Program Change Request

APPROVED BY SENATE
04/06/2026

EP.26.149_FINAL
Approved by EP 03/23/2026

New Proposal

Date Submitted: 07/01/25 2:58 pm

Viewing: : Mathematics + Data Science, BSLAS

Last edit: 03/27/26 9:54 am

Changes proposed by: Lee DeVille

In Workflow

1. U Program Review
2. Gen Ed Review
3. 1257-MATH Head
4. 1583-STAT Head
5. 1434-SSCDS Head
6. 1992-IS Head
7. KP Committee Chair
8. LP Committee Chair
9. KP Dean
10. LP Dean
11. KV Dean
12. University Librarian
13. COTE Programs
14. Provost
15. Senate EPC
16. Senate
17. U Senate Conf
18. Board of Trustees
19. IBHE
20. HLC
21. Catalog Editor
22. DMI

Approval Path

1. 06/05/25 9:59 am Donna Butler (dbutler): Rollback to Initiator
2. 07/09/25 3:52 pm Donna Butler (dbutler): Approved for U Program Review
3. 07/17/25 1:53 pm

Melissa Steinkoenig (menewell): Approved for Gen Ed Review

4. 11/03/25 2:25 pm Lee DeVille (rdeville): Approved for 1257-MATH Head
5. 11/11/25 5:48 pm Feng Liang (liangf): Approved for 1583-STAT Head
6. 01/16/26 11:30 am Mahesh Viswanathan (vmahesh): Approved for 1434-SSCDS Head
7. 01/23/26 9:51 am Brandon Batzloff (batzloff): Approved for 1992-IS Head
8. 01/26/26 2:29 pm Katherine Freeman (katefree): Approved for KP Committee Chair
9. 01/28/26 10:01 am Amber Holmes (aflowers): Approved for LP Committee Chair
10. 01/28/26 2:50 pm Rashid Bashir (rbashir): Approved for KP Dean
11. 01/28/26 2:58 pm Emily Knox (knox): Approved for LP

Dean

12. 03/11/26 3:58 pm Melissa Reedy (murray): Approved for KV Dean
13. 03/11/26 4:00 pm Tom Teper (tteper): Approved for University Librarian
14. 03/11/26 6:10 pm Suzanne Lee (suzannel): Approved for COTE Programs
15. 03/12/26 11:45 am Brooke Newell (bsnewell): Approved for Provost

Proposal Type

Proposal Type:	Major (ex. Special Education)

Administration Details

Official Program Name	Mathematics + Data Science, BSLAS
Diploma Title	Bachelor of Science in Liberal Arts and Sciences
Sponsor College	Liberal Arts & Sciences
Sponsor Department	Mathematics
Sponsor Name	Lee DeVille, Professor and Director of Undergraduate Studies
Sponsor Email	rdeville@illinois.edu
College Contact	Stephen R. Downie, Associate Dean
College Contact Email	sdownie@illinois.edu

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.

Melissa Reedy, murray@illinois.edu (LAS Assistant Director Course & Cir Dvt)

Does this program have inter-departmental administration?

Yes

Interdisciplinary Colleges and Departments (list other colleges/departments which are involved other than the sponsor chosen above)

Please describe the oversight/governance for this program, e.g., traditional departmental/college governance, roles of elected faculty committees and of any advisory committees.

In Spring 2017, the College of Liberal Arts & Sciences submitted an Investment for Growth Proposal to “Jump Start Data Science”, focusing on undergraduate data science education. Interim Provost John Wilkin supported the proposal, but called on LAS to work with three colleges (Engineering, the iSchool, and the Gies College of Business) to develop a collaborative approach to undergraduate data science at Illinois.

Those deans formed a task force (herein the “Data Science Education Task Force” or DSETF) to explore opportunities and make proposals for undergraduate data science education at Illinois. The DSETF conducted its work during academic years 2017—2018 and 2018—2019. At the core of their work was the vision that every Illinois undergraduate should have the opportunity to have a meaningful exposure to data science.

In February 2019, the four deans agreed to support a shared framework for X+Data Science majors, based on suggestions from the DSETF. The framework consisted of the following pieces.

1) A set of core competencies and common features which will be expected of X+Data science majors, together with a reference standard set of courses and activities that fulfills the data science portion of those expectations.

2) Each college can propose its own X+Data Science majors, which will be majors of that college. They may differ from the reference standard approach. When they do so, they should explain how the proposed major provides the expected competencies and features of an X+Data Science major in a manner that is appropriate for their students.

Currently, this program will be subject to the oversight of the campus Data Science Educational Council (DSEC), which oversees all academic programs in data science that span across academic units at the University of Illinois. The DSEC will:

- Keep track of offerings related to data science to facilitate collaboration and reduce redundancy;
- Facilitate the development of data science programs by connecting undergraduate data science education resources across the university;
- Advise colleges on matters related to undergraduate data science education; and
- Review X+Data Science major proposals, commenting on how they meet the expectations for X+Data Science majors and engage collaboratively and strategically with the university’s resources in data science education.

We will remain committed to align our program's specifications with the evolving strategic recommendations of the DSEC.

College	Liberal Arts & Sciences
Department	Statistics

Is there an additional department involved in governance?

Yes

College	Grainger College of Engineering
Department	Siebel School Comp & Data Sci

Is there an additional department involved in governance?

Yes

College	Information Science, School of
Department	Information Sciences

Is there an additional department involved in governance?

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 Bachelor of Science in Liberal Arts and Sciences in Mathematics plus Data Science in the College of Liberal Arts and Sciences

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 Mathematics + Data Science degree plan incorporates simultaneously a strong foundation in data science with a program of study in mathematics, including research or discovery experiences as part of the degree.

Ubiquitous digital technology and the generation of massive amounts of data are rapidly transforming society and multiple fields of inquiry. This transformation has created exciting opportunities and worrisome scenarios across multiple domains of human endeavor. Like the industrial technologies of the early-20th century, the new digital technologies of the early-21st century have great potential to transform society, for good or ill. The University of Illinois has a high calling to prepare students to lead society's digital transformation. In particular, there is a need for modeling and understanding such datasets, addressing such needs as reproducibility, explainability, and justification.

Data science is emerging as a subject of great importance in many domains of human and scholastic endeavor. National policy documents for data science majors emphasize that engagement with an application domain is an important part of data science education. The University of Illinois's white paper on data science education recommended the development of "X+Data Science Majors" as an innovative approach to offering broad collaborative opportunities for Illinois students to engage with data science.

Finally, the specific Mathematics + Data Science program is an exciting new approach to merging two closely related fields: mathematics and data science. The traditional strength of a mathematics major is that a student will emerge with the ability to think deeply about complex problems, with an eye to developing the simplest possible explanation that can provide for all of the data. This --- when coupled with an education in modern coding, computer science, statistics, and data science techniques --- will allow our graduates to bring significant added value to broad sectors of the modern and future economy.

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?

Yes

Please describe:

We anticipate that a number of current Mathematics majors will be drawn to the new program. As a result, the number of sections Math 417 and Math 444/447 may decrease in the future as fewer students need those classes for graduation (these courses are already heavily subscribed, so this might end up relieving some pressure).

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.

