Program Change Request

EP.26.087_FINAL
Approved by EP 02/02/2026

New Proposal

Date Submitted: 10/23/25 2:09 pm

Viewing: **: Economic Modeling, AI, and Data Science, MS**

Last edit: 02/05/26 8:26 am

Changes proposed by: Stephen Parente

In Workflow

1. **U Program Review**
2. **1405-ECON Head**
3. **KV Dean**
4. **University Librarian**
5. **Grad_College**
6. **COTE Programs**
7. **Provost**
8. **Senate EPC**
9. Senate
10. U Senate Conf
11. Board of Trustees
12. IBHE
13. HLC
14. DOE
15. Catalog Editor
16. DMI

Approval Path

1. 07/18/25 11:56 am Brianna Vargas-Gonzalez (bv4): Approved for U Program Review
2. 07/23/25 4:13 pm George Deltas (deltas): Approved for 1405-ECON Head
3. 08/13/25 10:01 am Melissa Reedy (murray): Rollback to Initiator
4. 08/14/25 4:59 pm Brianna Vargas-

Gonzalez (bv4): Approved for U Program Review

5. 08/15/25 11:00 am George Deltas (deltas): Approved for 1405-ECON Head
6. 08/22/25 9:38 am Stephen Downie (sdownie): Rollback to Initiator
7. 08/26/25 10:45 am Brianna Vargas-Gonzalez (bv4): Approved for U Program Review
8. 09/11/25 1:53 pm George Deltas (deltas): Approved for 1405-ECON Head
9. 10/03/25 5:06 pm Melissa Reedy (murray): Rollback to Initiator
10. 10/27/25 4:58 pm Brianna Vargas-Gonzalez (bv4): Approved for U Program Review
11. 11/03/25 3:04 pm George Deltas (deltas): Approved for 1405-ECON Head
12. 11/04/25 10:09 am Melissa Reedy (murray): Approved for KV Dean

13. 11/10/25 1:29 pm Tom Teper (tteper): Approved for University Librarian
14. 12/02/25 2:21 pm Allison McKinney (agrindly): Approved for Grad_College
15. 12/02/25 2:39 pm Suzanne Lee (suzannel): Approved for COTE Programs
16. 12/03/25 8:56 am Brooke Newell (bsnewell): Approved for Provost

Proposal Type

Proposal Type:	Major (ex. Special Education)

Administration Details

Official Program Name	Economic Modeling, AI, and Data Science, MS
Diploma Title	Master of Science in Economic Modeling, AI, and Data Science
Sponsor College	Liberal Arts & Sciences
Sponsor Department	Economics
Sponsor Name	Stephen Parente
Sponsor Email	parente@illinois.edu
College Contact	Stephen R. Downie
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College Budget Officer	Michael Wellens
College Budget Officer Email	wellens@illinois.edu

If additional stakeholders other than the Sponsor and College Contacts listed above should be contacted if questions during the review process arise, please list them here.

Cathy Ballew (Net ID: cballew) Administrative Assistant, Department of Economics will submit edits as needed.
Melissa Reedy (Net ID: murray) LAS Assistant Director for Course and Curricular Development)

Does this program have inter-departmental administration?

No

Effective Catalog Term

Effective Catalog Term	Fall 2026
Effective Catalog	2026-2027

Proposal Title

Proposal Title (either Establish/Revise/Eliminate the Degree Name in Program Name in the College of XXXX, i.e., Establish the Bachelor of Science in Entomology in the College of Liberal Arts and Sciences, include the Graduate College for Grad Programs)

Establish the Master of Science in Economic Modeling, AI, and Data Science in the College of Liberal Arts and Sciences and the Graduate College

Does this proposal have any related proposals that will also be revised at this time and the programs depend on each other? Consider Majors, Minors, Concentrations & Joint Programs in your department. Please know that this information is used administratively to move related proposals through workflow efficiently and together as needed. Format your response like the following "This BS proposal (key 567) is related to the Concentration A proposal (key 145)"

Program Justification

Provide a brief justification of the program, including highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates, when appropriate.

The Department of Economics proposes establishing a Master of Science in Economic Modeling, AI, and Data Science (EMAIDS) in response to the rapid advances in computational power, the explosion of available data, and the growing role of artificial intelligence in economic research and practice. Over the past two decades, economists have embraced data science—including AI and machine learning methods—to tackle increasingly complex problems, generate more accurate forecasts, and uncover relationships that were previously inaccessible through traditional tools.

AI has become a natural extension of econometric and statistical modeling. From predictive analytics in labor markets to algorithmic pricing models in industry, modern economists are combining theory-driven modeling with AI-powered pattern recognition, classification, and forecasting. By integrating AI into the data-science foundation, graduates will be prepared to navigate—and lead—in this evolving landscape.

Labor Market Context
Employers across the private and public sectors now seek economists who can work fluently with large, complex datasets and deploy advanced analytics, including AI, in policy and business contexts. The U.S. Bureau of Labor Statistics projects 36% growth in data scientist roles from 2021 to 2031, far exceeding the national average. This growth is being fueled in part by the increasing adoption of AI-enhanced analytics in decision-making processes.

Departmental Readiness and AI Integration
The Department of Economics has already taken significant steps to integrate AI and data science into its programs:

i. It has submitted a proposal for a BSLAS in Economics and Data Science (Key 1180)
ii. At the Ph.D. level it has introduced new AI-focused courses and modified existing ones to incorporate AI components, including Bayesian Econometrics and Statistics (Econ 590, Spring 2025) and Machine Learning (Econ 590, Fall 2025)
iii. At the master's level, it has modified the curriculum of the Economics: Policy Economics, MS (MSPE) program to incorporate essential data science tools. That program is in the process of being converted from a concentration to its own major (Proposals 927 and 1277). For marketing purposes, the program will continue to be branded as MSPE. These efforts include:
a. Allowing students to count Econ 491: Data Analysis: Problem Solving toward their degree.

b. Creating Econ 522: Applied Machine Learning in Economics – which covers supervised and unsupervised learning, regularization methods, decision trees, boosting, support vector

machines, and neural networks, with direct application to economic problems

While these initiatives are valuable first steps, more needs to be done to meet the growing demand for economists with advanced data science and AI skills. The EMAIDS program is the preferred solution, offering:

-Econ 507: Data Analytics for Applied Economics – practical analytics for policy and markets, using R/Python, statistical methods, and selected machine learning techniques such as forecasting, clustering, and principal component analysis

-Econ 508: Econometrics for Data Science – advanced econometric and statistical methods for AI-driven data modeling.

-Econ 509: Capstone Project in Economics and Data Science – a hands-on, real-world research project applying econometrics, statistics, and AI/machine learning to large-scale economic datasets

Advantages of the EMAIDS Program
This program offers several advantages that strengthen its appeal to students, employers, and the university alike:

i. Specialized Curriculum for AI- and Data-Science-Oriented Students – Designed for students seeking advanced technical and analytical skills in an economics context. Cohort-based structure enables higher admission standards and an accelerated one-year completion path.

ii. Market Competitiveness and Career Appeal – The program title clearly signals expertise in both Data Science and AI, making graduates more visible to employers in technology, finance, consulting, policy, and beyond. Directly competitive with emerging programs at peer institutions while maintaining the University of Illinois' distinctive economics focus.

iii.Efficient Use of Existing Resources – Builds on the Department of Economics' decades of experience running large, successful master's programs. Leverages existing faculty expertise and courses, minimizing new development costs while creating a program with a distinctive market position.

Distinction from the MS in Policy Economics (MSPE)
This program differs from the MSPE in important ways that align it more closely with the needs of students pursuing advanced AI and data science training. MSPE students typically take foundational coursework for a full year before specializing. EMAIDS students enter advanced modeling, data science, and AI coursework by their second semester, allowing them to

modeling, data science, and AI coursework by their second semester, allowing them to complete the degree in one year.

Conclusion
By establishing the MS in Economic Modeling, AI, and Data Science, the Department of Economics will equip graduates with the rare combination of economic modeling expertise, data-science proficiency, and AI capability that employers increasingly demand. The program will enhance graduate employability, strengthen the Economics Department's competitive standing, and position the University of Illinois as a leader in preparing economists for the data- and AI-driven economy of the future.

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a resul of this new program/proposed change?

No

Does this new program/proposed change result in the replacement of another program?

No

Does the program include other courses/subjects outside of the sponsoring department impacted by the creation/revision of this program? If Yes is selected, indicate the appropriate courses and attach the letter of support/acknowledgement.

No

Program Features

Academic Level	Graduate
Does this major have transcripted concentrations?	No

What is the longest/maximum time to completion of this program?
1 calendar year

What are the minimum Total Credit Hours required for this program?
32

What is the required GPA?	3.0
CIP Code	450603 - Econometrics and Quantitative Economics.

Is this program part of an ISBE approved licensure program?

No

Will specialized accreditation be sought for this program?

No

Does this program prepare graduates for entry into a career or profession that is regulated by the State of Illinois?

No

Program of Study

Attach Program of Study related information here.	Completed Workflow History ECON 508_ Econometrics for Data Science.pdf Sample_Sequence_Economic_Modeling_AI_and_Data_Science_MS 10-07-2025.docx CompletedWorkflow_ECON524.pdf Stats_support.pdf MS Economic Modeling AI DS - ischool LOS.pdf Gies acknowledgement and support (follow-up).pdf

Catalog Page Text - Overview Tab

Catalog Page Overview Text

The Economic Modeling, AI, and Data Science, MS degree (EMAIDS) combines a strong foundation in economics and data science with a discovery-based learning experience.

Students in the EMAIDS program gain a solid grounding in core economic concepts and analytical frameworks, integrated with practical applications in data science and artificial intelligence. Graduates will develop the theoretical knowledge and quantitative skills needed to uncover complex economic relationships, manage and analyze large datasets, and apply AI-enhanced methods for forecasting, classification, and pattern recognition. They will be prepared to deliver evidence-based policy recommendations and strategic solutions across diverse sectors, including business and finance, government, healthcare, and environmental organizations.

Admissions:
The Economic Modeling, AI and Data Science, MS degree program will accept applications starting from August 1st and continuing until April 1st the following year. Candidates must submit a transcript, three letters of reference, a statement of purpose and proof of English proficiency should their country of origin not have English as its home language. The GRE score is also required. Admission decisions are made on a rolling basis, starting in January and ending in April.

Statement for
Programs of Study
Catalog

Required Coursework		
ECON 500	Microeconomics	4
ECON 506	Programming for Economic Data Analytics	4
ECON 507	Data Analytics for Applied Economics	4
ECON 508	Course ECON 508 Not Found	4
Electives (choose 2):		**8**
ECON 522	Applied Machine Learning in Economics	
ECON 523	Causal Inference and Policy Evaluation	
ECON 524	Course ECON 524 Not Found	
One additional 500-level Elective Course in consultation with Program Director		4

Capstone Course		
ECON 509	Capstone Project in Economics and Data Science	4
Total Hours		32
Additional Requirements		
Minimum GPA:		3.0

Continuous enrollment is required; students not registered for a given semester must apply for a leave of absence.

The minimum length of stay in the Program is one year (fall and spring semesters plus one summer session).

Corresponding Degree	MS Master of Science

Program Regulation and Assessment

Plan to Assess and Improve Student Learning

Illinois Administrative Code: 1050.30(b)(1)(D) Provision is made for guidance and counseling of students, evaluations of student performance, continuous monitoring of progress of students toward their degree objectives and appropriate academic record keeping.

Student Learning Outcomes

1. Analytical and Computational Problem-Solving
Students will formulate, analyze, and solve complex economic problems using mathematical modeling, programming, simulation, advanced data science, and AI-driven techniques. They will identify appropriate tools, define assumptions, and test hypotheses using both theoretical and empirical methods.

2. Data Proficiency, AI, and Quantitative Reasoning
Students will acquire, clean, manage, and analyze large and complex datasets. They will apply modern statistical, econometric, machine learning, and artificial intelligence methods to extract insights, evaluate policies, and make predictions—emphasizing reproducibility, transparency, and interpretation of uncertainty.

3. Integrated Use of Technology, AI Tools, and Programming
Students will demonstrate proficiency in programming languages (e.g., Python, R, Julia, or Stata) and data visualization tools, incorporating AI-based workflows where appropriate, to automate processes, perform simulations, build models, and communicate findings effectively to both technical and non-technical audiences.

4. Critical Thinking and Model Evaluation
Students will critically assess economic models, empirical strategies, and AI/ML algorithms—evaluating underlying assumptions, trade-offs, robustness, and relevance to real-world policy and business challenges. They will compare competing models and identify limitations in their application.

5. Interdisciplinary and Ethical Awareness
Students will recognize the interplay between economics, AI, data science, and adjacent disciplines—such as computer science, finance, and public policy—when tackling complex societal and economic problems. They will consider ethical implications of data use, AI-driven decision-making, and policy design.

6. Communication, Collaboration, and Leadership
Students will effectively communicate quantitative analyses and AI-enhanced insights through written reports, oral presentations, and visualizations. They will develop teamwork and leadership skills, preparing them to work across disciplines and engage diverse audiences.

7. Professional Readiness and Application
Students will apply their skills in professional contexts—through capstone projects, internships, or real-world case studies—demonstrating their ability to address AI- and data-intensive economic problems in industry, government, or international organizations.

Describe how, when, and where these learning outcomes will be assessed.

Describe here:

The Department of Economics will ensure that students are meeting learning outcomes through the following assessment activities:

1. The program will develop a Learning Objectives Map identifying how each required and elective course contributes to the achievement of program learning outcomes. The map will indicate where specific competencies are introduced, reinforced, and demonstrated, ensuring alignment between curricular design and assessment.

2. Students must demonstrate graduate-level competency in the foundational sequence of ECON 500, 506, 507, and 508. Competency will be reflected by earning typically a grade of B or higher in each course.

3. Graduate-level competency must also be demonstrated in ECON 509, which integrates economic modeling, AI, and data science techniques in an applied research or policy analysis project. Competency will be reflected by earning typically a grade of B or higher in the course.

