.03	0.699

*N = 14

We evaluated the effectiveness of Flight School implementation in courses by using multiple metrics on learners, peer-mentors, and faculty. During the first year of Flight School, four faculty implemented the model in three lectures (Introductory Biology I and II, and Anatomy and Physiology I) and one lab (Introductory Biology I lab); on average classes had 0.9 Co-pilots and 2.36 Navigators. At this time, results regarding faculty are limited to anecdotal experience due to our small sample size.

To assess learning gains in learners, we built questionnaires using content inventories for our courses. Specifically, for Anatomy and Physiology we built an inventory using the Human Anatomy and Physiology Society (HAPS) test and Openstax Anatomy and Physiology test bank questions (available upon request to mgrillio@aum.edu). Content inventories were given at the beginning and end of the semester and compared using a paired samples *t*-test. We found a significant difference in A&P content knowledge from the beginning of the course (*M*=18.04; *SD*=3.61) to the end of the course (*M*= 21.04; *SD*=5.21); [$t(24) = -3.731$, $p < .001$). A medium to large effect was found (*d*=-.746 95% CI [-1.185; -291]), indicating that students' scores increased

substantially.

We also compared DFW rates for all sections of target courses. The DFW rates of all courses implementing Flight School decreased. In the academic year prior to implementing this model, DFW rates in our Introductory Biology courses were close to 60%. In the first semester of implementing Flight School, the DFW rate dropped to 33%, and in the second semester of Flight School implementation the DFW rate dropped even lower, to 19%. It is worth noting that, for two of our Flight School instructors, the DFW rate for their second semester implementing Flight School was close to 4%.

Anecdotal Evidence

At the end of each semester, peer-mentors were surveyed about their experience in Flight School. Peer-mentors reported that the support provided in the program was useful to them and gave them tools and insights about how to help students learn. They also reported that peer-mentor meetings helped increase their connectivity with other peer-mentors, a key factor for a sense of belonging on a college campus. In some of the written feedback a peer-mentor wrote: "*The bi-weekly peer mentor meetings really help me see the best way to approach students within the classroom I was helping [mentoring]. It also helped me navigate how to help students to the best of my ability. I didn't really find anything about the bi-weekly meetings that wasn't helpful, it helped me contact other peer mentors and share experiences and learn new tools to use with students we are helping."* Another peer-mentor reported, "*What's useful for the bi-weekly meetings is to hear other peer mentors' suggestions and ideas to better help the students".* In the classroom, learners would often call the Co-Pilot 'Doctor' and keep a messenger chat with communication throughout the semester. It is worth noting that on the last day of the semester one learner brought a card to the Co-Pilot thanking them for all the help and guidance and saying *"I could not have done this without your help and support".*

For learners, it can be challenging to enter and engage with Flight School, because our students have mainly been conditioned in their previous courses with the traditional style of unidirectional lecturing. Often, students have met our model with confusion and resistance. In the first semester that Flight School was implemented, we found that in some cases it took several weeks for students to 'buy into' the model. However, as we have continued to build community, incorporate and modify lesson plans, and work with learners to actively engage in assignments, we have begun to see the positive effects. Students have engaged and worked together in groups, asking questions, helping other learners, interacting with peer-mentors, building STEM confidence, etc. For example, at the end of the semester one student said "*She [the instructor] has an active learning style, and while that was kind of hard to adjust at first it is very effective*." Another student, when asked what was best about the course, reported that "*...activities and group work is always a plus for students. But I wanted to also mention the peer mentors we had in our class. There were at least four in our classroom to help students while the teacher was helping other students. They also were able to break down material if we didn't understand it."* Towards the end of the semester, students really understand the model and see the positive effects that it has on their learning, and it is very common for students to ask Flight School faculty "*What other classes are you teaching?"* (or similar).

As faculty, it is challenging to stop traditional, unidirectional lecturing and get to know our students' stories and their lives. Yet, we need to connect with students in order to really *see where they are* if we truly want to *meet them where they are*. It hurts sometimes to know what experiences students have been through and/or are experiencing, but we need to do this in order to really 'see them'. Once our students perceive that we genuinely care about them, then they will put forth more effort; once they trust us, students will listen to our advice and will continue to develop effective strategies to study. The classes that we teach using the Flight School model are considered 'hard', as indicated by DFW rates before Flight School (almost 60%). However, once learners started to identify their own gaps in knowledge, they experienced a paradigm shift towards self-sufficiency. Additionally, learners in Flight School classes have very high attendance rates (at least 85% of the students attend consistently) and often gather at the door well before class starts, ready to participate. Our Flight School students interact with each other, talk, laugh, draw, create, build knowledge, and generally seem happy. As Flight School faculty, we are looking forward to meeting these people, interacting with them, and helping them develop the tools they need to find and fill their gaps in knowledge, leading to the development of skills that will carry them through college. Moreover, Flight School is contagious; regularly, other non Flight School faculty see our classes, products, and community and wonder how we do it and, even better, they ask if they can join us.