Yes

Courses outside of the sponsoring department/interdisciplinary departments:

STAT 107 - Data Science Discovery
STAT 207 - Data Science Exploration
STAT 400 - Statistics and Probability I
STAT 410 - Statistics and Probability II
CS 277 - Algo & Data Stru for Data Sci
CS 307 - Model & Learning in Data Sci
IS 467 - Ethics & Policy for Data Scien
IS 477 - Data Mgmt, Curation, & Reprodu
CS 357 - Numerical Methods I

Please attach any letters of support/ acknowledgement for any Instructional Resources. Consider faculty, students, and/or other impacted units as appropriate.	IS-Support-Math+DS Letter.pdf MATH+DS DCEC support letter.pdf STAT-Support-Math+DS Letter updated2.pdf CS - Letter of Support for Math+DS Program 20251103.pdf

Program Features

Academic Level	Undergraduate

Does this major have transcripted concentrations?	No

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

4 years

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

120

CIP Code	270304 - Computational and Applied Mathematics.

Is this program part of an ISBE approved licensure program?

No

Will specialized accreditation be sought for this program?

No

Describe the institution's plan for seeking specialized accreditation for this program. Indicate if there is no specialized accreditation for this program or if it is not applicable.

N/A

If this program prepares graduates for entry into a career or profession that is regulated by the State of Illinois, describe how it is aligned with or meets licensure, certification, and/or entitlement requirements.

N/A

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

No

Program of Study

Provide detailed information (course rubrics, numbers, and credit hours) of how a student could obtain 40 credit hours of upper-division coursework.

This program guarantees the IBHE minimum of 40 credit hours in upper-division coursework, as follows:

CS 277 - 4 hours (prereq: STAT 207, one of MATH 220, 221, 234)
CS 307 - 4 hours
IS 467 - 3 hours
IS 477 - 3 hours
MATH 241 - 4 hours (prereqs: MATH 231 and one of MATH 220 or MATH 221)
CS 357/MATH 357 - 3 hours
MATH 441 - 3 hours
MATH 467 - 4 hours

plus one of the following pairs:
MATH 461 - 3 hours + MATH 466 - 3 hours = 6 hours
STAT 400 - 4 hours + STAT 410 - 3 hours = 7 hours

plus 3 courses (at least 9 hours) from the list MATH 314, MATH 347, MATH 412, MATH 413, MATH 416, MATH 417, MATH 427, MATH 444, MATH 447, MATH 446, MATH 448, MATH 481, MATH 482, MATH 484

Note that degree requirements alone will give the student at least 43 hours of upper-division coursework.

Attach Program of Study related information here. SampleSequence_Math_plusDS.docx

Catalog Page Text - Overview Tab

Catalog Page Overview Text

The Mathematics + Data Science program at the University of Illinois offers an innovative and rigorous course of study that integrates a strong foundation in data science with in-depth training in mathematics. Designed to prepare students for leadership in an increasingly data-driven world, the program combines theoretical insight, computational skill, and practical application, culminating in research or discovery experiences that are embedded within the degree.

This program emphasizes meaningful engagement with application domains while grounding students in mathematical theory. By uniting the analytical depth of mathematics with modern techniques in coding, statistics, and data science, graduates develop the capacity to think rigorously about complex problems and construct elegant, data-informed solutions. The result is a distinctive degree that positions students to add substantial value across diverse sectors.

Statement for
Programs of Study
Catalog

Graduation Requirements

Minimum hours required for graduation is 120.

Minimum required major and supporting coursework: Normally equates to 61-64 hours, including 29-30 hours of the data science core, 19-20 hours of Coursework in Mathematics, 9-10 hours in elective Coursework in Mathematics, and 4 hours of a Research or Discovery experience. Twelve (12) hours of 300- and 400-level non-S/U-graded courses in the major must be taken on this campus.

University Requirements

Minimum of 40 hours of upper-division coursework, generally at the 300- or 400-level. These hours can be drawn from all elements of the degree. Students should consult their academic advisor for additional guidance in fulfilling this requirement.

The university and residency requirements can be found in the Student Code (§ 3-801) and in the Academic Catalog.

General Education Requirements

Follows the campus General Education (Gen Ed) requirements. Some Gen Ed requirements may be met by courses required and/or electives in the program.

Composition I	4-6
Advanced Composition	3
Humanities & the Arts (6 hours)	6

Natural Sciences & Technology (6 hours)		6
Social & Behavioral Sciences (6 hours)		6
Cultural Studies: Non-Western Cultures (1 course)		3
Cultural Studies: US Minority Cultures (1 course)		3
Cultural Studies: Western/Comparative Cultures (1 course)		3
Quantitative Reasoning (2 courses, at least one course must be Quantitative Reasoning I)		6-10
fulfilled by MATH 220 or MATH 221; MATH 231; MATH 241; STAT 107; STAT 207		
Completion of the fourth semester or equivalent of a language other than English, or completion of the third semester in two different languages other than English is required		0-20
Orientation and Professional Development		
LAS 101	Design Your First Year Experience	1
OR		
LAS 100 & LAS 101	Success in LAS for International Students and Design Your First Year Experience	3
OR		
LAS 102	Transfer Advantage	1
Total Hours		**1 or 3**

Data Science Core

Mathematical Foundations		
MATH 220	Calculus	5
or MATH 221	Calculus I	
MATH 257	Linear Algebra with Computational Applications	3
Data Science Fundamentals		
CS 307	Modeling and Learning in Data Science	4
STAT 107	Data Science Discovery	4
STAT 207	Data Science Exploration	4
Computational Fundamentals		
CS 277	Algorithms and Data Structures for Data Science	4

Ethics and Responsibility in Data Science		
IS 467	Ethics and Policy for Data Science	3
IS 477	Data Management, Curation & Reproducibility	3
Total Hours		**29-30**

Required Coursework in Mathematics

MATH 231	Calculus II	3
MATH 241	Calculus III	4
MATH/CS 357	Numerical Methods I	3
MATH 441	Differential Equations	3
Choose one of the following sets:		6-7
MATH 461 & MATH 466	Probability Theory and Applied Random Processes	
STAT 400 & STAT 410	Statistics and Probability I and Statistics and Probability II	
Total Hours		**19-20**

Research and Discovery Experience

MATH 467	Mathematics for Machine Learning (and/or another departmentally-approved research and discovery experience)	4
Total Hours		4

Elective Coursework in Mathematics (choose three)

MATH 314	Introduction to Higher Mathematics	4
MATH 347	Fundamental Mathematics	3
MATH 412	Graph Theory	3
MATH 413	Intro to Combinatorics	3
MATH 416	Abstract Linear Algebra	3
MATH 417	Intro to Abstract Algebra	3
or MATH 427	Honors Abstract Algebra	

MATH 444	Elementary Real Analysis	3
or MATH 447	Real Variables	
MATH 446	Applied Complex Variables	3
or MATH 448	Complex Variables	
MATH 481	Vector and Tensor Analysis	3
MATH 482	Linear Programming	3
MATH 484	Nonlinear Programming	3
Total Hours		**9-10**

Corresponding Degree	BSLAS Bachelor of Science in Liberal Arts and Sciences

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

Mathematics + Data Science graduates will be able to:

1] formulate, identify, and solve complex mathematical problems using mathematical techniques and reasoning;

2] demonstrate competence in mathematical modeling and data science concepts, including the ability to translate real-world problems into mathematical formulations and communicate these solutions effectively;

3] exhibit proficiency in the core mathematical topics covered by the curriculum, as well as exposure to advanced mathematical topics;

4] work independently as well as collaboratively on mathematical problems;

5] understand ethical issues related to the use of mathematics and data science, including the need to respect privacy, protect intellectual property, and avoid biases in data analysis and modeling;

6] utilize programming and illustrate proficiency with the statistical analysis of data.