4. Students must demonstrate graduate-level competency in two elective courses selected from ECON 522, 523, and 524, which emphasize advanced applications of econometric modeling, forecasting, and computational methods. Competency will be reflected by earning typically a grade of B or higher in each course.

5. Each student will also complete one additional 500-level elective course, selected in consultation with the Program Director, to align with individual academic or professional goals. Competency will be reflected by earning typically a grade of B or higher in the course.

6. Audits of student major progress and overall grades each semester, and proactive intervention.

7. Student surveys to understand the student experience within the major.

8. Advising meetings with students, informal discussions, and observations about the curriculum and specific courses.

9. Discussions with Alumni, Recruiters/Professionals, and Graduate Programs about students, preparation, and need.

Identify faculty expectations for students' achievement of each of the stated student learning outcomes. What score, rating, or level of expertise will signify that students have met each outcome? Provide rating rubrics as necessary.

Economics faculty expect an 80% success rate in direct measures of student success as outlined above. Satisfactory performance is expected when a percentage-based outcome is not available.

Explain the process that will be implemented to ensure that assessment results are used to improve student learning.

Data gathered through assessment activities will be used to support student success in the following ways:

Performance feedback assessed through coursework and course completion rates will be utilized to adjust course content and academic support if learning outcomes are not being met at the expected 80% success rate.

Feedback from students through advising meetings and student surveys will be utilized to provide appropriate academic support and intervention where necessary.

Assessment of student research or discovery experience artifacts will be shared with departmental and university committees and utilized to expand additional research opportunities and revisit learning outcomes for future cohorts.

Program Description and Requirements
Attach Documents

Delivery Method

This program is available:
On Campus - Students are required to be on campus, they may take some online courses.

Admission Requirements

Desired Effective Admissions Term: Fall 2026

Provide a brief narrative description of the admission requirements for this program. Where relevant, include information about licensure requirements, student background checks, GRE and TOEFL scores, and admission requirements for transfer students.

Applicants are required to submit a transcript, three letters of recommendation, and a statement of purpose. International applicants from countries where English is not the official language must also provide scores from either the TOEFL or IELTS, meeting the minimum requirements established by the Graduate College. Submission of GRE scores is mandatory for all applicants. Admission decisions are made on a rolling basis, beginning in January and continuing through April.

Enrollment

Number of Students in Program (estimate)

Year One Estimate	15	5th Year Estimate (or when fully implemented)
45		

Estimated Annual Number of Degrees Awarded

Year One Estimate	15	5th Year Estimate (or when fully implemented)
45		

What is the matriculation term for this program?

Fall

Budget

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

Yes

Please explain/ describe:

To launch the new EMAIDS program, the Department of Economics will recruit one office administrator and appoint a faculty member to serve as program director. The office administrator will also support the forthcoming MS in Economics + Computer Science program (key 1313), with responsibilities split evenly between the two programs. During the initial start-

up phase, both new programs will draw on the existing administrative infrastructure that currently supports the MS in Policy Economics (MSPE) program. As the Economic Modeling, AI and Data Science and Economics + Computer Science programs grow and reach steady-state enrollments, the Department anticipates hiring one, and potentially two, additional administrative staff members. An associate director for each program may also be appointed at that stage to provide further academic leadership and oversight.

No additional faculty will be required to launch the EMAIDS program. In fact, the Department's hiring over the past three years has substantially increased instructional capacity and enhanced expertise in areas central to the program's curriculum. The Department now includes 32 tenured or tenure-track professors, 8 non-tenure-track teaching faculty, and 14 affiliated faculty members with joint appointments in related departments such as Statistics, Computer Science, Finance, and Urban and Regional Planning. This expansion reflects a deliberate strategy to strengthen core competencies in econometrics, computational modeling, and data-intensive economic research.

Recent growth—including new endowed chairs and several tenure-track appointments in quantitative and computational fields—has positioned the Department to deliver the EMAIDS curriculum within its existing instructional framework. Because these appointments expanded rather than reallocated faculty effort, the new program can be implemented without reducing course offerings or increasing class sizes in other programs. The undergraduate, MSPE, and Ph.D. programs will continue to operate at full strength. Course scheduling and instructional assignments have been designed to integrate EMAIDS courses seamlessly into the Department's teaching portfolio, ensuring balanced workloads and continued excellence across all academic programs.

Additional Budget Information

The Economic Modeling, AI, and Data Science M.S. degree program will be fully supported by the Economics Department without the need for additional funding. Existing course capacity is sufficient to accommodate the expected increase in enrollment, and no new faculty appointments will be required. Moreover, a number of students who choose this new degree program would likely have enrolled in the MSPE program instead. Consequently, the net increase in the number of master's students served by the Economics Department attributed to the creation of this new major is projected to be no more than 35 at steady state. For context, the typical incoming class for the MSPE program ranges from 70 to 90 students.

Attach File(s)

Financial Resources

How does the unit intend to financially support this proposal?

The Department of Economics intends to fund the program entirely through tuition revenue. This approach is expected to be financially sustainable even before the program reaches its steady state, as it will require only 1.87 FTEs in the first year. This efficiency is made possible by the program's shared coursework with the MSPE programs and the MS in Economics + Computer Science programs as well as some shared administrative personnel with the latter program.

Will the unit need to seek campus or other external resources?

No

Attach letters of support

Self_Supporting Program Attachment-MS-EMAIDS 08-13-2025.docx
SS-program-designation-form-MS-EMAIDS final.pdf

What tuition rate do you expect to charge for this program? e.g, Undergraduate Base Tuition, or Engineering Differential, or Social Work Online (no dollar amounts necessary)

Since the EMAIDS program will be a self-supporting program, it will require LAS to submit a proposal to the Board of Trustees regarding desired tuition rate. Ideally, the rate will be slightly higher than the MSPE rate, perhaps 10%, to allow for some financial assistance to deserving students.

Is this program requesting self-supporting status?

Yes

IBHE

What is the specific title of the proposed degree program as it would be listed in the IBHE Program Inventory? The name should be what typically is used for similar programs nationally. Provide a short description of the program, including highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates.

Master of Science in Economic Modeling, AI, and Data Science in the College of Liberal Arts and Sciences and the Graduate College.

The Economic Modeling, AI, and Data Science Master of Science degree program is a specially designed one-year program in which students acquire the skills to handle, visualize, and work with large datasets; apply AI-driven and data science techniques; and use economic knowledge to design relevant tests and interpret results.

Institutional Context

University of Illinois at Urbana-Champaign

Describe the historical and university context of the program's development. Include a short summary of any existing program(s) upon which this program will be built.

Explain the nature and degree of overlap with existing programs and, if such overlap exists, document consultation with the impacted program's home department(s).

The Department of Economics has offered a master's degree in economics with a concentration in Policy Economics since 1984. It is in the process of being changed from a concentration to its own major: MS, Policy Economics (key 1277). This program, known as "MSPE," has been a highly successful concentration; it is currently ranked sixth in the Financial Engineer Times listing of the top U.S. master's programs in economics. It has graduated over 2,100 students from more than 105 countries over its forty-year history. Some alumni have gone on to hold prestigious positions in government agencies and international organizations. For example, Sri Mulyani Indrawati, an MSPE graduate from 1990, served as Managing Director of the World Bank and is currently the Minister of Finance in Indonesia.

The Department of Economics recognized some years ago the need to evolve its MSPE curriculum in response to the advances in computational power, artificial intelligence, and the proliferation of data that are transforming society and the economics profession. As part of this evolution, the program began allowing MSPE students to count ECON 491: Data Analysis: Problem Solving toward their degree and created a course in Applied Machine Learning in Economics (ECON 522).

While these enhancements represent valuable first steps, the Department of Economics concluded that more comprehensive changes were needed to equip graduates with the skills necessary to work effectively with big data, integrate AI-driven analytical tools, and use economic theory to design tests and interpret results. Although further adjustments to the existing MSPE curriculum could be made, the Economics Department determined that a more effective approach would be to launch a separate major in Economic Modeling, AI, and Data Science.

Primarily, a separate program allows the Department of Economics to better serve the distinct needs and goals of its diverse student body. Not all MSPE students are interested in AI and data science, and many come to the program with different career paths in mind. Additionally, not all students in the MSPE program are prepared for the technical rigor demanded by an AI- and data science-focused curriculum. By contrast, students in the proposed MS in Economic Modeling, AI, and Data Science program are more likely to share a common motivation and readiness for advanced quantitative and computational work. This alignment also enables the Economics Department to implement a more selective admissions process and to design a one-year curriculum that is both intensive and feasible—an important feature for students pursuing this terminal master's degree.

A further rationale for creating a distinct major is market signaling. Students increasingly seek degree titles that reflect their technical skills, particularly in AI and data science, which are

widely recognized by employers. This branding is not possible under the MSPE degree. Additionally, creating this new program allows the University of Illinois to remain competitive with other institutions offering master's programs that integrate economics, AI, and data science.

Importantly, the Department of Economics will leverage its extensive experience with the MSPE program in delivering the new MS in Economic Modeling, AI, and Data Science. The curriculum of this new MS will draw heavily from existing MSPE courses and ECON + CS courses, minimizing the need for new course development. Only four new courses are required:

ECON 506: Programming for Economic Data Analytics — teaches essential R and Python skills for AI and data science workflows.

ECON 508: Econometrics for Data Science — introduces students to the fundamentals of probability, statistics, and econometrics, including AI-driven modeling techniques.

ECON 507: Data Analytics for Applied Economics — focuses on statistical modeling, machine learning, and AI applications in economics.

ECON 509: Capstone Project in Economics and Data Science — a culminating experience where students apply data science and AI tools to real-world economic problems.

All other courses will be drawn from the MSPE and ECON + CS curricula. A key distinction is that, while MSPE students typically reach these electives only after a full year of coursework, students in the MS in Economic Modeling, AI, and Data Science program will be equipped to take them in their second semester.

In addition to some overlap with the MSPE program, there is limited overlap with the MS in Business Analytics (MSBA) offered by the Gies College of Business. While both programs train students to analyze large datasets, the MSBA is oriented toward business applications such as marketing, operations, and finance. To evaluate potential areas of conflict or redundancy, the Department of Economics met with Dr. Vishal Sachdev, Director of the MSBA, on May 19, 2025. After reviewing the curriculum for the proposed Economic Modeling, AI, and Data Science program, Dr. Sachdev noted minor overlap in areas such as programming and algorithms but identified no substantive conflict. He did not consider the Economic Modeling, AI, and Data Science program to be a significant competitor to the MSBA program. This feedback affirms that the proposed program occupies a distinct academic and professional space, complementing existing graduate offerings at the University of Illinois.

University of Illinois

Briefly describe how this program will support the University's mission, focus and/or current priorities. Demonstrate the program's consistency with and centrality to that mission.

The University continually examines its educational programs to respond to emerging student demand, societal need, and economic opportunity. Artificial intelligence and data science have rapidly emerged as transformative fields with broad-based demand across many areas of economic activity and scholarship. For example, economics is preparing for a tsunami of data from new and upcoming surveys, and AI-powered analytical tools will be essential for extracting meaningful insights from these large and complex datasets. We need students trained not only in data science, but also in how to integrate AI methods into economics to best leverage our participation in this data-rich environment. The University recognized the general need in its 2018 Strategic Plan The Next 150, which called on the campus to “[p]rovide all Illinois students the opportunity to have a meaningful exposure to data science.” The degree program proposed here is part of that strategic response.

Discuss projected future employment and/or additional educational opportunities for graduates of this program. Compare estimated demand with the estimated supply of graduates from this program and existing similar programs in the state. Where appropriate, provide documentation by citing data from such sources as employer surveys, current labor market analyses, and future workforce projections. (Whenever possible, use state and national labor data, such as that from the Illinois Department of Employment Security at http://lmi.ides.state.il.us/ and/or the U.S. Bureau for Labor Statistics at http://www.bls.gov/).

The ubiquity of large, complex datasets arising from an increasingly connected world means that professionals with expertise in data science, artificial intelligence, and an understanding of the human and policy implications of data are in demand across society. Economics graduates—already valued for their analytical and problem-solving skills—are especially well positioned to fill these roles when equipped with advanced data science and AI capabilities. The Department of Economics must take advantage of this trend and prepare its graduates for jobs that involve managing and analyzing large datasets, applying statistical and econometric methods, and leveraging AI tools such as machine learning, predictive analytics, and natural language processing.

Given the explosive growth in both data science and AI-related jobs predicted by the U.S. Bureau of Labor Statistics, combining the strong job market opportunities of the economics degree with cutting-edge AI and data science skills will produce graduates prepared for a variety of positions across the state and nation. In 2021, Illinois had the fifth-highest employment of data scientists of any state, and projected employment of data scientists in the state is expected to grow by 29% by 2030—growth that will be further amplified by the rapid adoption of AI technologies in economic and policy analysis.

To address this growing need, the Department of Economics has proactively proposed the creation of an Economics + Data Science, BSLAS and has integrated several AI-related courses into its Ph.D. program. The next strategic step involves extending this specialized AI and data science training to the master's level, thereby preparing graduates to effectively meet the evolving employment demands of both the state and the nation.

By aligning educational offerings with labor market trends, the Department of Economics aims to equip students with the expertise to thrive in data- and AI-centric roles, ensuring a steady supply of highly qualified professionals to meet the increasing demand in Illinois and beyond.

What resources will be provided to assist students with job placement?

Students enrolled in the EMAIDS program will have access to a comprehensive suite of career support services. The Department of Economics' Career Services Office offers personalized advising, résumé reviews, mock interviews, and job search strategy sessions. These resources are introduced during the program's orientation to ensure students can effectively leverage them throughout their studies.

Additionally, students can participate in university-wide career fairs, including those hosted by the Gies College of Business. These events are open to all University of Illinois students, regardless of major, providing opportunities to connect with a diverse range of employers across various industries. For instance, the Gies Business Career Fair, held annually at the I Hotel and Illinois Conference Center, invites students from all disciplines to engage with recruiters seeking talent for internships and full-time positions.

