MLDS CENTER
Maryland Longitudinal Data System

Address 550 West Baltimore Street
Baltimore, MD 21201
Phone 410-706-2085
Email mlds.center@maryland.gov
Website mldscenter.maryland.gov

MEMORANDUM

TO: MLDS Governing Board

FROM: Mr. Ross Goldstein, Executive Director

DATE: December 11, 2024

SUBJECT: Project Approvals and Updates

Purpose

This agenda item is to update the Board on projects that have been reviewed and approved by the Executive Director under *Project Approval and Management Procedures;* projects that, when necessary, require Board review and approval; and updates on ongoing projects. Please note that in addition to the information presented for each new project, this memorandum also includes the complete project abstract submitted by the researcher for your further information and review.

Projects for Consideration

ERA # 103	High School to College Pathways for College and Career Success
Researcher	Dr. Jane Arnold Lincove University of Maryland Baltimore County MLDS Center Investigator
Research Questions	1. How are opportunities for enhanced instruction (e.g. magnet schools, magnet programs, career academies, CTE, AP/advanced coursework) distributed across schools, districts, and student subgroups in Maryland? 2. What are the obstacles to accessing, completing, and benefiting from these opportunities? 3. What are the high school, college, and workforce outcomes for students who participate in these opportunities coursework?
RPB Review	The RPB was supportive of the project and highlighted how the project may help to inform the Blueprint initiatives. They also highlighted the importance of working with MSDE and LEAs for this project.
Exec. Dir. Determination	Approved. The subject of this project is responsive to the Research Agenda, provides information about student performance that can be used to improve the

	state's education system, requires the use of longitudinal cross sector data, and is being conducted by a qualified researcher.
Board Action	Informational

Project Updates

ERA # 71	Access, Impact, and the Computer Science Teacher Pipeline: A Systematic Study on the Expansion of Computer Science Courses in Maryland's High Schools
Researcher	Dr. Jing Liu University of Maryland College Park MLDS Center Investigator
Update	Dr. Jing Liu applied for and was awarded just under $250,000 in unrestricted funds from Google, LLC to continue work on this project. There is no change in the scope of work. Google, LLS only requests that the grant recipient provide updates on how the grant is used through copies of reports, publications, or status letters about research benefited by the grant. They also request receiving attribution or acknowledgment of the gift in applicable publications.
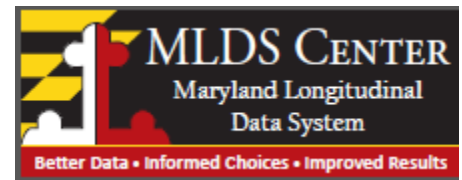
*This form is subject to disclosure in a Public Information Act request.

Project Title	Agency Control #
High School to College Pathways for College and Career Success	ERA 103

Contents

Section 1. Principal Investigator

Principal Investigator (please list additional project team members in Section 7)
Jane Arnold Lincove
Principal Investigator's Email Address
jlincove@umbc.edu
Name of University or Organization
University of Maryland, Baltimore County
Principal Investigator Background and Qualification (provide overview of experience and attach a CV)
Research Staff member since 2015. PhD in Public Policy from University of Southern California. Professor of Public Policy at UMBC since 2014.

A completed form is available here for your review.

Important: Once submitted, this application is a public document that will be shared with stakeholders throughout the project review process and generally made available pursuant to a *Public Information Act Request*.

Section 2. Project Information

Background and Purpose of the Study
(No more than 500 words; please include references; references do not count toward the word count)

Workforce development is a vital issue for the US and Maryland. The state's STEM-related industries account for millions of dollars in economic investment. But, with an aging workforce, shrinking teacher pipeline, and a rapidly changing economic and social environment, Maryland cannot assume that it can maintain this advantage unless and until it attends to the emerging challenges facing the state in education and workforce development. However, strengthening Maryland's secondary, postsecondary, and workforce production is critical for maintaining and enhancing Maryland's status as a leader and strengthening the State's education and workforce development. Furthermore, there is an under-representation of minority and low-income students in STEM fields. Because an increasing number of jobs require post-secondary training, examining the high school determinants of college and career outcomes is critical for determining the best policies to implement to increase Maryland's competitiveness.