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

Describe here:

The program's learning objectives will be assessed each academic year.

We plan to produce a learning objectives map that will identify which courses support each learning objective. In particular, our capstone MATH 467 is intended to meet all of these learning objectives, but many of the courses in our curriculum meet some of these.

We will also conduct annual focus groups with students to help us better understand the student experience in the program, in addition to reviewing our students' responses on the graduation survey.

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.

We will seek a 70% success rate for direct measures which include: performance on in-class assessments, research presentations/posters (where applicable) for students engaging in undergraduate research projects (e.g. through the IGL). In those situations where direct measures do not lend themselves well to a percent mastery rate, we expect students to perform satisfactorily with regard to consistent and objective qualitative standards.

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

The information and assessments collected above will be used to inform possible changes to course content.

The results of all assessment work will be shared with those charged with the delivery of our courses (applicable Math Faculty and instructional staff), the departmental Undergraduate Affairs Committee, the Undergraduate Office in Math, and the Chair of Math.

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.

Freshman admission: same process as Undergraduate Admissions process for Mathematics BSLAS students.

Off-campus transfer admission: students must meet all LAS criteria for admission. Additionally, sophomores must have completed MATH 220 or MATH 221; MATH 231; and a programming course equivalent to CS 101, CS 124, CS 125, or CS 107; and a Statistics course equivalent to STAT 100, STAT 200, or STAT 400, with grades of B- or higher in each course. Juniors must have completed all of those requirements as well as MATH 241; a linear algebra course equivalent to MATH 225, MATH 227, MATH 257, MATH 415, or MATH 416; and a discrete mathematics course equivalent to MATH 213 or CS 173 with grades of B- or higher in each course.

On-campus transfer admission: completion of Math 241 and Math 347 with a B- or higher; completion of STAT 107 and STAT 207 with a B+ or higher.

Enrollment

Number of Students in Program (estimate)

Year One Estimate	50	5th Year Estimate (or when fully implemented)
260		

Estimated Annual Number of Degrees Awarded

Year One Estimate	0	5th Year Estimate (or when fully implemented)
65		

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?

No

Additional Budget Information

Attach File(s)

Financial Resources

How does the unit intend to financially support this proposal?

We do not expect to alter the number of faculty in Math due to the creation of this degree program.

This program will not lead to additional instructional load. We have already developed the capstone course MATH 467, and are waiting to run it once the program has been approved. The department has internal plans to modify the delivery of other 400-level courses to compensate for the added instructional cost of running MATH 467. As mentioned earlier, we expect that any students who move from Mathematics major to Mathematics + Data Science major will lead to decrease enrollment pressure on certain courses (MATH 417, MATH 444, and/or MATH 447) which should counterbalance any increase in enrollments in coursework central to the Mathematics + Data Science major.

There might be a small impact on student-faculty ratio in our upper-division courses due to these changes, but we plan to accommodate this by scaling and reorganizing sections of such courses. If any individual course sees increased enrollment pressure, the Departmental leadership (Associate Chair, Director of Undergraduate Studies, Undergraduate Affairs Committee) will work with our faculty to find solutions so that the course can move forward with undiminished quality.

The Math department intends to use existing revenue streams to meet any needs from these programs and do not anticipate asking the College for additional funding.

Finally, the Department of Statistics, the Siebel School of Computing and Data Science, and the i-School are coordinating to provide support for advising in data science, especially that relating to the "Data Science Core" of the program.

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

No

Attach letters of support

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)

Undergraduate Base Tuition; differential tuition for all LAS X + DS majors, which is being requested by LAS

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.

The proposed degree title is Bachelor of Science in Liberal Arts and Sciences in Mathematics + Data Science.

Ubiquitous digital technology and the generation of massive amounts of data are rapidly transforming society and multiple fields of inquiry. This transformation has created exciting opportunities and worrisome scenarios across multiple domains of human endeavor. Like the industrial technologies of the early-20th century, the new digital technologies of the early-21st century have great potential to transform society, for good or ill. The University of Illinois has a high calling to prepare students to lead society's digital transformation. In particular, there is a need for modeling and understanding such datasets, addressing such needs as reproducibility, explainability, and justification.

At the same time, there is substantial demand, both from students and from employers, for educational programs in data science. A study by researchers at IBM and Burning Glass Technologies predicted growth in demand for Data Scientists of some 28% from 2017 to 2020. Furthermore, enrollment in the undergraduate majors "Statistics" and "Statistics and Computer Science," which provide students access to some of the competencies of data science, have grown by a factor of six in the last ten years.

Data science is emerging as a subject of great importance in many domains of human and scholastic endeavor. National policy documents for data science majors emphasize that engagement with an application domain is an important part of data science education. The University of Illinois's white paper on data science education recommended the development of "X+Data Science Majors" as an innovative approach to offering broad collaborative opportunities for Illinois students to engage with data science.

Finally, the specific Mathematics + Data Science, BSLAS program is an exciting new approach to merging two closely related fields: mathematics and data science. The traditional strength of a mathematics major is that a student will emerge with the ability to think deeply about complex problems, with an eye to developing the simplest possible explanation that can provide for all of the data. This --- when coupled with an education in modern coding, computer science, statistics, and data science techniques --- will allow our graduates to bring significant added value to broad sectors of the modern and future economy.

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).

Data science is an area of scholarship addressing data collection, storage, integration, analysis, inference, communication, and ethics in the context of the ubiquitous collection of massive data sets that have emerged in recent years. The field draws from several existing fields, including information technology, computer science, statistics, mathematics, and business analytics. However, core data science concepts are not being conveyed by mainstream training in any single other field because data science is not reducible to any of the preexisting fields.

The university's 2018 Strategic Plan The Next 150 calls for "[p]rovid[ing] all Illinois students the opportunity to have a meaningful exposure to data science." One of the hallmarks of data science is that it is outward-looking, engaging richly with multiple domains of application. In response to the university's strategic plan and in recognition of the interdisciplinary and outward-looking nature of data science, the Siebel School of Computing and Data Science, the Departments of Mathematics and Statistics, the Gies College of Business, and the iSchool collaborated to develop a framework for X + Data Science majors, enabling students to learn the principles of data science while engaging deeply with a variety of subject matters (X). In this program, the Department of Mathematics offers coursework and advising in mathematics, while the Siebel School of Computing and Data Science, Mathematics, and Statistics, and the iSchool offer a core framework of courses and advising in data science. In addition, the overall program provides coursework and independent work/research experiences that integrate mathematics and data science and enhance the students' experience.

In the proposed Mathematics + Data Science degree program, students will be provided with a thorough foundation in both mathematics and data science through an integrated and deliberate effort to ensure that our students have the necessary understanding of the principles of mathematical modeling, mathematical analysis, and logical reasoning, while also having access to the tools and training in the skillsets needed to collect, handle, and interpret the large datasets being generated in various sectors of the economy.

The proposed Mathematics + Data Science degree program, like other X + Data Science degree programs, differs from existing degree programs in data science because it provides the student with substantial exposure to data science and to scholarship in Mathematics, and it differs from existing degree programs in Mathematics or Mathematics-adjacent fields due to the addition of data science tools and methodology.

It also differs significantly from the Mathematics & Computer Science, BSLAS program because the focus beyond mathematics is in data science, not computer science, with which it overlaps but is distinct from in that computer science focuses on building computer hardware and programming software, while data science focuses on developing and using programs,

analytics, and statistics to study and manage large data sets.