If letters of support are available attach them here:

Comparable Programs in Illinois

Identify similar programs and sponsoring institutions in the state, at both public and private colleges and universities. Compare the proposed program with these programs, and discuss its potential impact upon them. Provide complete responses, do not reference website links.

The Master of Arts in Computational Social Science with a Concentration in Economics (MACSS-Econ) at the University of Chicago is a specialized two-year graduate program that integrates computational methods with advanced economic theory and analysis. MACSS-Econ students must complete 18 graduate courses over two years, including core courses in computational analysis and modeling, foundational courses in economic theory and empirical analysis, and a three-course sequence in computer science applications. Additionally, students are required to complete a master's thesis, demonstrating their ability to apply these skills to a substantive research project.

While MACSS-Econ combines economics and computing, the proposed MS in Economic Modeling, AI, and Data Science emphasizes a different dimension of the field. Specifically, MACSS-Econ focuses on applying computational tools to economic problems such as market design, computational game theory, and digital platforms. In contrast, the MS in Economic Modeling, AI, and Data Science trains students to integrate advanced AI methods—including machine learning, natural language processing, and predictive analytics—into statistical and econometric modeling to extract insights from large datasets for business, policy, and research applications. This distinction highlights MACSS-Econ's orientation toward computational modeling and algorithmic problem-solving, while the MS in Economic Modeling, AI, and Data Science prioritizes AI-driven, data-intensive economic analysis and decision-making.

Given these differences, the potential impact of the MS in Economic Modeling, AI, and Data Science program on the MACCS-Econ program is minimal.

The Gies College of Business at the University of Illinois Urbana-Champaign offers a Master of Science in Business Analytics (MSBA), a nine-month, STEM-designated program that blends business insight with data science expertise to prepare students for data-driven strategic decision-making.

Although the proposed Master of Science in Economic Modeling, AI, and Data Science (EMAIDS) shares some surface-level similarities with the MSBA, its overall impact on the MSBA program is expected to be minimal. The two degrees differ significantly in focus and intended career outcomes. The MSBA is designed for professionals applying data analytics to business challenges, emphasizing predictive modeling, data visualization, and business intelligence using tools such as SQL, Python, and Tableau. In contrast, the EMAIDS is grounded in economic theory and leverages advanced AI and data science methods—including econometrics, causal inference, deep learning, and other machine learning techniques—using Python, R, and Stata to analyze markets, evaluate policy, and model economic behavior.

These curricular distinctions align with different professional pathways. MSBA graduates typically pursue careers in areas such as marketing analytics, financial analysis, and business intelligence, while EMAIDS graduates are more likely to work in economic policy analysis, AI-enhanced quantitative research, or academic and policy-oriented institutions. In this way, the MSBA caters to students focused on applied business analytics, whereas the EMAIDS is designed for those with interests in economic modeling, AI-enabled forecasting, and data-driven policy evaluation.

This clear differentiation in both content and career outcomes is reflected in feedback from Dr. Vishal Sachdev, Director of the MSBA program, who affirmed that the EMAIDS is unlikely to significantly affect MSBA enrollment. He acknowledged only limited technical overlap and confirmed that the programs serve distinct student populations with divergent professional goals—further reinforcing the conclusion that their coexistence will be complementary rather than competitive.

Comparable
Programs in Illinois
Attach Documents

A Thriving Illinois: Higher Education Paths to Equity, Sustainability, and Growth

IBHE is charged to develop a strategic plan to address the present and future aims and needs and requirements of higher education in Illinois (110 ILCS 205/6) (from Ch. 144, par. 186) Sec. 6). Illinois Administrative Code:

1050.30(a)(6): A) The unit of instruction, research or public service is educationally and economically justified based on the educational priorities and needs of the citizens of Illinois Respond to the following questions about how the proposed program will support the three goals of A Thriving Illinois: Higher Education Paths to Equity, Sustainability, and Growth Strategic Plan.

Equity

Describe institutional-level plans to close equity gaps in access, progression, completion, and attainment and the implications for the proposed program. More specifically, provide institutional-level plans for attracting, recruiting, retaining, and completing a diverse group of students including working adults, students of color, transfer and low-income students and implications for the proposed program. Explain how progress will be monitored.

Institution-level plans: Access, progression, completion, and attainment

At the System level, the University of Illinois prioritizes closing equity gaps among the citizens across Illinois, within our urban and rural communities, and beyond. While the fundamental needs that will drive greater economic vitality vary greatly across zip codes in the state, it is clear that closing equity gaps among our citizens remains crucial to achieving the mission of the University of Illinois System.

Supportive of IBHE's A Thriving Illinois plan and aligning its Equity Strategy #2, the UI System's Access 2030 Strategic Plan is a comprehensive initiative designed to increase the number of graduates from underrepresented groups by 50 percent by the end of the decade. This will include students from disadvantaged backgrounds – ethnic and racial, rural, and urban. This initiative will strengthen the University of Illinois' bedrock commitment to the public good, ensuring that as we work to improve life in our state, we are not leaving communities behind. It will build on ongoing efforts to create more opportunities for Illinoisans of all backgrounds. The initiative is being tooled to close equity gaps throughout the pipeline, working from K-12 through college, including our community colleges. Access 2030 embodies Equity Goal 2 of A Thriving Illinois, providing a framework for and supporting the three institutions' equity plans.

At the institution level, the University of Illinois Urbana-Champaign's (U of I) diversity, equity, and inclusion work is led by the Office of the Vice Chancellor for Diversity, Equity, and Inclusion (OVCDEI). The OVCDEI's goals, ongoing assessments, and initiatives impact students as well as faculty and staff, and student-focused programming sets the tone for the institution's efforts as they relate to all of A Thriving Illinois' equity strategies. In fall 2023, the institution administered a campus-wide climate assessment instrument to understand the degree to which students feel safe, accepted, and valued. The goal is to provide a quantitative sense of how individuals feel about their campus experiences. This assessment will include students' perceptions of the quality of their interactions with peers, faculty members, and administrators, including their sense of the campus as a place where they belong and are treated with respect. The university is partnering with the Association of American Universities (AAU), external organizations, and peer institutions to ensure the survey instrument is state of the art, has questions that shed light on multiple axes of diversity, and generates data that can be shared and benchmarked against peer institutions to tease out challenges that are unique to the University of Illinois Urbana-Champaign campus as well as those that are common to peer universities. As of May 2024, the campus received preliminary reports from the survey. These

reports and data are under review in the summer of 2024 with the expectation to deliver and socialize the data to campus stakeholders in fall, 2024. The campus has charged four working groups: assessment, faculty & staff, students, and communication to guide university administration with this initiative. The working groups are tasked with developing frameworks for effectively socializing the climate survey, results, and implementation plans to the campus; disseminating reports to the university community and academic and administrative units; and assessing opportunities for campus- and unit-level responses to the reports.

In keeping with the institutional framework led by the OVCDEI, the University of Illinois Urbana-Champaign is engaged with a number of efforts to strategically support and bolster equity on campus. For example, in July, 2020, the university pledged $2 million annually for the Chancellor's Call to Action to Address Racism and Social Injustice to focus the intellectual and scholarly talent of the university to examine two of the greatest challenges facing society and seek new solutions.

Over the first four years of the program:

• the Office of the Vice Chancellor for Diversity, Equity & Inclusion has received and reviewed 171 proposals and funded 59 projects.
• more than $4.3 million in research funding has been awarded.
• approximately 433 individuals have worked on funded research projects.
• as of April 2024, 30% of the PIs have used their Call to Action project to seek external funding, applying for more than $18 million to support further research.

The 59 projects were awarded to principal investigators from 14 campus units, 10 of which were academic. To date, the program has provided research experience for approximately 48 undergraduate and graduate students and engaged in the local community as co-project leaders or team members for their expertise.

In October 2022, OVCDEI hosted the inaugural Research Symposium, which included a keynote conversation with Dr. Ibram X. Kendi, Director of the Center for Antiracist Research at Boston University. The second Research Symposium featuring projects funded during 2023-24 was held on April 5, 2024.

A significant number of Illinois graduate students also did their undergraduate studies at Illinois, thus increasing access and attainment for undergraduate degrees can support increased access for graduate degrees. Looking at the last four years, campus graduate programs have been able to successfully recruit and enroll between 700 and 800 students from University of Illinois' undergraduate programs, which is approximately 19% of U of I total new enrollments each year. Looking specifically at those from domestic underrepresented populations, campus has been able to successfully recruit and enroll between 100-130 students from campus

has been able to successfully recruit and enroll between 100-130 students from campus undergraduate programs, which accounts for approximately 30% of U of I total new enrollments for these underrepresented populations each year. Accordingly, although targeted at the undergraduate population, the campus' Student Success @ Illinois (SS@I) work also benefits graduate students. Known as the Student Success Initiative when it kicked off in 2019, goals are: 1. increase access (reduce cost of attendance, increase aid, consider time to degree); 2. eliminate equity gaps (increase retention and graduation rates for underrepresented and minoritized students); 3. improve the Illinois experience (abandon "sink or swim" mentality, identify and broaden campus programs, support services, and opportunities for engagement). Recognizing that Student Success is ongoing work, what was known as the "Student Success Initiative" became SS@I in 2023. A variety projects emerged from SS@I that have enabled the university to provide greater focus on recruitment and retention efforts. Some examples of key current efforts include:

• Student Success Symposia: The 3rd Annual Student Success Symposium in February 2024 drew more than 250 participants. As part of the Symposia, campus recognizes individuals and teams based on their contributions to Student Success @ Illinois with Student Success Champion Awards.
• Early Alert and Outreach: An advisory group has been meeting since 2022 to research and recommend appropriate early alert markers to connect students with relevant resources early in the semester. Starting with the Spring, 2023 semester, a select group of instructors engaged in a pilot effort to utilize Canvas Learning Management System data to detect early warning signs of academic issues. Information from the pilot paired with interviews with campus academic advisors will be used to help build an equitable, sustainable early alert system and to inform a communication campaign around the importance of class attendance and engagement.

• Policies:
o Grounded in research showing institutional labeling of students in racially and culturally charged ways leads to disproportionality negative experiences for historically underrepresented minority students, a SS@I Policy and Issues Group worked toward changing "probation language." In 2024, the university approved revisions to this language. Effective starting in the Fall, 2024 semester, all academic standing codes at the university that used the word "probation" will be replaced with either "low GPA warning" or "college academic warning" depending on the code. Throughout 2024, this Policy and Issues Group has been examining college, departmental, and program websites to ensure consistency with the university's revised language. Academic unit representatives are also tasked with evaluating practices in determining students' academic status, messaging to these students, and programs available to support them.

o Led by the Director for General Education, a SSS@I Policy and Issues Group is currently

studying access and outcomes for historically marginalized students in general education courses and requirement categories. Using student outcomes data to look at grade disparities by group and impact on time-to-degree, the Director and the Policy and Issues Group will make recommendations to the campus General Education Board and, where appropriate, to the Academic Senate, on appropriate revisions with the goal of more equitable outcomes.

o The Transfer Student Experience Task Force met throughout the 2022-2023 and 2023-2024 academic years, investigating the impact of certain university policies such as the residency requirement on transfer students. The Task Force authored a proposal to reduce this requirement from 60 to 45 credit hours with the intention of reducing time to degree completion for transfer students and better alignment with peer institutions. The proposal was approved by the Academic Senate in December, 2023 and will go into effect starting with the Fall, 2024 semester.

Academic Advising: Cognizant that academic advisors are key to students' retention and experience, SS@I is focusing on supporting the university's advising community to advance efforts to create a sustainable and equitable advising experience for students and a professional advising community for academic advisors and those in advising adjacent roles. SS@I hosts the Advisor Series, a monthly professional development opportunity for advisors. In addition, a group with representation from academic advising and student support units across campus came together regularly to develop a landscape analysis survey followed by focus groups to collect feedback from the advising community. Among other findings, advisors indicated a need for coordinated resources. As a first step in this direction, the SS@I website is being redesigned to include a central location for many student, advising, and staff resources.

Finally, the university hosts a series of outreach, recruitment, and transition programs on their Diversity, Equity and Inclusion website to improve access and successful outcomes in graduate education for students from historically underrepresented groups. The Summer Research Opportunities Program at Illinois brings highly competitive undergraduate students for a nine-week introduction to graduate study. Participants conduct research under the mentorship of a faculty member in their chosen field of study, explore careers in research, attend workshops, and take part in team activities that prepare them for graduate study. Aspire Illinois recruits talented students from backgrounds typically underrepresented at elite institutions to consider attending graduate school at Illinois. Toward this aim, campus fosters a webinar series to guide students through the process of selecting a graduate program and submitting competitive applications. In addition, ASPIRE applicants are supported through direct contacts with Directors of Graduate Studies and faculty as well as through campus visits. The Community of Scholars visit weekend unites newly admitted students with their admitting graduate programs and with prospective peers. Through networking and orientation to the campus, students are able to better understand how graduate study at the university can support their short and long-term goals.

To support the graduate school application process, application fee waivers are provided for Illinois Promise students, Summer Research Opportunities Program participants, McNair Scholars, ASPIRE scholars, individuals with US military service and FreeApp applicants through a Big Ten Academic Alliance program to increase access to graduate education for diverse applicants.

College, Department, and Program Level Plans to Close Equity Gaps in Access, Completion and Attainment: Implication for Proposed Program

The proposed MS in Economic Modeling, AI, and Data Science (EMAIDS) is designed to advance institutional and Economics Department commitments to equity, access, and student success. From its inception, the program prioritizes inclusion by removing unnecessary barriers to entry and creating a supportive academic environment that promotes equitable outcomes across diverse student populations.

Access and Recruitment:
The program is intentionally structured to be accessible to students from a variety of academic and professional backgrounds. Unlike many AI or data science-based master's programs, the EMAIDS does not require prior degrees in economics, statistics, or computer science. While undergraduate coursework in statistics, applied econometrics, or programming is preferred, it is not required. This flexibility opens the door to working adults, career-changers, first-generation college students, and others who may not have had access to highly technical undergraduate training but demonstrate potential and interest in applying AI and data science tools to address economic challenges. The program aims to reach underrepresented groups—including students of color, low-income students, and transfer students—by collaborating with the Graduate College's diversity initiatives and through targeted outreach via the Economics Department's partnerships with professional organizations, community colleges, and university-wide recruitment channels.