Conclusion

Our NSF-funded conceptual model, 'Flight School', utilizes a tiered peer-mentor structure allowing learn-

ers and mentors to engage directly with their learning experience, provide feedback, and make real-time adjustments to the learning process. Initial results indicate that training undergraduate students and faculty in community building, communication, lesson planning, and concepts from educational and cognitive psychology positively impact the learners, mentors, and faculty. Specifically, learners in Anatomy and Physiology I and Introductory Biology II showed significant learning gains, along with a reduction in their DFW rates. Additionally, mentors showed a greater sense of belonging in science and were more likely to engage with faculty outside of their regular classroom experiences. Anecdotal evidence indicates that peer-mentors increased their content knowledge and leadership skills, while the course appeared to be more enjoyable for the learners and faculty under our model. We think that Flight School can emerge as a mechanism to increase representation in STEM jobs and careers because it empowers students to advocate for their learning, and provides equitable education in groups that have been historically oppressed.

Acknowledgments

The authors would like to thank the students at Auburn University at Montgomery (AUM) that have served as peer-mentors (i.e. co-pilots and navigators) and students (i.e. learners) in our Flight School classes. Additionally, the authors thank AUM faculty and staff that have helped implement and run the model. Thank you to Justin C. Bagley for useful comments to this manuscript. Funds for this project were provided by IUSE-NSF 2216351 and US Department of Education P031A190185.

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Research Survey – Adapted SURE III Assessment

The purpose of this survey is to gather information on the impact of research completed by students here at Auburn University at Montgomery. Thank you for taking the time to complete this survey.

1. Please enter your first and last name.

2. Please enter your AUM email address.

3. What area is your field of research (best fit)?

- Biology & Environmental Science
- Business
- Chemistry
- Computer Science
- Education/Kinesiology
- Fine Arts
- History/English
- Nursing/Medical Sciences/Communication Disorders
- Psychology
- Political Science/Political Administration
- Other (please specify)

4. How long did you work on your research?

- **Less than 6 months**
- **6 to 12 months**
- **1 to 2 years**
- **Over 2 years**
- **In progress**

5. What faculty member assisted you with your research?

6. Has your research experience influenced your plan for postgraduate education?

- I had a plan for postgraduate education before I began this research project, and the plan has not changed.
- I was considering postgraduate education, and my research experience has confirmed this choice.
- I had no plan for postgraduate education, but my research experience has changed my mind.
- I had a plan for postgraduate education, but my research experience has convinced me that this is not what I want.

- I had no plans for postgraduate education before I started the research project, and I have not changed my mind.
- Prefer not to answer.

7. Research projects often lead to an opportunity for a dissemination of research findings. Here is a list of the ways research may be communicated. Please select all that apply.

- An academic paper read by a faculty member, including variations such as an honors thesis or project.
- A poster presentation on campus.
- A poster presentation off campus.
- A manuscript intended for a professional journal.
- Website or an internet presentation.
- None of the above.

8. Do you feel that your research experience affected your behavior in your courses?

- Yes
- No

9. To what extent do you consider the following to be ways in which your behavior has changed? (No change, small change, moderate change, large change, very large change.)

- I feel that I have become better able to think independently and formulate my own ideas.
- I feel that I have become more motivated to learn.
- I feel that I have become a more active learner.

10. In this section of the survey, you will be asked to consider a variety of possible benefits you may have gained from your research experience. (No gain or very small gain, small gain, moderate gain, large gain, very large gain, NA or prefer not to answer.)

- Clarification of a career path.
- Understanding of the research process in your field.
- Ability to analyze data and other information.
- Understanding of how to work on real-world problems.
- Skill in how to give an effective oral presentation.
- Learning to work independently.

11. Please tell us in a few sentences what was most important to you about your research experience. You may also use this space to provide any additional feedback.