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.

All of the X + Data Science programs, including this proposal for the BSLAS in Mathematics + Data Science) support the university's 2018 Strategic Plan The Next 150 in multiple ways. For example:

• Goal 1D, "Establish Illinois as the global leader in digital transformation at the service of society"

o The X + Data Science programs provide core competencies in data science including, crucially, training in the ethical issues in data science. Students of X + Data Science programs will be well-prepared to be state and national leaders in the digital transformation in the service of society.

• Goal 2C, "Provide new educational pathways and enhance current programs to increase flexibility and to foster education across disciplines"

o The X + Data Science programs are built from the ground up to be interdisciplinary, combining training in data science with training in the "X" discipline. The data science core itself is an innovative comingling of courses collaboratively developed by four units: the Siebel School of Computing and Data Science, the School of Information Sciences, the Department of Mathematics, and the Department of Statistics.

• The X + Data Science programs are also an important part of the university's response to the call in Goal 2C to "[p]rovide all Illinois students the opportunity to have a meaningful exposure to data science"

• Goal 2E is "Encourage every undergraduate student to complete one or more integrative learning experiences, such as capstone courses, internships, research, and study abroad".

o Every X + Data Science program requires such an integrative learning experience.

Thus, this proposed program in Mathematics + Data Science will serve the university's educational mission by preparing students to collaborate, communicate, and work effectively and ethically in a data-rich and interdisciplinary work environment.

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/).

With regard to employment outlook, one of the main motivators for the development of this degree is the market demand for students trained in collecting, cataloging, analyzing, and interpreting large quantities of data and applying sophisticated mathematical, logical, and analytic techniques towards their understanding.

The ubiquity of massive data sets has created enormous demand for data scientists across many domains. As a supportive example, enrollment in the Statistics major has increased seven-fold in the last ten years, and other majors that involve data science have seen similar explosion in interest. But there is tremendous demand not only for coding-intensive data scientists but also for data scientists who can work collaboratively in application domains, including that of Mathematics.

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

The department is already in the process of retaining staff members in the Undergraduate Office whose job description will include career development, during-degree preparation, and career placement. We already run several job fairs in concert with the Statistics department for our current Mathematics, BSLAS and Mathematics & Computer Science, BSLAS majors. We have a robust career placement network attached to our Actuarial Science, BSLAS major.

LAS has a full career services suite: https://lascareerservices.web.illinois.edu/ providing career counseling, resume/cover letter reviews, and advice on job/internship applications. This is supplemented by mock interviews and other services from the campus Career Center. Both units provide workshops to prepare students for career fairs, work on resumes, etc. and our existing majors have been profitably using these services as well.

We will expand (and tweak, where necessary) all of these career tools to include students in the Mathematics + Data Science major.

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 Illinois Institute of Technology has a five-year BS+MAS degree where the BS component is an Applied Mathematics degree and the MAS component is a Master of Data Science degree. The BS component of their degree is similar to our existing Applied Mathematics concentration in our BSLAS degree. The data science component of their MAS degree is more intensive in data science than our degree, but it is a five-year degree. Being a very different degree structure, impact on this program is likely to be minimal.

Loyola University at Chicago has a Data Science/Mathematics BS/MS five-year degree. Their program is similar to this proposal in structure, but dissimilar in scope, due to theirs being a five-year degree. Being a very different degree structure, impact on this program is likely to be minimal.

DePaul University has a five-year BS+MS degree with a focus on Data Science, where the MS degree is a Master of Applied Statistics degree, and this can be coupled with a BA degree in Mathematical Sciences, a BS degree in Mathematical Sciences, or a BS degree in Mathematics & Computer Science. The combination of BS in Mathematical Sciences + MS in Applied Statistics is probably the option that is closest to our proposed degree program, but as in the cases above, is similar in content but dissimilar in scope. Being a very different degree structure, impact on this program is likely to be minimal.

Illinois State University offers a BS degree in Mathematics that has an optional concentration in Data Science. This degree is similar in scope to this proposal but is much more statistics-focused. In addition, while ISU is a public university not too far from the UIUC campus, it is a smaller institution (22K undergraduates) that historically draws from a different student population from UIUC. As such, impact on this program is likely to be small.

Dominican University offers a BS degree in Data Science, with some overlap in the foundational parts of the mathematics degree but differs significantly from our proposal at the advanced coursework level. Domincan is a private university with an enrollment of under 4,000 students located in the Chicago suburbs. Impact on this institution is very unlikely.

Knox College offers a BA degree in Data Science, with some overlap in the foundational parts of the mathematics degree but differs significantly from our proposal at the advanced coursework level. Knox College is a private university with a total enrollment of 1,136 students located in a different region of the state than the University of Illinois. Impact on this institution is very unlikely.

Northwestern University offers a BS degree in Data Science, which is similar in scope to our proposal but has a much more statistical flavor. Northwestern is a private university with an undergraduate enrollment of approximately 8,000 and located in the Chicago suburbs. Impact on this institution is very unlikely.

Olivet Nazarene University offers a BS degree in Data Science in their Department of Mathematics and Computer Science. This degree does require the same foundational mathematics courses as our proposal but has a heavy focus on business and data analytics. In addition to this, ONU is a small private university with an enrollment of approximately 3,500 undergraduate students. Impact on this institution is very unlikely.

The University of Illinois at Chicago offers a BS degree in Data Science through its Department of Computer Science. This is a statistics-focused degree and as such is dissimilar from our proposal. As such, impact on this program is likely to be small.

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.

The Data Science core of the X+Data Science programs are designed from the ground up to be inclusive and equitable. They have fewer technical prerequisites and requirements than most programs in computer science, mathematics, or statistics. The first course in the data science core introduces students to data science and the computer language Python and has no prerequisites. The sequence has no external prerequisites beyond first-semester calculus.

In particular, the Mathematics + Data Science curriculum is designed to be plausibly completed by a student entering the University of Illinois without any calculus credit, and is thus accessible to students arriving from Illinois high schools where calculus is not offered at all or rarely offered.

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.

In the first place, we expect that the Mathematics + Data Science major will be more accessible and tractable for students coming from underrepresented and disadvantaged backgrounds. In particular, the Mathematics + Data Science major is designed to be finished in eight semesters by students entering at the Calculus 1 level. This will allow the Mathematics + Data Science major to be more accessible to students who went to high schools where Calculus credit is nonexistent, or not easily obtainable.

The Mathematics Department is one of the largest participators in the Illinois Merit program (https://merit.illinois.edu/). The Merit Program is a multi-departmental program aimed at a select group of undergraduates who have been identified as both interested in STEM careers but also as being at-risk of being unable to complete the undergraduate program of interest. The program targets students with high potential who are interested in the areas of science, mathematics and engineering and works as add-on for courses in several departments, including Mathematics --- most often the students in the program get more contact hours with hand-picked instructional staff. The students in Merit learn to work together on difficult problems and are able to develop enduring networks as they progress through their degree.

In partnership with the Department of Statistics, the Department of Mathematics also runs the Illinois Mathematics and Statistics Student Support Center (SSC). The SSC provides walk-in academic support and tutoring for students enrolled in a set of core introductory mathematics and statistics courses --- several of these courses being required courses in the proposed Mathematics + Data Science major.

The Department of Mathematics also has a dedicated and highly-trained cadre of advisors with mathematics backgrounds and years of experience in advising. They have significant experience dealing with students' challenges, as well as knowing when to address those challenges directly, or to engage external assistance (e.g. with campus student services centers). We expect these same advisors to continue to do an excellent job of advising students in the Mathematics + Data Science major.