Retention and Support:
Once admitted, students will benefit from a robust advising and support structure. The program director, who is also an instructor in the program, will provide individualized academic advising, including course planning and progress checks. With support from program staff, student performance will be reviewed each semester, allowing for early intervention when academic challenges arise.

To further support progression and degree completion, the Department of Economics will assign four advanced Ph.D. students as teaching assistants to provide walk-in tutoring services for both core and elective courses. These resources will support mastery of advanced topics in AI applications, econometrics, and data science, ensuring that students from diverse learning

backgrounds can thrive—especially those returning to formal education after time in the workforce.

Career Preparation and Completion:
The EMAIDS program will leverage the Economics Career Services Office to support student persistence and career readiness. Students will have access to resume and interview workshops, career fairs (including those offered through the Gies College of Business), employer panels, and networking events. The Economics Department's Data Lab will offer students hands-on research opportunities, including projects involving AI-driven economic modeling, that can strengthen both academic engagement and post-graduate employment prospects. These resources help ensure that all students—not just those with prior professional networks—can transition successfully into AI and data science–oriented roles in public policy, research, and industry.

Monitoring and Continuous Improvement:
Student outcomes will be tracked regularly by the program director, who will consult with faculty and monitor midterm and final course grades. Students at risk of falling behind will receive targeted support plans. The Economics Department will also monitor admissions, enrollment, and graduation data disaggregated by race, gender, income status, and other key metrics to identify equity gaps and guide continuous improvement efforts.

In sum, the EMAIDS program reflects institutional priorities around equity, access, and inclusive excellence. It is designed to attract, support, and graduate a diverse student body by removing entry barriers, providing proactive academic and career support, and incorporating AI into economic modeling and data science training—ensuring equitable success across all student populations.

Describe program and institution-based high-impact practices and wrap-around student support services ensuring equitable access and success for students enrolled in the proposed program.

Institution-level high-impact and wraparound support services

Access 2030 demonstrates the University of Illinois' commitment to supporting "the ongoing learning renewal of students and systemic implementation of evidence-informed student support practices." This equity-focused plan includes emphasis on the three universities' summer bridge programs, proactive advising, and high-impact practices to support retention and to ensure equitable access and success.

In addition to Access 2030, the System supports students through the President's Research in Diversity Travel Assistance award. This competitive program, primarily for graduate students, has been established for the purpose of promoting diversity and the understanding of diversity

within the University. Recipients are provided a certificate and funding up to $600 to travel to a professional conference related to diversity or identity (such as those conferences involving race, gender, ethnicity, sexual orientation, disability, and national origin) to present papers, posters, or creative work at conferences related to diversity or identity.

At the institution level, the University of Illinois Urbana-Champaign prides itself on the array of high-impact practices and services offered to students. These student support practices support the ongoing learning renewal of students and systemic implementation of evidence-informed student practices, which align with Equity Strategy 1 of A Thriving Illinois. The Counseling Center, Office of the Dean of Students, McKinley Health Center, and Connie CARE Frank Center are accessible to all students via in-person or remote options to facilitate student wellness and retention. All students are encouraged to participate in workshops hosted by the university's Writer's Workshop and are eligible to receive assistance on writing projects through their writing assistants. For students with disabilities, Disability Resources & Educational Services (DRES) has helped thousands of students earn college degrees and Urbana-Champaign has been recognized as a national leader in the area of post-secondary education for persons with disabilities. Indeed, as the oldest post-secondary disability support program in the world, DRES has been associated with many programmatic innovations including:

• The seminal research which led to the development of the first architectural accessibility standards that would become the American National Standards Institute Standards;
• The first wheelchair-accessible fixed route bus system;
• The first accessible university residence halls;
• The first university service fraternity and advocacy group comprised of students with disabilities, Delta Sigma Omicron; and
• The first university to receive the Barrier-Free America Award from the Paralyzed Veterans of America (2012).

Additionally, poised at the crossroads of academic and student affairs, the Michael L. Jeffries, Sr. Center for Access and Academic Support (formerly known as the Office of Minority Student Affairs) is one of the oldest and most comprehensive student support programs in the nation. The Jeffries Center has embodied the University of Illinois Urbana-Champaign's land-grant mission by championing access for all students and providing a comprehensive array of college preparatory and support services to bolster students' success since its inception. Programs such as A&M (Advising and Mentoring), First Generation Student Initiatives and Tutoring and Academic Services the Center also align with A Thriving Illinois Equity Strategy 8 with the use of staff as advisors/coaches as well as peer and near-peer tutoring. The Jeffries Center currently houses nine departments. A more comprehensive list of Jeffries Center programs is provided in Appendix A.

In 2022, the University of Illinois Urbana-Champaign was recognized as one of 53 institutions in

the National Association of Student Affairs Professionals' (NASPA) First-Gen Forward 2022-2023 cohort. First-Gen Forward was the first program to acknowledge higher education institutions for their commitment to the success of first-generation students. As a NASPA First-Gen Forward institution, the university applied and was accepted into NASPA's First Scholars Network. This membership signifies the university's competency and commitment to the success of first-generation students. Through the network, the university receives tools, resources, and expert guidance, including data, peer networks, evidence-based approaches, and data-driven continuous improvement. The university established a First-Generation Steering Committee in January, 2023 to work with the Center for First-Generation Student Success to establish goals, identify barriers, and create improvement projects to enhance the experience of first-generation students on campus. In the 2023-2024 academic year, this Steering Committee launched their Insights Tool, which is a comprehensive diagnostic self-assessment in which members of the community share information about institutional efforts to support first-generation students. They also joined the Postsecondary Data Partnership, which provides insights into students' academic progress and outcomes across participating institutions. In the fall of 2023, the Jeffries Center hired the inaugural Director of First-Generation Student Initiatives to lead programming and service delivery to the undergraduate first-generation student community.

The Office of Student Affairs, particularly Student Success, Inclusion and Belonging (SSIB), supports numerous programs aimed at supporting diverse groups of students including working adults, students of color, and transfer and low-income students (just a sampling of which are provided in this document. SSIB houses the university's cultural and resource centers (see Appendix B) and a variety of high-impact programs; to name just three examples: 100 STRONG Program, I-Connect Diversity & Inclusion Workshops, and Housing Division Social Justice and Leadership Education. A more comprehensive list of programs is detailed in Appendix C and more specifically programming, support, and services geared toward African American students and Latino/a students. Veteran support is provided through the Chez Veterans Center out of our College of Applied Health Sciences, which includes individualized academic and career coaching to support progress and address barriers, peer and professional mentoring to foster community and networking, and health and wellness services to promote psychosocial adjustments and well-being.

An additional service for graduate students is the Summer Predoctoral Programs for incoming doctoral students who have accepted their offer of admission. The 9 weeklong Summer Predoctoral Institute provides an advanced opportunity for graduate students to become quickly prepared for the rigors, culture and expectations of graduate school during the summer prior to the start of their graduate studies. The Institute offers an orientation, a series of seminars, and time to work with a research adviser in the student's academic unit. The Summer Emerging PhD Program is a shorter, 2.5 week program to learn about graduate school culture and the campus.

and the campus.

Finally, the university has a robust Career Center, which offers coaching and support students and connects them to opportunities, as they make career decisions and learn lifelong career management skills. They serve as leaders of the campus' career services community.

Department-Level High-Impact Practices and Wraparound Support Services

The MS in Economic Modeling, AI, and Data Science (EMAIDS) program is supported by a comprehensive advising and student services structure designed to promote equitable access, academic success, and timely degree completion. At the Economics Department level, students will be supported by an advising team composed of the program director—and in the future, potentially an associate director—along with two professional staff members. These professional staff will also support the proposed MS in Economics + Computer Science program, enabling shared expertise and coordinated student services across related AI and data science–oriented programs.

The advising team will provide individualized academic guidance, assist with course planning, monitor student progress, and serve as a key point of contact for connecting students to broader university resources. This proactive advising model is designed to identify challenges early and provide timely interventions that promote student success.

Explain institutional strategies being implemented to increase and retain faculty, staff, and administrators of color and the implications for the proposed program. Explain how progress will be monitored.

To further support academic achievement, the Department of Economics will offer discipline-specific tutoring throughout the academic year. Each year, four advanced Ph.D. students will be hired as teaching assistants to provide walk-in tutoring for both core and elective courses in the EMAIDS curriculum. This peer-based support structure ensures that students receive timely academic assistance tailored to the demands of graduate-level coursework, including advanced applications of AI, econometrics, and statistical modeling.

Students will also benefit from applied learning opportunities through the Economics Data Lab, which facilitates hands-on research and collaboration on real-world projects that integrate AI tools into economic modeling and data science workflows. In addition, the Economics Career Services Office provides high-impact professional development services, including career fair preparation, internship panels, résumé workshops, and networking events designed to prepare students for careers in economic analysis, policy, AI-driven research, and data science.

Beyond department-level support, students will have access to a range of institutional and college-level services, including LAS Career Services, the Writers Workshop, the Counseling Center, the Illinois Math and Statistics Student Support Center, and cultural centers such as the Bruce D. Nesbitt African American Cultural Center and La Casa Cultural Latina. These resources promote academic resilience, professional readiness, and a sense of belonging within the

Institution-level efforts to recruit and retain faculty, staff, and administrators of color

Aligned with Equity Strategy 3 (Implement equitable talent management to increase and retain faculty, staff, administrators, and trustees of color), the UI System and the University of Illinois Urbana-Champaign campus support efforts in this area, particularly in supporting underrepresented minority faculty. The Distinguished Faculty Recruitment Program has a stated goal of increasing underrepresented minority faculty. Since 2017, the System has committed $31.4 million to this program, the recruitment of tenured, star, or rising faculty from a range of disciplines who can transform our universities by their exceptional scholarship and teaching. One criterion is that the faculty member "will enhance diversity in the unit and in the college."

The Public Voices Fellowship is a year-long program open to tenured faculty to join a cohort of leaders, the majority of whom will be underrepresented (including women) and provide them with extraordinary support, leadership skills, and knowledge to ensure their ideas shape not only their fields, but also the greater public conversations of our age. The Leadership Initiative for Women Faculty brings together women faculty from across the UI System who are leaders and/or potential leaders to identify barriers to and facilitators for advancement of women.

promote academic resilience, professional readiness, and a sense of belonging within the broader university community.

Finally, the System will also be providing funding in support of each university's faculty recruitment plans which will also emphasize the recruitment of underrepresented minority faculty. The President's Executive Leadership Program is a professional development opportunity and experience for senior-level faculty and administrators from across the UI System. Consisting of seminars held during the academic year, the objective of the leadership program is to broaden participants' understanding of higher education issues and strengthen their skill sets in leading and managing a public institution at the university or system level. The Board of Trustees supports the program as a mechanism for identifying and developing a diverse group of potential future university and system leaders.

Together, these high-impact practices and wraparound support services create a strong foundation for equitable access and student success from enrollment through graduation—equipping graduates with advanced skills in AI, economics, and data science to meet the demands of a rapidly evolving job market.

As a campus, the University of Illinois Urbana-Champaign is committed to investing in strategic hiring of faculty to maintain our academic strengths, respond to student demand, and capture opportunities. Investments from the Office of the Provost in faculty hiring, retention, and development are critical to maintaining and enhancing the academic excellence of our campus, especially at a time when the competition for top talent is intense. The Next 150 strategic plan identified a major hiring initiative to expand faculty hiring in key areas over the next five years, with the goal of expanding the overall size of the faculty. While the COVID-19 pandemic slowed that initiative, the University remains committed to hiring with the goals of enhancing faculty diversity and meeting student demand.

Though all faculty hiring is a department and college-level decision, the campus has devoted significant resources to incentivize hiring activities that support diversity, recruitment, and retention goals. Prominent among those programs are the Targets of Opportunity Program (TOP) and the Dual Career Program (DCP). The TOP program provides recurring funds for salary support for hires that enhance campus diversity, including faculty from underrepresented groups and women in STEM fields. Nearly all of these hires are identified through a traditional search process. The Provost invests ~$1 million per year in this recurring salary support for TOP. The Office of the Provost, in conjunction with the Office of the Vice Chancellor for Diversity, Equity, and Inclusion also announced a second year extension of the temporary modification to the TOP program to recruit more faculty of color. This initiative made an additional ~$1 million available to units to support hiring in this area. For the DCP, the Provost provides recurring matching funds (i.e., 1/3 of the initial salary) if the partner is hired into a tenure track position through the DCP. Several years ago, the Provost modified the DCP to provide only non-recurring funding (1-3 years) for non-tenure track partner hires which has helped to reduce the overall cost of the program. Thanks to DCP, the university was ranked second in the nation in the most recent Partner Hire Scorecard.

The campus also continues to fund postdoctoral fellowships targeted to underrepresented scholars in ethnic studies programs (e.g., Latina/Latino Studies, American Indian Studies, etc.) and through the DRIVE program. These programs are intended to help provide postdocs with an opportunity to build a foundation of scholarship that will prepare them for tenure track

positions. While the ethnic studies postdocs are selected through a specific advertisement, the DRIVE program identifies candidates through a search process for open faculty positions.

Finally, through a partnership with the University System Office and departments, the Provost's Office also supports the Underrepresented Faculty Recruitment Program in making available non-recurring funds for research to enhance offers of employment. Awards up to $20,000 per year for each of the first three years of employment are available for those hired in the 2022-2023 academic year. The Provost's Office funds the additional search expenses incurred by bringing an additional candidate to campus if that person is from an underrepresented group.