The proposed study will focus on the pathways from Maryland K-12 schools into college, career training, and workforce. We will examine multiple available pathways for enhanced instruction including magnet programs, CTE, and advanced coursework, particularly those that are designed to enhance STEM interests and skills in K-12 students. We will focus both on the availability and outcomes of programs, highlighting equitable access across districts, regions, and student subgroup; obstacles to access, completion, and progression; and outcomes of K-12 program participation in high school, college, and the workforce. Meaningful access for students would include the opportunity to apply, enroll, attend, progress, and complete a program.

Research Project Question

How are opportunities for enhanced instruction (e.g. magnet schools, magnet programs, career academies, CTE, AP/advanced coursework) distributed across schools, districts, and student subgroups in Maryland?
What are the obstacles to accessing, completing, and benefiting from these opportunities?
What are the high school, college, and workforce outcomes for students who participate these opportunities coursework?

Research Methods
(Please include information for: Sample/Cohort and Justification; Definition of Measures and Constructs; Analysis Approach)

Using all available cohorts in the MLDS, we will identify first-time high school freshman in Maryland public K-12 schools as the core study population. These students will be tracked backwards in MSDE data to identify achievement indicators, demographics, and education history (enrollment, attendance, SPED/ELL services, access to honors and other specialized coursework). High school experiences (e.g. magnet school attendance, advanced coursework, etc.) will be tracked through course files, state assessment scores, attendance, grade progression, and completion. Involvement with the Maryland Department of Juvenile Services (DJS), as an obstacle to participation and completion in high school, will be tracked with DJS files, and participation in foster care will be tracked through Child Welfare files. We will link students to post-secondary outcomes in the NSC, MHEC, and Labor files. This study will also use school choice data provided by Baltimore City Schools for integration with MSDE files in the MLDS (see in depth description below).

MSDE enrollment, attendance, testing, and assessment data will be used to identify performance and other characteristics that determine sorting into high school opportunities. Child welfare data and DJS data will be used to describe pre-high school and high school experiences that can influence access. For example, whether children in foster care are able to access magnet programs and advanced coursework.

Participation in programs/opportunities will be identified first through indicators such as AP and CTE flags and also CCD indictors of magnet schools. We expect that some forms of participation must be constructed through background information on district offerings. We will identify magnet schools more carefully through multiple sources including CCD magnet indicator, district program descriptions, choice information, and school/program mission statements.

High school outcomes will include progression, completion, GPA, SAT/ACT, advanced coursework, college readiness, dual enrollment, transferable college credits, and DJS involvement. College outcomes will include enrollment, progression, GPA, degree completion. Workforce outcomes include employment, wages, certificates/licenses.

The research methodology will compare students who access enhanced instruction/enrichment programs to those who do not. RQ 1 will include a descriptive comparison of these two groups and multi-level regression modeling to identify variables that predict access in Maryland at the individual, school, and district levels. RQ 2 will examine the progression of students who select (nonrandomly) into enhanced instruction. Multilevel regression modeling will predict exit/completion of programs based on high school experiences (e.g.,school suspensions, juvenile arrests, transferring schools, failing a class) at the student, school, and district level. In RQ3 we will seek quasi-experimental evidence of program impacts. Statewide, this can be done with propensity score matching and cell matching to identify a comparison group of "untreated" students who are similar prior to high school. Propensity score matching relies on using observable pre-high school characteristics to compare students with a similar probability of participation. MSDE and Child Welfare data provide a rich set of variables for this analysis. Cell matching identifies students who are identical in fixed characteristics and relies of fixed effects to control for unobservable characteristics that are shared among students within cells. This strategy relies on substantial numbers of untreated and treated students who are identical across the matching criteria. Dr. Lincove and Dr. Mata have successfully used both strategies in prior work with MLDS freshman cohorts.

Using the City Schools' choice data*, we can conduct a more rigorous analysis within a single district. In the choice data, we can perfectly observe student's preferences for magnet and CTE programs through their choice rankings. Further, the data include the exact composite score that was used for student assignment. This data support a regression discontinuity design where we can reach causal inference of program effects by comparing students around the admission cutpoint for magnet and CTE programs. If this is successful, we will seek choice data from other LEAs that operate magnet programs.