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 Frank CARE 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.

At the institutional level, Access 2030 demonstrates the University of Illinois's 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 in service to the University's interest in a diverse learning community.

The Career Center offers coaching and support students and connects them to opportunities, as they make career decisions and learns lifelong career management skills. They serve as leaders of the University of Illinois career services community. The Career Center sponsors the FOCUS program, an intensive year-long program created to eliminate the gap in post-graduation outcomes and starting salaries between underrepresented, first-generation students and their peers. Its aim is to positively impact their career trajectory, earnings potential, and economic security for years to come. Through a series of workshops, this program provides transformative learning experiences for students in and out of the classroom. Those selected to participate receive a $2,500 scholarship over two semesters.

Finally, the university continues to develop and grow the Illinois Scholars Program (ISP). Designed to serve residents of the state of Illinois from historically underserved populations and low-sending counties, ISP guides undergraduate students' transition to the University of Illinois Urbana-Champaign by providing a wide range of educational, personal, social, and cultural opportunities. ISP aims to combine opportunity and access, experiential learning, and support to position students for academic success and personal growth throughout their time at Illinois. ISP begins with a four-week intensive summer bridge experience for incoming first-year students, and ISP continues to provide support and community for Illinois Scholars during their undergraduate years. Since the program's inception, 106 students have completed their summer bridge experience, with a 93.9% retention rate from their freshman to sophomore years, compared to a 91.5% campus retention rate for underrepresented minority students during the same period.

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.

One of the key objectives of the current LAS Strategic Plan is to “Promote a diverse, inclusive, and accessible community”. The LAS associate dean of Inclusive Excellence leads the Inclusive Excellence program, which runs mandatory trainings for search committee members and chairs and diversity advocates to promote best practices for faculty searches, reduce bias, and ensure a diverse candidate pool.

The department has (since 2020) a Climate, Equity, and Inclusion (CEI) committee examining all areas of our operations and alerting departmental leadership to climate issues. In the PhD program, we continue to maintain a good cohort of underrepresented minority (URM) students, with help from Graduate College fellowships and the Sloan University Center of Exemplary Mentoring at Illinois (UCEM, https://grad.illinois.edu/engagement/access-engagement/sloan-university-center-exemplary-mentoring-illinois-ucem), which our department engaged with energetically from the beginning. The department (with support from the Graduate College and an American Association of Universities grant) conducted an extensive survey of students in 2019-2021 and then followed up with policy recommendations to improve graduate student mentoring and TA training, most of which were approved by our department’s Executive Committee. Further, our Association for Women in Mathematics (AWM) student chapter plays a critical role in fostering an inclusive environment.

Aligned with Equity Strategy 3 (Implement equitable talent management to increase and retain faculty, staff, administrators, and trustees of color), the University of Illinois 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 $20 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. 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.

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 Academic Couples (DCAC) program. 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 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 DCAC program, 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 DCAC program. Several years ago, the Provost modified the DCAC program 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.

Sustainability

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

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.

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 marginalized and underrepresented groups to explore campus leadership and administrative roles.

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.

To monitor progress of our efforts to recruit and retain faculty members of color on our campus, we collect, manage, and report annual data through the Division of Management Information and Office for Access and Equity. Additionally, we release a yearly report on hiring and retention of women faculty of color through the Women at Illinois report (e.g., 2020-2021 report and 2021-2022 report).

The data science components of the Mathematics + Data Science program, like all X + Data Science programs, are a collaboration of four units in three colleges of the university: Siebel School of Computing and Data Science in the Grainger College of Engineering, the Departments of Mathematics and Statistics in the College of Liberal Arts and Sciences, and the iSchool. By drawing strategically from the resources of these units we have provided a set of 8 courses that can be used for a wide variety of undergraduate degree and certificate programs in data science, while avoiding wasteful duplication. The Mathematics components for the Mathematics + Data Science curriculum have their foundation in the long-existing BSLAS in Mathematics program, which has sutained large numbers of majors and graduates, both historically and currently.

There is projected to be rapid growth in demand for people with data science skills. Training in data science including collaborative work in an application domain such as the Mathematics + Data Science degree program provides, is excellent preparation for long-term success in the modern data-driven society and economy.

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

As stated above, while there are multiple programs in the state of Illinois that offer a data science degree, the Mathematics + Data Science BSLAS program is fundamentally dissimilar from each of them in one or more aspects. However, for the purposes of completeness we list the tuition cost of those programs referenced above. From this we can see that the tuition for our proposed program is near the bottom range in the spectrum of costs.

Institution: Illinois Institute of Technology, BS/MAS in Applied Math/Data Science
Estimated Tuition: $51,648 per academic year in AY2025-2026
Source: https://www.iit.edu/financial-aid/tuition-fees-and-costs

Institution: Loyola University at Chicago, BS/MS in Data Science/Mathematics
Estimated Tuition: $28,465 per academic year in AY2026-2027
Source: https://www.luc.edu/bursar/tuitionfees/2026-2027/undergraduate/

Institution: DePaul University, BS/MS in Mathematical Sciences/Data Science

Estimated Tuition: $43,000-44,500 per academic year in AY2025-2026
Source: https://www.scholarships.com/colleges/depaul-university
(DePaul does not seem to have a dedicated web page detailing costs)

Institution: Illinois State University, BS in Mathematics with a concentration in Data Science
Estimated Tuition: $12,066 per academic year in AY2024-2025
Source: https://financialaid.illinoisstate.edu/paying/2024-2025-undergraduate

Institution: Dominican University, BS in Data Science
Estimated Tuition: $39,958 per academic year in AY2025-2026
Source: https://www.dom.edu/offices/student-accounts/tuition-fees-and-expenses

Institution: Knox College, BA in Data Science
Estimated Tuition: $61,998 per academic year in AY2026-2027
Source: https://www.knox.edu/admission/cost-and-financial-aid/student-financial-services/billing-and-payment-options/explanation-of-fees/current-fee-schedule

Institution: Northwestern University, BS in Data Science
Estimated Tuition: $69,375 per academic year in AY2025-2026
Source: https://admissions.northwestern.edu/tuition-aid/

Institution: Olivet Nazarene University, BS in Data Science
Estimated Tuition: $40,130 per academic year in AY2025-2026
Source: https://www.olivet.edu/admissions/financial-aid-new-student-tuition/how-much-does-olivet-really-cost/coa/

Institution: University of Illinois at Chicago, BS in Data Science
Estimated Tuition: $11,652 per academic year in AY2026-2027
Source: https://uofi.app.box.com/s/3ub3lw8qeda73k7u9bl2927o66vhyvzq

PROPOSED:
Institution: University of Illinois Urbana-Champaign, BSLAS in Mathematics + Data Science
Estimated Tuition: $18,046 (resident), 38,398 (nonresident), 39, 392 (international) per academic year in AY2025-2026
Source: https://www.admissions.illinois.edu/invest/tuition

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.

The Mathematics + Data Science degree program, like other X + Data Science degree programs, is an innovative approach to providing additional support for the tremendous and rapidly growing demand for employees with capabilities in data and computation but also in the fields where the data is being generated and applied.

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.

The department has consulted with its development board (made up mostly of alumni of the department representing a variety of fields).