Additional retention efforts include programming and development activities for executive officers and faculty members across ranks. Programming and resources for unit executive officers (EOs) equip them with the knowledge and skills necessary for leadership including ways to enhance their ability to support and mentor faculty within their units, particularly faculty members of color. The Office of the Provost also coordinates several leadership development programs to increase the pool of potential academic leaders on campus with intentional focus on supporting faculty members from underrepresented groups to explore campus leadership and administrative roles. The university continues to be a strong partner in the Big Ten Academic Alliance's Academic Leadership Development Programs, with numerous faculty and staff from the university participating as fellows.

The Office of the Provost also invests in faculty development. From recruitment to onboarding, through promotion, and retirement, faculty members have access to programming and resources designed to meet them and address their careers needs. The office also supports several institutional memberships that provide external resources to our faculty, such as the National Center for Faculty Development and Diversity to ensure faculty members' continued access to NCFDD's resources.

Sustainability

To monitor progress of campus efforts to recruit and retain faculty members of color, the Provost's office collects, manages, and reports annual data through the Division of Management Information and Office for Access and Equity. Additionally, a yearly report on hiring and retention of faculty on campus is produced that includes women and faculty of color through the Faculty at Illinois report.

Department efforts to recruit and retain faculty, staff, and administrators of color

The Economics Department has made increasing the representation of faculty of color a primary value of its recruiting activities at all levels. The Economics Department recently created a Diversity, Equity, and Inclusion committee that has been implementing programming

to help create a climate of belonging, respect, and understanding for faculty, staff, and students.

Describe strategies and initiatives the institution plans to implement that makes the proposed program and college more generally affordable for students and their families, including those who have been historically underserved.

Institution-level affordability plans

The University of Illinois and the University of Illinois System have been committed to implementing strategies to make college “more affordable, particularly those who have been historically underserved.”

The Graduate College Fellowship program provides financial support through fellowships and tuition and partial fee waivers to students to promote inclusion and diversity by supporting students who represent a broad array of life experiences and perspectives. Master’s students are eligible for a one-year $20,000 award and doctoral students for a multi-year award totaling $75,000. Annually, $3.5 million dollars of campus funds are allocated to these fellowships.

College, Department, and Program Level – Affordability Strategies and Initiatives

The proposed MS in Economic Modeling, AI, and Data Science (EMAIDS) is designed to be financially self-sustaining while directly enhancing the educational experience and affordability for students. Tuition revenue generated by the program will be reinvested to benefit enrolled students through high-quality instruction, access to experiential learning opportunities—including faculty-guided independent projects, AI-driven research, and practicum-based learning—and comprehensive advising and career services. These investments ensure that students receive a rigorous, well-supported, and market-relevant graduate education that integrates advanced AI tools with economics and data science.

Because the proposed program will be self-supporting, it will not qualify for state-funded tuition waivers. Nevertheless, the Economics Department will offer a limited number of fellowship stipends and EMAIDS scholarships, which are financed directly by departmental funds, to help make the program more affordable—particularly for students from underserved backgrounds.

In addition to supporting students within the EMAIDS program, tuition revenues will help sustain and strengthen the Economics Department’s broader academic mission. Historically, the Department’s Policy Economics concentration (MSPE) has generated surplus revenue used to support initiatives that benefit undergraduate and Ph.D. students—such as doctoral fellowships, graduate teaching assistantships, instructional faculty lines, departmental seminars, and research start-up packages. The EMAIDS program is expected to continue this tradition by contributing surplus funds to maintain the affordability and quality of these other programs, which serve a socioeconomically and demographically diverse student body.

Importantly, the tuition revenue generated by the EMAIDS program will also contribute to the Economics Department's long-term financial stability. Surpluses from the MSPE program have already been pledged to reduce the Department's $7.25 million debt to the University, highlighting the critical role professional master's programs play in sustaining departmental operations. While the EMAIDS is structured to fund its own instructional and student support needs, any future surpluses could similarly be applied toward reducing this debt. These contributions will help preserve essential resources that support affordability and academic quality across all departmental programs, including those that prepare students from historically underserved populations for success in AI-enabled economic analysis, modeling, and policy work.

By ensuring that tuition revenue is strategically reinvested in student-centered services, academic excellence, and financial assistance, the EMAIDS program supports both direct affordability for its students and broader departmental sustainability—making high-quality, AI-integrated graduate education more accessible and equitable.

Provide tuition cost analysis for comparable programs and institutions in Illinois.

Program Costs and Comparative Value

Tuition for the MS in Economic Modeling, AI, and Data Science (EMAIDS) will be comparable to that of the MS in Policy Economics (MSPE). For the 2025–26 academic year, the MSPE program's tuition and fees total $20,292 per semester. The EMAIDS program may set tuition approximately 10% above the MSPE rate to provide flexibility for financial assistance to qualified applicants.

The EMAIDS is a 10-month program spanning two semesters and a short summer session. Based on this structure, the projected tuition—approximately $19,190 per semester for two semesters, plus an estimated $4,798 for the Summer Term 1 course—yields a total tuition cost of $43,178. This pricing reflects a commitment to quality instruction, hands-on learning, AI-enabled economic analysis, and strong student support, while remaining more affordable than many comparable graduate programs.

When compared to other data-intensive graduate programs, the EMAIDS occupies a unique position in terms of both cost and academic orientation. The University of Chicago's MA in Computational Social Science with an Economics concentration (MACSS-Econ) is a two-year,

research-intensive program focused on computational methods and economic theory, with an estimated total cost of $147,000. The University of Illinois Urbana-Champaign's MS in Business Analytics (MSBA), by contrast, is a nine-month, professionally oriented program targeting careers in marketing, operations, and business intelligence, with a total estimated tuition cost of $37,324 for in-state students and $50,184 for out-of-state students.

The EMAIDS is designed to strike a middle ground. It combines rigorous economic theory with modern data science and AI techniques—such as econometrics, causal inference, AI-assisted modeling, and selective machine learning—making it well-suited for students pursuing careers in policy analysis, quantitative research, and data-driven economic modeling. With its moderate cost, AI integration, and balanced academic structure, the EMAIDS offers strong value for students seeking a high-impact, terminal master's degree in a rapidly expanding interdisciplinary field.

Growth

Provide a supply and demand analysis for the proposed program that, at minimum, does the following: a) Provides evidence of student interest in the proposed program including any strategies to incentivize students to stay in Illinois. b) Identifies and provides evidence of a high-quality credential with viability for future careers.

Supply and Demand Analysis for the MS in Economic Modeling, AI, and Data Science (EMAIDS)

a) Evidence of Student Interest and Strategies to Retain Talent in Illinois

There is clear and growing demand for master's-level programs that integrate economics with data science and artificial intelligence. One key indicator of this demand is the sustained national and statewide growth in undergraduate degrees awarded in economics, mathematics, statistics, computer science, and related quantitative social sciences. At the University of Illinois Urbana-Champaign, undergraduate enrollment in economics has remained strong, while data- and AI-intensive majors—such as statistics and computer science—have seen significant increases. These trends suggest a robust and expanding pipeline of students who are academically prepared and well-positioned to pursue applied graduate training that combines economic modeling with advanced data science and AI applications.

Moreover, many students with quantitative undergraduate degrees seek to extend their skill sets to include AI-enhanced economic reasoning and policy analysis—skills not typically emphasized in purely technical or business analytics programs. The EMAIDS is designed to meet this need, providing a distinctive, interdisciplinary bridge between economics, data science, and AI.

To help retain top talent within the state, the program will actively recruit from Illinois-based institutions, including the University of Illinois Urbana-Champaign and other public universities across the state. The Economics Department's longstanding success with its Economics: Policy Economics, MS program—which is in the process of being changed to its own major (key 1277) —demonstrates its ability to attract a global pool of students. The EMAIDS will extend that reach while targeting in-state students through outreach, early advising, and engagement with undergraduate advisors. Additionally, the availability of merit-based scholarships and access to a cost-effective, nationally ranked program located in Illinois provides a strong incentive for high-achieving Illinois students to stay in state for graduate training.

b) Evidence of a High-Quality Credential with Career Viability

The EMAIDS is designed as a high-quality, terminal master's degree that equips students with in-demand skills in economics, data science, and AI. The program provides rigorous training in economic modeling, statistics, programming, applied econometrics, and AI-driven analytical methods, with selective use of modern tools such as machine learning, natural language processing, and causal inference. Graduates will be prepared for a wide range of careers that

require strong analytical and quantitative reasoning, including roles in public policy, government, consulting, economic research, and AI-enabled analytics in the private sector.

Employer demand for professionals who can interpret complex data, apply AI methods responsibly, and make evidence-based decisions continues to grow. The U.S. Bureau of Labor Statistics projects above-average growth for occupations such as data scientists (+35%), operations research analysts (+23%), and economists (+6%) through 2032. The interdisciplinary skill set developed through the EMAIDS—combining economic theory, statistical modeling, and AI tools—aligns closely with these occupational demands. Additionally, the program's applied orientation and capstone requirement ensure graduates are equipped with real-world experience, enhancing their competitiveness in the job market.

In sum, the MS in Economic Modeling, AI, and Data Science addresses a growing student and labor market demand by offering a credential that is both academically rigorous and professionally relevant. It leverages Illinois' educational infrastructure and research strengths to retain local talent while preparing graduates for dynamic, AI-enabled careers in a data-driven economy.

Explain how the program engaged with business and industry in its development and how it will spur the state's economy by leveraging partnerships with local, regional, and state industry, business leaders and employers.

Institutional engagement

The University of Illinois Urbana-Champaign has strong partnerships with business and industry through the statewide initiatives like the Discovery Partners Institute (DPI) and the Illinois Innovation Network (IIN), which closely align with A Thriving Illinois' Growth Strategies. As a key gubernatorial initiative, DPI's Tech Talent Lab and immersion programs engage with Chicago's technology workforce, allowing students to interact with Chicagoland technology and innovation culture. Students make meaningful connections to regional employers and industries, university research teams, civic and nonprofit organizations, and startups that will lead to employment and talent retention in the region. IIN works to enrich the student experience through short-term boot camps around topics such as artificial intelligence, data science, entrepreneurship, and more. These intensive programs will encourage students' interest in topics that are key to the 21st century economy and give them a foundation for continued study.

Partnerships with the Research Park, the work of the Campus Community Compact, and the I-Engage program align with A Thriving Illinois' Growth Strategies.

As a dynamic tech hub that provides meaningful and industry-focused research and internship opportunities, the Research Park employs 800 interns year-round in part-time employment,

allowing University of Illinois Urbana-Champaign undergraduate and graduate students to work on campus and be enrolled as full-time students. There are more students working at the Research Park than at any other peer American university research/tech park. Students are paid highly competitive wages for their specialized skillsets in areas like computer science, data analytics, UX/UI design, engineering, business development, and market research. Research Park internships increase students' employment prospects by expanding their professional networks, building their professional portfolios, and developing their leadership skills. The top students working in the Research Park are typically hired into full-time roles within the companies that employ them, many of whom then remain in tech roles in Illinois (i.e. John Deere, State Farm, Caterpillar, ADM, Motorola Solutions, Brunswick, Abbott, etc.). Many of the corporate sites focus on DEI outreach and participate as sponsors to various student groups and campus units. Examples include Synchrony supporting a class of 125 Chicago students who are gaining technology skills as they attend the Pritzker Tech Talent Labs' Digital Scholars program with the Discovery Partners Institute, part of the University of Illinois System. The Digital Scholars program is a free summer program for underrepresented high school students to build computing skills, increase college and career readiness, and make connections to Champaign and Chicago's dynamic tech communities. This program helps link Chicago high school students to the University of Illinois and, through Synchrony, the Research Park, further developing a strong talent pipeline. Motorola Solutions' partnership with the Society of Hispanic Professional Engineers, and Brunswick's volunteer work with Booker T. Washington STEM Academy. Building on the well-established relationships of the affinity and community groups both on campus, the Research Park campus office has ongoing partnerships with units such as Cultural Centers, The Career Center, and Registered Student Organizations (RSOs) to educate Illinois' diverse population of students on the opportunities available within the Park. Research Park has been integrally involved in building the region's capacity and expertise in precision fermentation and bioprocessing, which resulted in the $51 million grant to iFAB from the U.S. Economic Development Administration announced in July. Research Park encompasses multiple facets of that ecosystem – it is home to one of the region's fastest growing contract development manufacturing organizations, as well as one of the major industry partners (ADM).

Another local program, We CU, supports long-term partnerships between local organizations, instructors, and students at the University of Illinois Urbana-Champaign. These mutually beneficial partnerships create impactful learning experiences for students and promote positive change in the Champaign-Urbana community. In the first four years of the program (2020-2024), 3,152 students from 12 colleges dedicated 56,115 hours to 798 service projects. In 2024, We CU recognized 84 students as We CU Community Engaged Scholars. We CU Scholars completed an additional 8,615 service hours.

The Campus-Community Compact (Compact) is one of the major initiatives of the Community Action and Public Engagement (CAPE) Committee of Illinois' Chancellor's Call to Action to

Address Racism and Social Injustice. Comprised of a co-equal partnership between Illinois and the broader Champaign County community, the Compact is an ambitious and visionary initiative to accelerate social justice by addressing structural racism, bias, and social injustice over the next five to ten years in six interrelated grand challenge areas: inclusive education; accessible technology; economic development; health, wellness, and resilience; workforce development; and community relations. The Compact also includes several crosscut areas; namely, accessible campus/transportation, accessible information, community safety, and language (e.g., multilingualism, communications, and messaging).

Three priorities have been identified for the Inclusive Education focus area: restoring opportunity; providing a community-based information delivery service; and professional development. Restoring Opportunity addresses the need for greatly improved access to quality health care, access to a rich array of courses taught by culturally responsive and affirming educators, and access to well designed and well-resourced schools. The development, implementation, and sustainability of a community-based information delivery service requires a community that partners with the university to invest in professional development strategies and training opportunities to continuously strengthen the capabilities of the teacher workforce to address the needs of an increasingly diverse student population. Illinois, through its College of Education, will work with the local schools' districts to create targeted initiatives to recruit and hire teachers of color at a level proportionate to the population of students of color taught or that increase the total population of teachers of color by 100% of their current numbers. Professional development involves continuous professional development for teachers and administrators.