*The City Schools' choice data is already loaded into the MLDS through an existing MOU/data sharing agreement between the MLDS Center and City Schools. Dr. Lincove has discussed this project with Chris Wohn, Director of Research at City Schools, and leadership at BERC. City Schools will work with the MLDS Center to update the existing MOU/data sharing agreement.

How will this research benefit the State of Maryland in terms of state or local policy and/or practice?

The results will provide actionable information about:
1. Who can and cannot access enhanced programs/coursework in high school
2. Which students fail to complete programs and what obstacles lead to program exit
3. Which programs have lasting impacts that can enhance the STEM workforce in Maryland

As a whole, this will help to guide future investments in K-12 programs including scaling up successful programs and adding supports to improve success.
Explain why this research requires longitudinal cross-sector data?
The research requires observing a substantial period of students' K-12 experiences and linking these experiences with post-secondary outcomes in college and workforce data. To identify obstacles, we also require access to DJS records of juvenile justice involvement (as pre-HS experience and as potential HS outcomes) and Child Welfare records.   Finally, we are requesting the addition of City Schools choice data. City Schools internal data cannot observe workforce outcomes, juvenile justice involvement, or student mobility across Maryland.
Proposed Center Output   **(Typical products for the MLDS Center include a research series presentation to stakeholders and a research brief in the MLDS Center template).**
Research series presentations on RQ 1, 2, and 3   Research brief with recommendations for enhanced programs and student supports
Timeline for the proposed project (identify major deliverables and approximate dates)
May 2025 – Completed study of BCPS magnet schools and STEM programs   December 2025 – Completed study of distribution of STEM opportunities and access   May 2026 – Completed study of obstacles to completion and success   December 2026 – Completed study of statewide outcomes   2027-2029 – Further development of academic papers
Plans for further development (i.e. journal submission, etc)
Conferences include AERA, AEFP, APPAM, SREE, and national and regional AEA meeting. Potential journals include Education Policy, Education Finance and Policy, Educational Evaluation and Policy Analysis, and other AERA journals.

Section 3. MLDS Center Research Agenda

Does your project relate to one of the following areas which the General Assembly has specifically directed the MLDSC to study:	Yes	No
The impact of a State or federal education program?[1]	X	
The performance of educator preparation programs?	X	
Best practices regarding classroom instruction?		X
The impact of child welfare programs on the educational and economic outcomes of students?		
An analysis of social determinants, provided by State agencies[2] and appropriate local agencies, that impact education performance of students and indicate the need for wraparound services for students.	X	
Does your project use State or Federal financial aid[3] data?		X
If you are requesting to use FAFSA data please explain how this research will benefit the administration of Title IV federal financial aid.		

---

[1] All projects must relate to a state or federal education program. If you are not sure, please contact ross.goldstein@maryland.gov.

[2] State agencies include: Maryland Department of Health, Department of Human Services, and Department of Juvenile Services

[3] Financial aid data derived from the FAFSA may only be used in research to improve the administration of federal financial aid programs.

Research Agenda Category (page 2 of the [Research Agenda](#)) – Which category does the project address? Please explain.
Pathways and Pipelines – The study will examine how students move through high school into college and careers
Research Agenda Themes (page 2-3 of the [Research Agenda](#)) - Which cross cutting theme is incorporated in the project? Please explain.
Supports and Barriers – The study will examine who has access to programs and what factors enhance success Social determinants – The study will examine equitable access to programs and outcomes by race, ethnicity, gender, and geography

Section 4. Data and Cross Sector Analysis

Please review the MLDS Center Data Inventory and the MLDS Center Data Gap Analysis prior to completing this section.

Sectors* *The data falling within each sector is outlined below. The purpose of this section is to ensure the project is cross sector. Projects will not necessarily use all data elements within the sector (see methods section for definitions of measures).	X
Early Childhood Education Sector	
K-12 Education Sector	X
Adult Education Sector	X
Justice Involved Youth Sector	X
Child Welfare Sector	X
Postsecondary Education Sector	X
Other Completions and Credentials Sector	X
Workforce Sector	X

Put an 'x' next to each data sector your project will include. You must have at least 2 sectors.