The department has strong existing connections with local industry and employers. We freqently run career fairs at which local, regional, and state employers are well represented. Our department has strong ties with both Research Park leadership and many companies with offices in the Research Park. Historically, the department's strongest connection with these partners has involved job placement for graduates students, but as mentioned above we are looking to acquire staff who specialize in career placements at the undergraduate level. We expect to be able to leverage existing connections to extend these successes to the Mathematics + Data Science students as well.

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 Department of Mathematics runs an undergraduate research program known as the Illinois Geometry Lab (IGL). The IGL's mission is to enhance and support undergraduate research within the Department of Mathematics and to support departmental efforts to engage local, state and national communities through outreach. This program typically supports 8-10 research projects at any one time, involving 50 or more undergraduates. We expect that many of the majors in this program will also participate in an IGL project during their time here.

The Mathematics deparment also has a long history of arranging internships through a series of internship programs. The Program for Industrial and Interdisciplinary Internships at Illinois (PI4) ran 2014-2021, and there are two current internship programs (the Inmas program and the IMSI internship program) which are led by Illinois Math Faculty. All of these programs were focused on finding internships for Math PhD students, but the success of this program over the last decade has strengthened and broadened the relationship between the Mathematics Department and the Illinois Research Park, as well as other local employers.

We also run, every semester, a series of Job/Career Fairs, jointly with the Department of Statistics, as well as providing, jointly with the Illinois Career Center, resources to our current undergraduates related to job training, CV writing, interviewing, etc.

At the campus level: The University 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 Office of Undergraduate Research (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. Undergraduate research opportunities should be designed to support the pedagogical goals and the research mission of the university. 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.

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.

The Department of Mathematics has long been a leader in alternative and innovative pedagogical models, dating back at least 30 years. At the current time, we use "active learning" methodologies in almost all of our undergraduate courses that have attached discussion sections, and the Mathematics + Data Science majors will be able to take advantage of these opportunities in many of their courses.

We are also a long-time leader in online mathematics education through our NetMath program. This program allows students to take courses either during the semester or during intersessional periods, and we offer most of our core math courses regularly. These courses come in both synchronous and asynchronous versions, allowing participation both by students who can stay here during the intersessional periods as well as those who must go elsewhere for family or economic reasons.

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).

It is becoming increasingly clear that data literacy is a key component of conscientious and effective civic participation; the graduates of the Mathematics + Data Science program will be immensely data-literate by design.

Data science is one of the fastest growing domains in many sectors of the economy today, and many of these sectors are ones in which our department's graduates are typically employed: insurance and actuarial, software development, accounting, finance, education, and government and public service. Employers in all of these sectors are scrambling to adopt and integrate data science technologies and approaches into their systems, processes, and deliverables. We anticipate that graduates from our proposed Mathematics + Data Science degree program will be well equipped to tackle this emerging need. Our graduates will be both data scientists and expert modelers and explainers. While data scientists alone can generate algorithms, codes, and models, our graduates will be well-poised to assess, justify, and validate models so that they will accurately reflect the underlying datasets, can be accurately interpreted, and can generate justifications for policy decisions. These individuals will be key to building a foundation of public trust regarding big data and its interpretation and will play a vital role in conversing with media and the public regarding complex science-based topics.

This novel degree program, and the strengthened relationships across campus that will result, will transform the educational experience of our students and put them in a position to directly serve society through the beneficial impact described above.

Additionally, the program is expected to be of greater interest (relative to the more traditional majors offered by our department) to female and underrepresented minority students.

We expect that this degree program can contribute to the Illinois State Board of Education's initiatives to provide all students with “educational opportunities to pursue high-wage, high-skill, in-demand occupations leading to economic self-sufficiency”.

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 Mathematics + Data Science degree plan incorporates simultaneously a strong foundation in data science with a program of study in mathematics, including research or discovery experiences as part of the degree. We first list the courses in a programmatic structure, and follow with details and descriptions in the attachment.

The degree is comprised of three different components:
1. The data science core coursework (29-30 hours)
a. This coursework is comprised of:
i. Mathematical Foundations (7-8): MATH 220 OR 221, MATH 257
ii. Data Science Fundamentals (12): STAT 107, STAT 207, CS 307
iii. Computational Fundamentals (4): CS 277
iv. Social Impact in Data Science (6): IS 467, IS 477

2. Required Coursework in Mathematics (19-20 hours) - Required coursework in Calculus, Differential Equations, and Probability plus Elective Coursework in Mathematics

3.Research or discovery experience (4 hours)
MATH 467: Mathematics for Machine Learning (4 hours)

In addition to the credit hours above, all students will complete the Campus General Education requirements including the additional LAS language requirements.

Attach Program Description Files if needed: MATH + DS Course Descriptions.pdf

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

Minimum hours required for graduation is 120.

Minimum required major and supporting coursework: Normally equates to 61-64 hours, including 29-30 hours of the data science core, 19-20 hours of Coursework in Mathematics, 9-10 hours in elective Coursework in Mathematics, and 4 hours of a Research or Discovery experience. Twelve (12) hours of 300- and 400-level non-S/U-graded courses in the major must be taken on this campus.

University Requirements

Minimum of 40 hours of upper-division coursework, generally at the 300- or 400-level. These hours can be drawn from all elements of the degree. Students should consult their academic advisor for additional guidance in fulfilling this requirement.

The university and residency requirements can be found in the Student Code (§ 3-801) and in the Academic Catalog.

General Education Requirements

Students must complete the campus General Education (Gen Ed) requirements. Some Gen Ed requirements may be met by courses required and/or electives in the program. Some Gen Ed requirements may be met by courses required and/or electives in the program.

ORIENTATION AND PROFESSIONAL DEVELOPMENT: 1-3 hours
LAS 101 or LAS 100 & LAS 101 or LAS 102

DATA SCIENCE CORE: 29 – 30 hours
MATHEMATICAL FOUNDATIONS: 7 – 8 hours
Calculus: One of MATH 220 or MATH 221 or MATH 257 (7-8 hours)

DATA SCIENCE FUNDAMENTALS: 12 hours
Data Science Discovery: STAT 107 (4 hours)

Data Science Exploration: STAT 207 (4 hours)
Modeling and Learning in Data Science: CS 307 (4 hours)

COMPUTATIONAL FUNDAMENTALS: 4 hours
Algorithms and Data Structures for Data Science: CS 277 (4 hours)

SOCIAL IMPACT IN DATA SCIENCE: 6 hours
Ethics and Policy for Data Science: IS 467 (3 hours)
Data Management, Curation, and Reproducibility: IS 477 (3 hours)

Required Coursework in Mathematics
MATH 231 Calculus II 3
MATH 241 Calculus III 4
MATH/CS 357 Numerical Methods I 3
MATH 441 Differential Equations 3
Choose one of the following sets:
MATH 461 & MATH 466 Probability Theory and Applied Random Processes
STAT 400 & STAT 410 Statistics and Probability I and Statistics and Probability II
Total Hours 19-20

Research and Discovery Experience
MATH 467 Mathematics for Machine Learning (and/or another departmentally-approved research and discovery experience) 4

Elective Coursework in Mathematics (choose three)

MATH 314 Introduction to Higher Mathematics 4
MATH 347 Fundamental Mathematics 3
MATH 412 Graph Theory 3
MATH 413 Intro to Combinatorics 3
MATH 416 Abstract Linear Algebra 3
MATH 417 Intro to Abstract Algebra 3
or MATH 427 Honors Abstract Algebra
MATH 444 Elementary Real Analysis 3
or MATH 447 Real Variables
MATH 446 Applied Complex Variables 3
or MATH 448 Complex Variables
MATH 481 Vector and Tensor Analysis 3
MATH 482 Linear Programming 3
MATH 484 Nonlinear Programming 3
Total Hours 9-10

Total Hours 9-10

Plan to Evaluate and Improve the Program

Describe the program's evaluation plan.