An example of a professional development activity is the TEACH Academy, a three-day interactive experience designed to strengthen instructional practices using a lens that focuses on educational justice, equity, and inclusion. Now in its second year, the TEACH Academy has already cultivated a community of over 200 TEACH Scholars who are transforming education across Champaign County. The 2023 TEACH Academy introduced groundbreaking new math teaching methods that were subsequently implemented in local schools during the 2023-2024 academic year. These innovative approaches have already yielded impressive results, with an increase in math scores among some high school students. The 2024 TEACH Academy again featured three keynote presentations open to all Champaign County educators and TEACH Scholars. With 180 TEACH Scholars, the 2024 cohort doubled the size of the inaugural class, represents four area school districts, and spans 34 campuses across the county. Forty-nine returning TEACH Scholars who continue to deepen their impact were also welcomed back in 2024.

Finally, new starting in the 2022-2023 academic year is the Office of the Provost's I-Engage program. I-Engage promotes new faculty engagement with the community. Deans nominate new faculty members to be part of the cohort of approximately 35 from different academic

new faculty members to be part of the cohort of approximately 35 from different academic units. The cohort spends a day traveling around Champaign-Urbana to different local business and industry sites, meeting with leaders from these areas and debriefing with campus leaders between sites. The program's goal is to facilitate opportunities for new faculty to develop a deeper understanding of the infrastructures and drivers of the local economy, including agriculture, government, healthcare, and social services. I-Engage furthers understanding of the critical synergy between the campus and local community.

College, Department, and Program Engagement

The Department of Economics collaborates closely with LAS Career Services and campus-level career services through events such as the LAS Career Fair, the Research Park Career Fair, and the Career Services Council. In addition to these opportunities, the Economics Department maintains strong relationships with local, regional, and national employers through its dedicated Career Services staff, who organize events throughout the year to connect students and alumni with professional opportunities. Economics Career Services actively engages national and regional recruiters and partners with Research Park to facilitate year-round employer engagement, particularly through the course Econ 198: Careers in Economics. This course prepares and supports students as they enter internship and job markets, with an increasing emphasis on careers that combine economics, data science, and AI applications.

Describe how the proposed program will expand access and opportunities for students through high-impact practices including research opportunities, internships, apprenticeships, career pathways, and other field experiences.

The Economics Department has also recently launched the Economics Data Lab, which serves as both a teaching and applied research hub. The Data Lab, staffed by a full-time clinical professor, partners with businesses, nonprofits, and public agencies to deliver data analysis and AI-driven insights directly to clients. These collaborations leverage existing relationships while forging new partnerships that benefit local, regional, and state industries. Students working in the Data Lab gain hands-on experience in data cleaning, modeling, and AI-enhanced analytics, as well as exposure to real-world economic problem-solving. This model not only develops practical skills but also expands professional networks, increasing graduates' competitiveness in the job market.

The Economics Data Lab is expected to grow in scope and impact as it scales up to serve more clients and incorporates additional AI-based tools and methodologies. This growth will enhance the Department of Economics' ability to contribute to Illinois' innovation ecosystem while ensuring students graduate with both the theoretical foundation and applied expertise demanded in today's AI- and data-driven economy.

Institution level high-impact practices

As noted in the previous response, the Research Park expands access and opportunities for students by employing 800 interns year-round in part-time research opportunities and career-relevant internships, allowing University of Illinois Urbana-Champaign undergraduate and graduate students to work on campus and be enrolled as full-time students.

The campus Career Services Council, which includes the campus-wide Career Center in partnership with the college and departmental career offices and professionals, offers Handshake@Illinois, a platform for students to connect with employers, internship opportunities and job postings. Handshake@Illinois was used by more than 29,000 students and 8,500 employers last year.

To establish and/or enhance sustainable outreach and partnerships with PreK-12 schools, the Chancellor at the University of Illinois Urbana-Champaign established the office of PreK-12 Initiatives in May 2024. This office develops initiatives designed to create partnerships with superintendents statewide as well as identifies and partners with key education stakeholders to

attract and retain underserved and underrepresented students. It provides us with the ability to rethink and enhance the high school to college pipeline in Illinois by partnering with organizations such as Chicago Scholars, Hope Chicago, the Discovery Partners Institute (DPI), Illinois Innovation Network (IIN), and the Jackie Joyner-Kersee Foundation. Hope Chicago, for example, works with Chicago Public School graduates to ensure they have the financial and wraparound supports necessary to be successful in obtaining a degree by providing a student success program, career services, alumni outreach, and program performance goals.

This office reconceptualizes the important role higher education must play in ensuring Illinois learners gain the confidence and comprehension for college. The goal of this office and associated initiatives is to ensure that the University of Illinois Urbana-Champaign has developed structural outreach and partnerships to systemically close persisting opportunity gaps in our state's school systems.

Graduate students serve an important role within the Office of Undergraduate Research (OUR) as mentors for many undergraduate researchers. The OUR is guided by the philosophy that all Illinois undergraduate students should learn about current disciplinary research, take part in research discussions, and be exposed to research experiences in their regular coursework. Furthermore, where practical, an advanced research experience should be among the capstone options in all major programs of study. To achieve its mission, OUR seeks to: 1) inspire students and faculty to collaborate on research projects driven by mutual interests by fostering a research mentoring environment that encourages and rewards collaboration; 2) disseminate best practices and models for undergraduate research to campus stakeholders; 3) assist in the development and evaluation of curricular and co-curricular structures that support undergraduate research; 4) encourage the creation of new opportunities for undergraduate research on campus and 5) coordinate and nurture undergraduate research efforts across academic units on campus.

College, Department, and Program High-Impact Practices Supporting Access and Opportunity

At the campus and college levels, students in the MS in Economic Modeling, AI, and Data Science (EMAIDS) program will benefit from a range of resources designed to enhance academic and professional development. These include access to The Career Center, LAS Career Services, and the LAS Career Fair, all of which connect students with internships, apprenticeships, and post-graduation career opportunities—many of which now emphasize AI-enhanced analytics and decision-making.

Explain how the proposed program will expand its models of teaching and learning, research, and/or public service and outreach that provide opportunity for students to succeed in the work of the future.

At the department level, students will engage with the Economics Department's newly developed Economics Data Lab, a for-credit experiential learning initiative. Through the Data Lab, students will work on real-world economic challenges, frequently in collaboration with external partners from business, government, or nonprofit organizations. These projects will

The proposed MS in Economic Modeling, AI, and Data Science (EMAIDS) represents a forward-

The proposed MS in Economic Modeling, AI, and Data Science (EMAIDS) represents a forward-looking approach to graduate education by integrating applied research, experiential learning, and professional development into its core design. The Economics Department will leverage existing resources across the department, the College of Liberal Arts & Sciences (LAS), and the broader University of Illinois campus to prepare students for success in an increasingly data-, AI-, and policy-driven workforce.

A distinguishing feature of the program is its capstone research experience, which follows completion of the core curriculum. This project-oriented component allows students to synthesize their training in economic modeling, data science, and AI methods by working on real-world problems. These projects are designed not only to reinforce classroom learning, but also to simulate the type of analytical work—often incorporating AI-powered forecasting, machine learning, and automated data processing—that graduates will perform in the private sector, government, and nonprofit organizations.

To further enhance workforce relevance, the program will develop partnerships with public agencies, research institutes, think tanks, and private-sector firms. These collaborations may include opportunities for capstone sponsorship, joint research, internships, and guest lectures. Such partnerships will provide students with exposure to applied economic research in professional contexts, while enabling partner organizations to engage with emerging talent trained in advanced economic modeling and AI-enhanced data analysis.

Additionally, the Economics Data Lab will serve as a platform for connecting students to projects with direct public relevance. Many of these will integrate AI tools to improve data quality, identify patterns in large datasets, and generate actionable policy insights. Projects may be sourced from local government, campus partners, or organizations seeking evidence-based solutions to complex economic issues. In doing so, the Economics Department will expand its role in public service and outreach while giving students meaningful opportunities to contribute to real-world impact.

By combining rigorous academics with experiential training, AI-integrated research, and external collaboration, the EMAIDS program offers a dynamic model of graduate education that aligns with the demands of the future economy and empowers students to thrive in a broad array of professional pathways.

often incorporate AI-enabled tools for data analysis, modeling, and forecasting, providing students with practical experience in applying advanced data science methods to policy-relevant economic questions.

Students will also have the opportunity to pursue independent study projects under faculty supervision, earning course credit while contributing to departmental research that may involve econometrics, causal inference, and AI-assisted data processing. These experiences help students build professional portfolios, deepen technical and analytical expertise, and enhance their competitiveness in both academic and industry settings.

Together, these high-impact practices expand access to meaningful, applied learning experiences and provide structured pathways into research, industry, and public-sector careers. They are intentionally designed to ensure that EMAIDS graduates leave the program with not only the theoretical and analytical foundation of economics and data science, but also the AI-driven, hands-on experience required to excel in today's competitive, data-focused job market.

Beyond workforce need, describe how the program broadly addresses societal needs (e.g., cultural or liberal arts contribution, lifelong learning of Illinois residents, or civic participation).

Beyond its alignment with workforce demand, the MS in Economic Modeling, AI, and Data Science (EMAIDS) program addresses pressing societal needs by fostering data literacy, civic engagement, and the integration of liberal arts perspectives into data- and AI-driven problem solving. In an era where public discourse, policymaking, and community development increasingly depend on the interpretation and use of complex datasets, the ability to think critically, leverage AI responsibly, and analyze information objectively is essential—not just for professionals, but for responsible citizenship.

Economics, as a core liberal arts discipline, is uniquely positioned to bridge the technical capabilities of data science and AI with the complex, value-laden challenges faced by modern societies. The EMAIDS program cultivates this intersection by training students to apply economic theory, AI-enabled analytics, and advanced data modeling to issues that shape our world—such as climate change, public health, poverty, inequality, and democratic governance. In doing so, the program develops professionals who are not only technically skilled, but also ethically grounded and socially conscious in their application of AI and data tools.

Moreover, the program supports the lifelong learning mission of the University of Illinois by being accessible to recent graduates, career changers, and working professionals seeking to acquire or deepen their data, AI, and policy analysis expertise. It prepares students to become engaged and informed participants in civic life, capable of interpreting evidence, questioning assumptions, and contributing to public dialogue—while understanding the social, economic, and ethical implications of AI-driven decision-making.

By producing graduates who combine rigorous analytical training with a broad understanding of economic, technological, and social systems, the EMAIDS program helps build a more informed, responsive, and equitable society. It supports not only workforce development, but also the cultivation of thoughtful, engaged leaders prepared to drive innovation and public value in the private, public, and nonprofit sectors.

A Thriving Illinois: Higher Education Paths to Equity, Sustainability, and Growth - Attach Documents

Program Description and Requirements

Illinois Administrative Code:

1050.30(b)(1) A) The caliber and content to the curriculum assure that the objectives of the unit of instruction will be achieved; B) The breadth and depth of the curriculum are consistent with what the title of the unit of instruction implies; C) The admission and graduation requirements for the unit of instruction are consistent with the stated objectives of the unit of instruction.

1050.30(b)(3): Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.

1050.50 (a)(2)(C) Requirement for Programs in which State Licensure is Required for Employment in the Field: In the case of a program in which State licensure is required for employment in the field, a program can be found to be in good standing if the institution is able to provide evidence that program graduates are eligible to take the appropriate licensure examination and pass rates are maintained as specified in the objectives of the unit of instruction. If there is no such evidence, the institution shall report the program as flagged for review.

Program Description

Provide a description of the proposed program and its curriculum, including a list of the required core courses and short (“catalog”) descriptions of each one. (This list should identify all courses newly developed for the program).

Provide Program Description here:

The Master of Science in Economic Modeling, AI, and Data Science (EMAIDS) is an intensive one-year graduate program that fuses advanced economic theory with state-of-the-art data science and artificial intelligence tools. Students gain the expertise to manage and analyze large, complex datasets; apply rigorous economic reasoning; and design empirical strategies that leverage AI and statistical modeling to address real-world challenges.

Graduates are prepared for high-impact careers in finance, consulting, technology, public policy, research, and other data-driven fields where economic insight and AI-powered analytics are increasingly essential.

Program Structure

The curriculum comprises 32 credit hours, structured across the fall, spring, and summer terms. During the fall and spring semesters, students complete four core courses and three electives (28 credit hours total). The program culminates in a required capstone course during the first four weeks of the summer session.

In the capstone, students develop a research proposal, apply quantitative methods using R or Python, conduct empirical analysis, and present their findings through a written report and formal presentation. All courses are delivered in person.

Required Courses (16 Credit Hours)

Students must complete the following four required courses:

ECON 500 — Microeconomics (4 Credits)
Emphasizes microeconomic theory, including value and distribution theory, household and firm behavior, general equilibrium, and related topics of current interest. Credit is not given for both ECON 500 and ECON 528. Graduate credit for both ECON 302 and ECON 500 requires adviser recommendation and departmental approval. Prerequisite: ECON 102 or equivalent.

ECON 506 — Programming for Economic Data Analytics (4 Credits)
Equips master's students with essential programming skills for analyzing economic data. Focuses on practical applications in R and Python for managing, visualizing, and analyzing large datasets.Prerequisites: ECON 202, ECON 203, and ECON 471; or equivalent. Restricted to MS: Economic Modeling, AI, and Data Science students.

ECON 507 — Data Analytics for Applied Economics (4 Credits)
Introduces modern data analytics methods tailored for applied economics. Emphasizes real-

world data analysis using statistical and machine learning techniques, with applications to policy evaluation, market research, and decision-making. Prerequisite: ECON 506. Restricted to MS: Economic Modeling, AI, and Data Science students.

ECON 508 — Econometrics for Data Science (4 Credits)
Builds a strong foundation in probability theory, statistical inference, regression analysis, and econometric techniques. Reinforces theory with empirical projects using R, teaching students how to apply econometric methods to real-world data. Prerequisites: ECON 202, ECON 203, and ECON 471; or equivalent. Restricted to students in the MS in Economic Modeling, AI, and Data Science and MS in Economics + Computer Science programs. Exceptionally well-prepared students in the MS in Policy Economics program may enroll with approval.