Do you plan to request to include external data as part of your project?
We request to include Baltimore City School middle and high school choice data. The file includes ranked choices for 6th and 9th grade placement, assignment outcomes, and the BCPS composite score that determined admissions for magnet high schools and CTE programs.

*Sectors

Early Childhood Education Sector
- PreK Academic Engagement

K-12 Public School Education Sector
- Enrollment and attendance
- Assessments
- Courses and grades
- Completions
- Discipline
- Public School Characteristics

Adult Education Sector
- GED/NEDP Exam Results
- Apprenticeship
- Adult Education
- Correction Education

Juvenile Justice Sector
- Juvenile Justice Records
- Juvenile Education Records

Child Welfare Sector
- Out-of-Home Placements

Postsecondary Education Sector
- College and University Enrollment
- College and University Courses, Credits and Grades
- College and University Degrees
- College and University Workforce Training
- Financial Aid

Other Completions and Credentials Sector
- Industry Certifications
- Licenses

Workforce Sector
- Public School Teachers
- Public School Staff
- Workforce visibility/participation
- Workforce Earnings
- Workforce Industry

Section 5. Financial Information

<table>
<tr><td colspan="3">The MLDS Center incurs costs for every project related to: (a) IT support and infrastructure; (b) assistance from subject matter experts, (c) criminal history background checks; and (d) creation of an analytic data set. Average project costs are between $1,000 and $3,000. A detailed, customized estimate will be provided prior to project initiation. (Please indicate your answer with an "X)</td></tr>
<tr><td>X</td><td colspan="2">I will reimburse MLDSC for all applicable fees.</td></tr>
<tr><td></td><td colspan="2">I will only be able to provide partial reimbursement.</td></tr>
<tr><td></td><td colspan="2">I will need a waiver.</td></tr>
</table>

<table>
<tr><td colspan="3">Grant Funding (indicate with an 'X')</td></tr>
<tr><td>X</td><td colspan="2">This project has already received funding</td></tr>
<tr><td></td><td colspan="2">I plan to apply or am in the process of applying for grant funding</td></tr>
<tr><td></td><td colspan="2">No grant funding is planned</td></tr>
</table>

Name of Grantor

Institute for Education Sciences (Subcontracted with Tulane University)

RFP or Grant Program Information (you may provide a link to the grantor's website)

https://ies.ed.gov/funding/grantsearch/details.asp?ID=2210

Amount of grant funds sought or awarded.

$220,000

Grant Application Date

2018

Do you intend to proceed without grant funding?

N/A

Are you receiving other funding for this proposed project? If yes, how much?

No

Section 6. Special Considerations

<table>
<tr><td>

Principal Investigators NOT affiliated with a Maryland College or University – please provide information on:
   a. **Your familiarity with Maryland policies affecting your research topic; and**
   b. **How your project meets a specific Maryland research need?**

Please also upload (with this form) any letters of reference or endorsement from a Maryland researcher or a State or local agency that vouches for your qualifications and expertise.

</td></tr>
<tr><td>

</td></tr>
<tr><td>

For projects that involve a small population, please confirm that you are aware of the MLDS Center's data suppression policy and explain how you will report your findings while conforming to the suppression requirements.

</td></tr>
<tr><td>

</td></tr>
<tr><td>

For projects that involve a single school system, university, or program, please explain the statewide implications of the project.

Please also upload (with this form) any letters of support from the subject (i.e. school system or university) of the study.

</td></tr>
<tr><td>

</td></tr>
</table>

Section 7. Project Team

Project Team
- **Please list all members of the research team and indicate roles and responsibilities.**
- **If the Principal Investigator listed in Section 1 above is NOT the primary point of contact for the project (including research, data access, and presentations to stakeholders), please indicate which team member is the primary point of contact and provide that individual's contact information.**

Name and Organization	Role	Is system access needed? (Yes/No)
Jane Arnold Lincove, UMBC	PI	Yes
Angela Henneberger, UMB	Co-PI	Yes
Jon Valant, Brookings Institution	Co-PI	No
Danielle Barefoot, UMBC	GRA	Yes
Catherine Mata, UMBC/Brown University	Co-PI	Yes

Section 8. Submission

Once this form is completed, please complete the online application (here) and upload this form, CVs for all members of the research team, and any other supporting materials.