We will measure the learning objectives of each course, and of the program as a whole, as described above. In addition to this, we will also measure the career placement and research engagement of the majors in the new program. Both of these types of assessments are already done by the department's undergraduate office, and we will extend and modify those existing assessments as needed.

For career placement: we will (as we already do for our other majors) also seek out and record our graduates' first destination and endeavor to collect data on specifically where our students go after the BSLAS (professional school, graduate school, industry, other). We will look for patterns in matriculation to institutions and degree programs so as to better understand how our program connects students to their future profession and/or career. We will also engage with our various alumni groups to maintain the alignment of our career training, fairs, etc. with evolving trends in industry.

We will also measure our research engagement of the majors in this program with our existing undergraduate research programs, including the Illinois Geometry Lab and the iRisk Lab.

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).

Yes, the current budget is adequate. No new state funds are 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 will be adequate

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

No impact expected

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.

Our current advising staff is adequate to provide student support and advisement for the implementation of the new major due to the close relation to our existing programs. Our advising staff will provide guidance to students on scheduling, job placement and/or admission to advanced studies. They will do this through regular check-ins with students and collaboration with campus partners such as the Career Center and advising colleagues for up-to-date practices and information. Should the program experience significant growth a dedicated program advisor may be required to maintain quality 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?

Current facilities will be adequate.

We anticipate that many of our in-person courses will be held in Altgeld Hall. We also plan to have all of the administrative offices of Mathematics contained either in Altgeld Hall or the soon-to-be-constructed Illini Hall.

The physical address of Altgeld Hall is 1409 W. Green St. Urbana IL 60801.
The physical address of Illini Hall is 725 S Wright St, Champaign, IL 61820.

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.

We have consulted with Prof. Sarah Park, Head of the Mathematics Library, who has informed us: "The University Library at the University of Illinois Urbana-Champaign is recognized as one of the nation's top libraries and effectively supports the current programs and courses at the university. Thus, the library's collections, resources, and services are sufficient to support the proposed Bachelor of Science in Liberal Arts and Sciences program in Mathematics + Data Science, as it utilizes existing resources."

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.

Extensive library print and electronic resources are available through the University of Illinois Urbana-Champaign Library system, including the outstanding Mathematics Library (https://www.library.illinois.edu/mtx/). Resources not available through the University of Illinois Urbana-Champaign collection may be requested through interlibrary loan or from partner research libraries throughout Illinois. The Mathematics Library offers outstanding learning resources for students in all of the undergraduate degree programs in the Department of Mathematics, including a broad selection of recommended and required texts used in our courses. The most frequently used databases include MathSciNet, Web of Science, ArXiv, PubMed, and Scopus. Also found there are course and subject guides, access to online journals along with access to journal articles from journals that Illinois does not own.

Perhaps of the highest interest to students in this proposed degree program is the Research Data Service. The Research Data Service (RDS) is a campus-wide program that provides the Illinois research community with the expertise, tools, and infrastructure necessary to manage and steward research data. The RDS provides a suite of data management services including workshops, presentations, and individual consultations. On the behalf of campus, the RDS maintains and operates the Illinois Data Bank, which is a public access repository for publishing research data from the University of Illinois Urbana-Champaign.

Key textbooks that will support the Mathematics + Data Science degree include:

Alligood, K.T., T.D. Sauer, J.A. Yorke, Chaos: An introduction to dynamical systems, Springer, 1996.

Boyce, W.E. and Diprima, R.C. (2001) Elementary Differential Equations and Boundary Value Problems. 10th Edition, John Wiley & Sons Inc.

Brualdi, Richard A. Introductory Combinatorics, 3rd Edition, Prentice-Hall, 1999.

Ebbinghaus, J.-D., Flum, J., Thomas, W., Mathematical Logic, 2nd edition, Springer, 1994.

Fisher, S. D. Complex Variables, Dover, 1999.

Fraleigh, John. A First Course in Abstract Algebra, 7th Edition. Pearson, 2002.

Frankel, T. The Geometry of Physics, An Introduction, Cambridge U.P. 1997 (paperback).

Kaplansky, Irving. Set Theory and Metric Spaces, 3rd Edition, Americal Mathematical Society, 2005.

Kühnel, Wolfgang. Differential Geometry: Curves - Surfaces - Manifolds, 2nd Edition. Americal Mathematical Society, 2005.

Rosenlicht, Maxwell. Introduction to Analysis, Dover, 1986.

Ross, Kenneth, Elementary Analysis: The Theory of Calculus, Second Edition, Springer, 2013.

Ross, Sheldon. A First Course in Probability, 7th Edition, Prentice Hall, 2006.

Stewart, James. Calculus: Early Transcendentals, 8th edition, Thomson Brooks/Cole.

Strayer, James. Elementary Number Theory, Waveland Press, 1994/2002.

West, Douglas B. Introduction to Graph Theory, 2nd Edition, Prentice-Hall, 2001.

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

This program will be supported by existing (permanent and recurring) funding streams.

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
NA	NA	NA

Faculty ($)

Faculty Year 1	Faculty Year 5	Faculty Notes

Faculty Year 1	Faculty Year 5	Faculty Notes
NA	NA	NA

Advising Staff ($)

Advising Staff Year 1	Advising Staff Year 5	Advising Staff Notes
NA	NA	NA

Graduate Students ($)

Graduate Students Year 1	Graduate Students Year 5	Graduate Students Notes
NA	NA	NA

Other Personnel Costs

Other Personnel Costs Year 1	Other Personnel Costs Year 5	Other Personnel Costs Notes
NA	NA	NA

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 department provides formal and informal opportunities for faculty and students to collaborate and discuss research activities and to learn from internal and visiting speakers and online seminar talks.

The Mathematics Library features one of the finest collections in the United States, including an outstanding range of print and electronic journal resources. The Library, housed in our primary departmental building Altgeld Hall, provides an excellent resource for research and collaborative work.

Administrative support is readily available within the department to all faculty members. Business office staff assist in travel planning, reimbursements, research assistantship and faculty appointments, purchasing and reporting.

Senior Personnel and Graduate Research Assistants will have access to computing resources, such as relevant software, information technology support, etc. and will be provided office space to conduct research and activities related to the project.

IT staff in the Department of Mathematics at the University of Illinois Urbana-Champaign provide flexible and individualized support for research, instruction and administration. These Math IT personnel liaise with college and university level IT groups to maintain a secure and heterogeneous computing environment that encompasses facilities all the way from networked desktop and laptop machines in offices and labs to a dedicated high performance campus computing cluster that supports computational research.

In addition, the office of Applied Technologies for Learning in the Arts & Sciences (ATLAS) run by the College of Liberal Arts and Sciences provides significant technical support in teaching context; in addition to making classrooms tech-ready for both lecture and active-learning environments, they also provide open access labs for students who may not have ready access to laptops and desktops.