Capstone Requirement (4 Credit Hours)

ECON 509 — Capstone Project in Economics and Data Science (4 hours)
Culminates the EMAIDS program by allowing students to apply their training to a comprehensive research project. Students formulate research questions, collect and analyze data, and employ econometric and machine learning methods to generate and present results. Prerequisite: Restricted to MS: Economic Modeling, AI, and Data Science students.

Elective Courses (12 Credit Hours)

Students must complete three 500-level elective courses approved for graduate credit. To ensure both depth and flexibility as the curriculum evolves:

Two electives must be selected from ECON 522, ECON 523, and ECON 524, which emphasize econometrics, causal inference, forecasting, and machine learning applications in economics.

ECON 522 — Overview of different concepts, techniques, and algorithms in machine learning with a view towards applications in economics. Topics covered include regression, classification, model selection, predictive accuracy such as regularized regression, decision trees, boosting, support vector machines, and neural networks. Students acquire the skills to apply basic machine learning methods to solve economics problems.

ECON 523 — Provides a solid foundation in modern econometric methods for causal analysis, with a focus on their applications to policy-relevant questions. Covers a wide range of approaches for identifying causal relationships, including randomized controlled trials, observational studies, matching methods, difference-in-differences, synthetic control, regression discontinuity designs, instrumental variables, and local average treatment effects. Both theoretical underpinnings and practical application of each method are examined. By the semester's end students will be critically equipped to assess, design, and evaluate causal

semester's end students will be critically equipped to assess, design, and evaluate causal inference strategies in applied economic research.

ECON 524 — Introduction to AI-assisted data analysis, with the focus being the study of core concepts in AI, machine learning and econometrics, and their application to structured and unstructured data with economic applications. Essential background concepts will be followed by an exploration of popular AI and ML models and how they are used in economics. Students will engage in both analytical problem sets and data exercises.

One additional elective must be a 500-level course chosen in consultation with the Program Director, to align with the student's specific academic or professional goals.

Attach Program Description Files if needed

Graduation Requirements

Provide a brief narrative description of all graduation requirements, including, but not limited to, credit hour requirements, and, where relevant, requirements for internship, practicum, or clinical. For a graduate program, summarize information about the requirements for completion of the thesis or dissertation, including the thesis committees, and the final defense of the thesis or dissertation. If a thesis or dissertation is not required in a graduate program, explain how the functional equivalent is achieved.

Graduation Requirements

Students in the Master of Science in Economic Modeling, AI, and Data Science (EMAIDS) program must complete a minimum of 32 graduate credit hours to be eligible for graduation. The program is designed to be completed in one academic year (fall, spring, and summer session I), offering an intensive, professionally focused pathway in AI-driven economic analysis and data science.

Credit Hour Distribution

Core Courses – 16 credit hours
Foundational coursework in economic theory, programming, data analytics, and econometrics:

ECON 500: Microeconomics

ECON 506: Programming for Economic Data Analytics

ECON 507: Data Analytics for Applied Economics

ECON 508: Econometrics for Data Science

Capstone Requirement – 4 credit hours

ECON 509: Capstone Project in Economics and Data Science

Capstone Experience

In place of a traditional thesis, students complete the ECON 509 Capstone Project during the first summer session. Under faculty mentorship, each student designs and executes an applied research project that integrates econometric modeling, machine learning, and data science tools to address a real-world economic problem. The capstone emphasizes research design, data management, analytical rigor, and professional presentation, mirroring the applied demands of roles in industry, government, and policy organizations.

Elective Courses – 12 credit hours

Students must complete three 500-level elective courses approved for graduate credit.

At least two electives must be chosen from:
ECON 522: Applied Machine Learning in Economics
ECON 523: Causal Inference and Policy Evaluation
ECON 524: AI and Econometrics

The remaining elective may be selected from other approved 500-level courses in economics or data-oriented disciplines, in consultation with the program director to align with the student's professional goals.

Graduation Standards

To earn the degree, students must complete a minimum of 32 graduate credit hours as outlined above, maintain a minimum cumulative GPA of 3.0 (on a 4.0 scale), and successfully complete all coursework at the graduate level. Students must also fulfill the Capstone Project requirement; no thesis committee or defense is required due to the program's applied, non-thesis structure.

Program Outcome

By combining structured coursework in economic modeling and data science with hands-on research through the capstone project, the EMAIDS program ensures that graduates possess both the technical expertise and applied experience necessary to excel in the rapidly evolving, data-intensive economy.

Plan to Evaluate and Improve the Program

Describe the program's evaluation plan.

The program director will evaluate the MS in Economic Modeling, AI, and Data Science (EMAIDS) using established learning outcomes for the Department of Economics' economic modeling and data science programs. Student progress will be systematically monitored throughout the academic year, with performance data used to implement timely interventions and adjustments that support persistence to degree completion.

Additionally, the program will collect and analyze job placement and career outcome data to assess whether graduates' skills remain aligned with evolving job market trends in economics, AI, and data science. These insights will inform periodic curriculum updates, ensuring the program continues to provide relevant, high-impact training.

This continuous feedback loop—linking learning outcomes, student progress tracking, and labor market data—will enable the Department of Economics to conduct regular, evidence-based audits of the program and maintain its responsiveness to both student needs and workforce demand.

Plan to Evaluate and Improve the Program Attachments

Budget Narrative

Fiscal and Personnel Resources

Illinois Administrative Code: 1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained; B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.

Budget Rationale

Provide financial data that document the university's capacity to implement and sustain the proposed program and describe the program's sources of funding.

Is the unit's (Department, College, School) current budget adequate to support the program when fully implemented? If new resources are to be provided to the unit to support the program, what will be the source(s) of these funds? Is the program requesting new state funds? (During recent years, no new funds have been available from the state (IBHE) to support new degree programs).

The program will be fully supported by student tuition revenues from the Economic Modeling, AI, and Data Science, MS students. No state funds are being requested.

Faculty Resources

Will current faculty be adequate to provide instruction for the new program or will additional faculty need to be hired? If additional hires will be made, please elaborate.

Current faculty are adequate to provide instruction for the new program. No additional hires are needed.

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

Current faculty resources will be sufficient to support this program. Course capacity exists to accommodate the increased demand, and no additional faculty will be required. Infrastructure already exists via existing Economics Department resources, specifically the MSPE Program.

Describe how the unit will support student advising, including job placement and/or admission to advanced studies. Will current staff be adequate to implement and maintain the new program or will additional staff be hired? Will current advising staff be adequate to provide student support and advisement, including job placement and or admission to advanced studies? If additional hires will be made, please elaborate.

The Department of Economics will establish a dedicated administrative office to oversee both the MS in Economic Modeling, AI, and Data Science and the proposed MS in Economics + Computer Science programs. To support this initiative, the Economics Department will initially hire one administrator to assist with both programs and appoint a program director for each program.

During the transition phase, some administrative responsibilities will be managed by the staff of the MS: Policy Economics office. Once the program reaches its steady-state enrollment of 45 students, the Economics Department will hire one civil service staff member to help run both programs and may potentially appoint an associate director to each program. This new office will also be responsible for running the MS: Economics + Computer Science program that is in the process of being proposed (Proposal 1313).

The director and/or associate director will be responsible for advising students and ensuring that the program's learning objectives are met. However, advising demands are expected to be minimal, as students have only one elective course in the Economic Modeling, AI, and Data Science curriculum.

For job placement and career support, students in both programs will utilize the existing Economics Career Services Office facilities, which are well-equipped to assist with employment opportunities and admissions to advanced studies. The current Economics Career Services staff is sufficient to meet these needs, and no additional hires will be required for job placement support.

Are the unit's current facilities adequate to support the program when fully implemented? Will there need to be facility renovation or new construction to house the program?

The existing facilities are well-equipped to fully support the program's implementation. However, some renovations will be necessary as the program approaches its steady state. Specifically, certain offices may need to be reconfigured to accommodate the administrative staff and provide a dedicated meeting space for students in the program.

Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

The Department of Economics is supported by the Social Sciences, Health, and Education (SSHEL) Library, a unit of the University Library. The Economics Department has consulted with Mandi Arlain, the economics specialist at SSHEL.

The current library collections, resources, and services are adequate to support this program, as the vast majority of courses—all but four (506, 507, 508 and 509)—are already offered through the Economics Department. Of these four new courses, three are adapted versions of courses that are either currently or recently offered by the Economics Department. In particular: Econ 506 expands upon an eight-week, one-credit course offered through the MSPE program that covers the basics of Python Programming; Econ 507 is a graduate-level adaptation of the undergraduate course Econ 491: Data Analysis—Problem Solving; and Econ 508 consolidates the material from Econ 502 (Statistics) and Econ 503 (Econometrics) into a single-semester course.

These modifications ensure that the library's existing resources remain sufficient to meet the academic and research needs of the program.

Summarize information about library resources for the program, including a list of key textbooks, a list of key text and electronic journals that will support this program, and a short summary of general library resources of the University that will be used by the program's faculty, students, and staff.

The Social Sciences, Health, and Education Library provides extensive print and electronic resources related to the discipline of economics for both students and faculty. Any resources not held by this library can be requested through inter-library loan or from partner institutions. Additionally, instructors can contact the subject librarian to explore the possibility of purchasing the needed resources.

Key textbooks that will support this program include:

Pindyck and Rubinfeld, Microeconomics, 9th e. Pearson (2017). ISBN:0134184246

Dalgaard, Peter. Introductory Statistics with R. Springer Science+Business Media, LLC 2008. ISBN: 978-0-387-79053-4

Dayal, Vikram. Quantitative Economics with R. Springer Nature Singapore Pte Ltd. 2020. ISBN: 9789811520341

Hansen, Bruce E. Econometrics. Princeton University Press 2022. ISBN: 9780691235899

Mathematical Statistics with Applications (7th ed.), by Dennis Wackerly, William Mendenhall III, Richard Scheaffer. Cengage Learning. ISBN: 0495110817

Data Analysis for Social Science: A Friendly and Practical Approach, by Elena Llaudet, Kosuke Imai. Princeton University Press (2022). ISBN:9780691199436

Introduction to Econometrics, by James H. Stock and Mark W. Watson, 4th Edition, Pearson Addison Wesley (2019). ISBN:9780321278876

Econometric Modelling with Time Series by Vance Martin, Stan Hurn and David Harris, Cambridge University Press (2013). ISBN:9780521139816

An Introduction to Statistical Learning, (with Applications in R), 2nd ed, by James, Witten, Hastie, Tibshirani, Springer (2017). ISBN: 978-1461471370.

Other periodicals that may be used in this program include:

The Economist. ISSN 0013-0613

Journal of Economic Perspectives, ISSN 1944-7965

The American Economic Review, ISSN 0002-8282

These resources are already available through the library.

Are any sources of funding temporary (e.g., grant funding)? If so, how will the program be sustained once these funds are exhausted?

All sources of funding are permanent.

If this is a graduate program, please discuss the intended use of graduate tuition waivers. If the program is dependent on the availability of waivers, how will the unit compensate for lost tuition revenue?

As a self-supporting program, no graduate tuition waivers are granted.

Budget Narrative
Fiscal and
Personnel
Resources
Attachments

Personnel Budget

Category Year One Year Five Notes

Faculty (FTE)

Faculty FTE Year1	Faculty FTE Year 5	Faculty FTE Notes
1.83	2.5	In the first year, the Faculty Teaching Equivalent (FTE) is 2.0 due to the expectation that class sizes will be approximately 15 students. During this initial phase, students in the program will share two core courses with those enrolled in the Master of Science in Policy Economics program. By year five, when enrollment is projected to stabilize between 45 and 60 students, the program will require dedicated sections for these two courses. Both the Year 1 and Year 5 numbers reflect one shared course with MS, Economics + Computer Science.

Faculty ($)

Faculty Year 1	Faculty Year 5	Faculty Notes
$192,215	$295,313	Year 5 based on 3% annual Increase

Advising Staff ($)

Advising Staff Year 1	Advising Staff Year 5	Advising Staff Notes
$10,000	$11,250	Year 5 based on 3% annual Increase

Graduate Students ($)

Graduate Students Year 1	Graduate Students Year 5	Graduate Students Notes
$136,000	$153,000	Four teaching assistants for Econ Modeling, AI, and Data Science core courses plus hourly grading support for other courses. One TA will be shared with MS in Economics + Computer Science as students from both programs will take Econ 508 together. Year 5 based on 3% annual increase.

Other Personnel Costs

Other Personnel Costs Year 1	Other Personnel Costs Year 5	Other Personnel Costs Notes
$30,000	$67,500	1 civil servant in year one; 2 civil service staff in steady state. Both will be shared with MS in Econ + Computer Science. Year 5 based on 3% annual increase.

Budget Narrative Attachments

Facilities and Equipment

Illinois Administrative Code: 1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support high quality academic work in the unit of instruction, research or public service are available and maintained;

B) Clinical sites necessary to meet the objectives of the unit of instruction, research or public service;

C) Library holdings and acquisitions, owned or contracted for by the institution, that are necessary to support high quality instruction and scholarship in the unit of instruction, research and public service, are conveniently available and accessible, and can be maintained.

Describe the facilities and equipment that are available, or that will be available, to develop and maintain high quality in this program. Summarize information about buildings, classrooms, office space, laboratories and equipment, and other instructional technologies for the program.

The EMAIDS program will be supported by robust campus and departmental facilities that ensure a high-quality instructional and student experience.

The program will be headquartered in David Kinley Hall (DKH), located at 1407 W. Gregory Drive in Urbana, IL. Built in 1926, DKH houses the Department of Economics and features 24 classrooms that can accommodate between 24 and 270 students each, allowing for a mix of lecture, seminar, and discussion-based instruction.