The data science core will be delivered by the i-School, the Siebel School of Computing and Data Science, and the Departments of Mathematics and Statistics. The i-School and the Siebel School of Computing and Data Science are housed in buildings that provide classroom and lab spaces for students to engage with data science. The university has just completed construction of the Campus Instructional Facility and the Siebel Center for Design that provide outstanding modern research in data science. The university is currently renovating and rebuilding the buildings that house Mathematics and Statistics; the renovation provides for increased

classroom and lab spaces for instruction and student research. Together these constitute excellent facilities for delivering the X + Data Science programs.

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.

The Department of Mathematics considers student instruction one of our highest priorities. Our academic mission includes delivering undergraduate education through the existing Mathematics, Mathematics & Computer Science, and Actuarial Science undergraduate majors, and graduate education for the graduate students in our MS and PhD graduate programs. However, we also provide a large instructional service for other units on campus; we have provided at least 70,000 IUs each of the last 10 academic years. The department's Undergraduate Affairs Committee (UAC) will have direct oversight of the BSLAS in Mathematics + Data Science degree program and will be in charge of overall evaluation of the program. The jobs of advising and monitoring student progress and providing support services will be taken on by the department's Undergraduate Office, under the direction of the UAC. The faculty and instructional coordinators will interact with those students who are enrolled in their respective courses.

Currently within the department of Mathematics, there are sixty-three tenure-stream faculty members; these all have appointments at the level of assistant professor, associate professor or full professor. The qualifications include a PhD degree in mathematics; an excellent track record of research, creativity and productivity; and evidence of strong potential for future independent research and effective teaching. Each faculty member undergoes an annual performance evaluation by the Executive Committee of the department; assistant and associate professors are also evaluated by departmental Promotion and Tenure and mentoring committees. Incentives for performance excellence include annual merit raises when available and recognition through nomination for appropriate awards. The department has award nomination and selection committees that provide recognition of excellence in research, teaching and service and nominating committees that select individuals for special recognition at the College, Campus and external levels.

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.

Professor Yuliy Baryshnikov is a Professor of the Department of Mathematics and the Department of Electrical and Computer Engineering, and a member of Coordinated Science Laboratory and of the Beckman Institute. He has been cited over 2,500 times for his work in Singularity Theory, Probability, Random Processes, Social Choice, and Networks. Prior coming to Illinois, he worked at Mathematical Center of Bell Laboratories in Murray Hill, NJ, where he became the Head of the Department of Industrial Mathematics. He has held several visiting positions at Columbia University, IHES, Technion, and Hebrew University. His awards include Simons Fellow, Lady Davis Fellowship at Technion, and Alexander von Humboldt Research Fellowship. Yuliy Baryshnikov has been awarded several significant grants for his research, including recent MURI on Hybrid Dynamics: Disaggregation and Analysis, which he leads as the PI.

Professor Lee DeVille in a Professor of the Department of Mathematics. He was a National Academy of Sciences Kavli Fellow in 2012, won the Campus Distinguished Promotion Award in 2013, and won the Campus Award in Undergraduate Teaching in 2016. He has served as the Director of Graduate Studies, and is currently serving as the Director of Undergraduate Studies in the Department of Mathematics. He is the author or co-author of more than 40 publications in mathematics and physics journals and is, or has been, a PI on externally funded grants totaling awards of more than $27 million.

Professor Vera Hur is a Professor and Chair of the Department of Mathematics. She is a Simons Fellow and was awarded the NSF Career Award in 2014 and a Sloan Fellowship in 2012. Awards and recognition from the University of Illinois include: College of LAS, Fellow in a Second Discipline (2020); Campus Distinguished Promotion Award (2019); Center for Advanced Study, Associate (2019), Beckman Fellow (2014); College of LAS, Brad and Karen Smith Professorial Scholar (2018); Philippe Tondeur Scholar in Mathematics (2016); Arnold O Beckman Award (2014, 16). For a connection to data science, she is using deep learning techniques to improve ENSO prediction and wild fire index; this work has a potential to incorporate real world data and was funded by DPI.

Professor Zoi Rapti is a Professor in the Department of Mathematics. Prof. Rapti's research is focused on Mathematical Biology and Differential Equations. She has more than 40 publications in journals such as the Bulletin of Mathematical Biology, Journal of Theoretical Biology, Physical Review A and the SIAM Journal on Mathematical Analysis. Her research has been supported by the NSF and the c3.ai Digital Transformation Institute. She is the recipient of LAS Dean's and Campus Awards for Excellence in Undergraduate Teaching in 2020, the Department of Mathematics Michael V. Colla Prize for Mathematics Related to Medicine in 2021. She has been

a Lynn M. Martin Professorial Scholar since 2023.

Professor Richard Sowers is a Professor in the Department of Mathematics and in the Department of Industrial and Enterprise Engineering. He has published widely on pure and applied mathematics. His formal training was in stochastic processes. He has been funded by a variety of public and private sources. His recent interests are applications of machine learning to gait disease disorder, and the theory of boundary effects in degenerate partial differential equations.

Professor Vadim Zharnitsky is a Professor in the Department of Mathematics with 0% appointment in CSL. He has been working in the area of Dynamical Systems and their applications in physics and engineering. He has more than 50 publications in professional journals. He has given multiple talks, including invited presentations at Dynamical Systems workshops in Maryland and Penn State. He was an NSF postdoc at Brown University and a director's funded postdoc at Los Alamos National Laboratory. He has had twice the NSF regular award and once Simons travel award.

Faculty and Staff
Attachments

HLC Section

Credit Hours

Existing or repackaged curricula (Courses from existing inventory of courses): 97	Number of Credit Hours:	116 Percent of Total:
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): 3	Number of Credit Hours:	4 Percent of Total:
Total Credit Hours of the Program: 100	Number of Credit Hours:	120 Percent of Total:

New Faculty Required

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

No

Please explain
existing coverage:

We will introduce a new course for this program, but the department has planned for this new course, and the concomitant instructional load, to be covered by shrinkage in other offerings. Other than this, the mathematical coursework of this program uses already existing courses, involving, of course, reorganization and reshuffling.

The significant novelty in this degree is contained in the Data Science Core component of the proposal; here there is coursework that is typically not taken by those in existing major programs.

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:

None required.

EP Documentation

EP Control Number	EP.26.149
Attach Rollback/ Approval Notices	ep26149_attachment_approval letter template for X+DS proposals_20260322.pdf

Non-EP Documentation

U Program Review Comments

Rollback Documentation and Attachment

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

Brooke Newell (bsnewell) (12/13/23 1:16 pm): Rollback: Email sent to Lee, Stephen, Andrea, AJ and Alison

Brooke Newell (bsnewell) (04/10/24 10:42 am): Rollback: Email will be sent to Lee, Andrea and Stephen post meeting

Brooke Newell (bsnewell) (07/24/24 8:14 am): Rollback: Email sent to Lee and Stephen

Emily Stuby (eastuby) (06/04/25 11:55 am): Effective term of Fall 2025 is not possible please select a new effective term.

Donna Butler (dbutler) (06/05/25 9:59 am): Rollback: per LAS college request

Melissa Steinkoenig (menewell) (07/17/25 1:52 pm): Gen Ed Table good (added "CS 101 or CS 124" to courses listed under Quantitative Reasoning in Gen Ed Table to align with requirement)

Melissa Steinkoenig (menewell) (09/02/25 3:04 pm): Gen Ed Table: Language Other Than English (LOTE) is listed at the 3rd level (0-15 hours) which is the campus requirement, but most LAS programs require to the 4th: LAS would determine if the additional level is required.

Brooke Newell (bsnewell) (03/11/26 7:48 pm): Updated tuition response per discussion with Melissa R.

Key: 1168