To support program operations, the Department of Economics will allocate dedicated office space in David Kinley Hall for administrative staff associated with the MS in Economic Modeling, AI, and Data Science, shared with the MS in Economics + Computer Science program. These offices will house the program directors and advising teams and serve as a hub for student support and program coordination. Additionally, office space in DKH will be designated for graduate teaching assistants, providing tutoring and academic assistance to EMAIDS students in close proximity to instructional and advising staff.

Beyond David Kinley Hall, the Economics Department utilizes four offices at the Institute for Government and Public Affairs (IGPA), located at 1007 W. Nevada Street in Urbana. One of these offices serves as a data lab, equipped with four computer stations, where students can engage in hands-on data analysis and collaborative projects. The Economics Department also leases two additional offices at 1207 Oregon Street, which are used to support research and graduate student needs.

While many Economics faculty are based in David Kinley Hall, some also work from affiliated centers or research institutes across campus, contributing to a diverse and interdisciplinary instructional environment. The Economics Department supports instruction with a wide range of technology resources, including campus-supported learning platforms (such as Canvas), specialized statistical software (e.g., Stata, R, Python), and access to virtual computing labs. Classrooms in DKH are also equipped with modern audiovisual tools to support high-quality in-person and hybrid instruction.

Together, these physical and technological assets provide a strong infrastructure to deliver an engaging, rigorous, and professionally relevant graduate education for students in the EMAIDS program.

Will the program require new or additional facilities or significant improvements to already existing facilities?

No

Will the program need additional technology beyond what is currently available for the unit?

No

Are there other costs associated with implementing the program?

No

Facilities and Equipment Attachments

Faculty and Staff

Illinois Administrative Code: 1050.30(a)(3): A) The academic preparation and experience of faculty and staff ensure that the objectives of the unit of instruction, research or public service are met; B) The academic preparation and experience of faculty and staff, as evidenced by level of degrees held, professional experience in the field of study and demonstrated knowledge of the field, ensure that they are able to fulfill their academic responsibilities; C) The involvement of faculty in the unit of instruction, research or public service is sufficient to cover the various fields of knowledge encompassed by the unit, to sustain scholarship appropriate to the unit, and to assure curricular continuity and consistency in student evaluation; D) Support personnel, including but not limited to counselors, administrators, clinical supervisors, and technical staff, which are directly assigned to the unit of instruction, research or public service, have the educational background and experience necessary to carry out their assigned responsibilities.

Describe the personnel resources available to develop and maintain a high quality program, including faculty (full- and part-time, current and new), staff (full- and part-time, current and new), and the administrative structure that will be in place to oversee the program. Also include a description of faculty qualifications, the faculty evaluation and reward structure, and student support services that will be provided by faculty and staff.

Personnel Resources and Administrative Structure

The Department of Economics is well-positioned to develop and sustain a high-quality EMAIDS program through a combination of existing instructional capacity, targeted staffing expansion, and a well-established administrative framework.

Administrative Staff
The Economics Department currently employs five faculty members who hold administrative appointments and 16 full-time professional staff who support undergraduate and graduate programs, communications, budgeting, and student services. To meet the specific needs of the EMAIDS program, the Economics Department plans to hire one additional full-time civil servant at launch, with a second hire anticipated as the program grows. These new positions will be shared between the EMAIDS program and the MS in Economics + Computer Science program, ensuring efficient resource use while providing dedicated support for advising, admissions, data tracking, and student engagement.

Program Leadership
A tenured faculty member will be appointed as program director, responsible for academic leadership, student mentoring, and coordination of instruction. As the program matures, the Department of Economics may appoint an associate director to support the director with curriculum development, faculty collaboration, employer engagement, and student services.

Faculty Resources

The Department of Economics maintains a strong and diverse faculty body with deep expertise in economic modeling, econometrics, and data analysis—providing the foundation for the MS in Economic Modeling, AI, and Data Science (EMAIDS).

The department currently includes 28 tenured or tenure-track professors, 8 non-tenure-track teaching faculty, and 14 affiliated faculty members with joint appointments in related fields such as statistics, computer science, public affairs, and finance. Together, they offer broad coverage across the methodological and applied domains central to the proposed program.

Recent Strategic Faculty Additions

Over the past three years, the Department has made significant, targeted investments in

faculty whose expertise directly supports the EMAIDS program. Since 2022, seven new tenure-track or senior faculty members have joined, strengthening the department's quantitative and computational core.

Notably, the department has added three full professors, two of whom hold endowed chairs, along with a cohort of early-career faculty working at the intersection of economics, data science, and AI. These hires include:

Jing Cynthia Wu, Professor and Paul W. and Catherine A. Boltz Chair in Economics, whose research on macro-finance, monetary policy, and time-series econometrics brings internationally recognized expertise in quantitative modeling and forecasting.

Marcelo C. Medeiros, Professor and Jorge Paulo Lemann Endowed Chair in Economics, a leading scholar in econometric theory, high-dimensional forecasting, and machine-learning applications in economics.

Drew D. Creal, Professor of Econometrics and Finance, an expert in Bayesian and state-space modeling whose research informs modern macroeconomic forecasting and data-driven decision analysis.

Daniela Alfonso Fontes, Clinical Assistant Professor of Economics, specializing in applied econometrics, causal inference, and development economics, expanding the department's instructional capacity in empirical methods and applied policy analysis.

Feng Chi, Assistant Professor of Economics, whose research in computational macroeconomics and structural modeling strengthens the program's quantitative modeling foundation.

Lena Song, Assistant Professor of Economics, who applies modern data-analytic and machine-learning methods to questions in microeconomics and political economy, complementing the program's data-science emphasis.

Josh Shea, Assistant Professor of Economics (joined Fall 2022), whose research in financial economics and applied data science reinforces the department's strengths in empirical modeling and analytics.

Together, these hires demonstrate a deliberate and sustained investment in the quantitative and computational dimensions of economics that define the EMAIDS curriculum. They ensure that the department possesses the depth, diversity, and instructional capacity necessary to launch and sustain a rigorous, interdisciplinary graduate program that is responsive to evolving data-driven research and professional practice.

Faculty Evaluation and Rewards

Faculty are evaluated annually based on teaching, research, and service. Contributions to graduate education—including instruction, advising, and mentorship—are recognized in merit reviews and teaching assignments. Faculty who participate in EMAIDS capstone projects or research supervision will have these efforts acknowledged as part of their service and instructional contributions. The Economics Department also offers internal teaching awards and encourages innovation in applied pedagogy.

Student Support and Engagement

The EMAIDS program will offer strong academic and professional support. The advising team—composed of the program director, potentially an associate director, and two full-time staff shared with the MS in Economics + Computer Science—will assist students with course planning, academic progress, and career readiness. Additionally, four Ph.D. students in Economics will be hired annually to serve as teaching assistants and tutors for the program. These graduate instructors will offer walk-in hours, course-specific support, and structured academic workshops.

Students will also benefit from the Department's Economics Career Services Office, which provides targeted support for graduate-level career development. Services include job market preparation, resume and cover letter review, mock interviews, and networking events such as internship panels, alumni meetups, and etiquette dinners. Students will also have access to broader campus resources, including LAS Career Services and campus-wide job and internship fairs, including those hosted by the Gies College of Business.

This comprehensive personnel structure ensures that the MS in Economic Modeling, AI, and Data Science will be effectively managed, academically rigorous, and responsive to student needs—providing a high-quality graduate experience that prepares students for success in today's data-driven economy.

Summarize the major accomplishments of each key faculty member, including research/scholarship, publications, grant awards, honors and awards, etc. Include an abbreviated curriculum vitae or a short description.

Faculty Accomplishments and Qualifications

The Department of Economics at the University of Illinois Urbana-Champaign is home to a distinguished faculty actively engaged in research, teaching, and public service. Faculty members are widely recognized in their fields, contributing to scholarship on issues ranging from labor markets and development to econometrics, public finance, environmental economics, industrial organization, and policy evaluation.

Over the past five years, faculty in the Department of Economics have received 34 externally funded research grants totaling more than $2.5 million. These awards reflect the Economics

Faculty and Staff

Attachments

Faculty Short Bios.docx

economics, data-driven policy design, and algorithmic fairness—fields that align closely with the interdisciplinary focus of the proposed MS in Economic Modeling, AI, and Data Science (EMAIDS) program.

HLC Section

Department of Economics faculty regularly publish in top-tier peer-reviewed journals, including The American Economic Review, Econometrica, Journal of Political Economy, Review of Economic Studies, Journal of Econometrics, and Journal of Labor Economics. Many serve on editorial boards, act as referees for major journals, and participate in leading academic associations. Several faculty members have earned honors and awards such as best paper prizes, named fellowships, and recognition for excellence in teaching and mentorship.

Credit Hours

Existing or repackaged curricula (Courses from existing inventory of courses):	Number of Credit Hours:	16 Percent of Total: 50
Revised or redesigned curricula (Courses for which content has been revised for the new program):	Number of Credit Hours: 0	0 Percent of Total:
New curricula (Courses developed for the new program that have never been offered):	Number of Credit Hours: 50	16 Percent of Total:
Total Credit Hours of the Program:	Number of Credit Hours:	32 Percent of Total: 100

In addition to research distinction, the Economics Department's non-tenure-track teaching faculty bring deep instructional expertise in data science, statistics, programming, and applied economic analysis. Many have industry or government experience and play a key role in mentoring students and designing high-impact, applied coursework for graduate students.

A full list of key faculty, along with brief CV-style summaries of their major accomplishments—including research interests, notable publications, awards, and grant activity—has been compiled and is available in the attached supporting document.

New Faculty Required

Collectively, the Economics Department's faculty offer the scholarly excellence, interdisciplinary range, and professional engagement necessary to support the EMAIDS program. Their experience in teaching technical and applied topics, mentoring students, and leading collaborative research ensures the program will be delivered at a high level of quality and relevance to current labor market demands.

Will new faculty expertise or new faculty members be needed to launch this program?

No

Please explain existing coverage:

No new faculty hires will be required to launch the MS in Economic Modeling, AI, and Data Science (EMAIDS) program. The Department of Economics currently has sufficient instructional and research capacity to fully support the proposed curriculum.

Over the past three years, the Department has undertaken a series of strategic hires that directly align with the program's quantitative and computational focus. Since 2022, three new full professors—including two endowed chairs—and eight additional tenure-track or clinical faculty members have joined the department, significantly strengthening expertise in

econometrics, computational modeling, machine learning, and applied data science.

The addition of Jing Cynthia Wu, Professor and Paul W. and Catherine A. Boltz Chair in Economics; Marcelo C. Medeiros, Professor and Jorge Paulo Lemann Endowed Chair in Economics; and Drew D. Creal, Professor of Econometrics and Finance, brings world-class strength in quantitative economics, Bayesian modeling, and machine learning applications. These senior appointments, complemented by recent junior and clinical faculty—including Feng Chi, Lena Song, Josh Shea, Daniela Alfonso Fontes (Clinical Assistant Professor), Morgan Foy, Marcos Sora, and Jingnan Liu—collectively provide the methodological and applied expertise necessary to deliver a rigorous, modern curriculum at the intersection of economics, AI, and data science.

The Department now employs 32 tenured or tenure-track professors, 8 non-tenure-track teaching faculty, and 14 affiliated faculty members with joint appointments in related departments such as Statistics, Computer Science, Finance, and Urban and Regional Planning. This broad base of expertise ensures comprehensive coverage of the EMAIDS program's core areas, including economic modeling, econometrics, programming, and applied data analysis.

Importantly, the Department's expanded faculty capacity allows the EMAIDS program to be implemented without cannibalizing existing teaching or research commitments. The recent hires were made with explicit attention to instructional load planning and curricular balance, ensuring that new course offerings for the EMAIDS program will be integrated smoothly within the Department's teaching portfolio. Faculty assignments and course rotations have been structured so that the program's specialized courses complement, rather than compete with, the Department's undergraduate, Ph.D., and professional master's programs.

Together, this faculty body provides the necessary depth and diversity to launch and sustain the EMAIDS program without additional hires at the time of implementation. The recent pattern of senior and junior appointments—including two endowed chairs in data-intensive research areas—demonstrates the Department's ongoing commitment to maintaining a strong quantitative foundation and ensuring that the new program will be delivered by highly qualified, research-active, and pedagogically innovative faculty.

Additional Funds

Will the proposed program require a large outlay of additional funds by the institution?

No

Institutional Funding

Please explain institutional funding for proposed program:

The proposed MS in Economic Modeling, AI, and Data Science will be fully self-supported through tuition revenues. These revenues will fund all aspects of the program, including instruction, student advising, program administration, and co-curricular support services. The Department of Economics has successfully operated this self-supporting model for decades through its MSPE (Policy Economics) program. This long-standing success gives the Department of Economics confidence that the same model will be effective and sustainable for the new program. As such, no additional institutional funding will be required to launch or maintain the degree.

EP Documentation

EP Control Number EP.26.087

Attach Rollback/ Approval Notices

Non-EP Documentation

U Program Review Comments

Rollback Documentation and Attachment Re_ Proposal for EMAIDS.pdf

DMI Documentation

Attach Final Approval Notices

Banner/Codebook Name

Program Code:

Minor Code	Conc Code	Degree Code	Major Code

Senate Approval Date

Senate Conference
Approval Date

BOT Approval Date

IBHE Approval Date

HLC Approval Date

DOE Approval Date

Effective Date:

Program Reviewer
Comments

Donna Butler (dbutler) (07/08/24 1:54 pm): Rollback: per Cathy's request

Brianna Vargas-Gonzalez (bv4) (07/18/25 11:55 am): ECON 508 is a new course approved for Fall 2026. At this time it appears as a red box but will clear once the catalog is rolled.

Melissa Reedy (murray) (08/13/25 10:01 am): Rollback: per email conversation with Stephen

Stephen Downie (sdownie) (08/22/25 9:38 am): Rollback: At request of sponsor.

Melissa Reedy (murray) (10/03/25 5:06 pm): Rollback: As requested by George Deltas

Brianna Vargas-Gonzalez (bv4) (10/27/25 4:57 pm): ECON 524 is a new course approved for Fall 2026. At this time it appears as a red box but will clear once the catalog is rolled.

Key: 1267