New Program Proposal

Date Submitted: 02/26/26 1:43 pm

Viewing: BS-STAI : Bachelor of Science in Statistics with Artificial Intelligence

Last edit: 02/27/26 4:47 pm

Changes proposed by: kong2

Program Status	Active		
Requestor	Name	Kiah Ong	E-mail kong2@iit.edu
Origination Date	2026-2-26		
Is this an interdisciplinary program?	No		
Is this stem-eligible?	Yes		
Available for direct application?	Yes		
Academic Unit	Applied Mathematics		
College	College of Computing		
Program Title	Bachelor of Science in Statistics with Artificial Intelligence		
Effective Academic Year	2026 - 2027	Effective Term	Fall 2026
Academic Level	Undergraduate		

In Workflow

1. AMAT Chair
2. Academic Affairs
3. Undergraduate Academic Affairs
4. Director of Assessment
5. CC Dean
6. Marketing and Communications
7. Undergraduate Studies Committee Chair
8. Faculty Council Chair
9. Faculty Council Chair
10. Provost
11. President
12. Board of Trustees
13. Academic Affairs

Approval Path

1. 02/25/26 12:52 pm Chun Liu (cliu124): Approved for AMAT Chair
2. 02/25/26 1:59 pm Ayesha Qamer (aqamer): Rollback to Initiator
3. 02/25/26 2:53 pm Chun Liu (cliu124): Approved for AMAT Chair
4. 02/25/26 2:57 pm Ayesha Qamer (aqamer): Rollback to Initiator
5. 02/25/26 3:01 pm Chun Liu (cliu124):

Approved for AMAT Chair
6. 02/26/26 9:09 am Ayesha Qamer (aqamer): Approved for Academic Affairs
7. 02/26/26 12:11 pm Joseph Gorzkowski (jgorzkow): Approved for Undergraduate Academic Affairs
8. 02/26/26 12:13 pm Joseph Gorzkowski (jgorzkow): Rollback to Initiator
9. 02/26/26 2:14 pm Chun Liu (cliu124): Approved for AMAT Chair
10. 02/26/26 2:43 pm Ayesha Qamer (aqamer): Approved for Academic Affairs
11. 02/26/26 2:43 pm Joseph Gorzkowski (jgorzkow): Approved for Undergraduate Academic Affairs
12. 02/27/26 3:02 pm Nicholas Menhart (menhart): Approved for Director of Assessment
13. 02/27/26 4:47 pm Nicole Beebe (nbeebe1): Approved for CC Dean

If all courses in a subject in your department are required, please enter each subject followed by the number ranges in the "Quick Add" field in the pop up box when you click the green plus button below. For example: ARCH 100-499.

What courses will factor the major	MATH 100 - Introduction to the Profession DS 100 - Introduction to the Profession

GPA?	STAT 225 - Introductory Statistics MATH 147 - College Algebra MATH 148 - Preparation for Calculus MATH 151 - Calculus I MATH 152 - Calculus II MATH 180 - Fundamentals of Discrete Mathematics MATH 191 - Business Calculus MATH 192 - Linear Mathematics MATH 230 - Introduction to Discrete Math MATH 251 - Multivariate and Vector Calculus MATH 252 - Introduction to Differential Equations MATH 332 - Elementary Linear Algebra MATH 350 - Introduction to Computational Mathematics MATH 380 - Mathematical Modeling with Data MATH 400 - Real Analysis MATH 402 - Complex Analysis MATH 410 - Number Theory MATH 430 - Applied Algebra MATH 431 - Computational Algebraic Geometry MATH 435 - Linear Optimization MATH 437 - Network Optimization MATH 439 - Network modeling and statistics MATH 446 - Introduction to Time Series MATH 453 - Combinatorics MATH 454 - Graph Theory and Applications MATH 461 - Fourier Series and Boundary-Value Problems MATH 475 - Probability MATH 476 - Statistics MATH 477 - Numerical Linear Algebra MATH 478 - Numerical Methods for Differential Equations MATH 481 - Introduction to Stochastic Processes MATH 483 - Design and Analysis of Experiments MATH 484 - Regression MATH 485 - Introduction to Mathematical Finance MATH 486 - Mathematical Modeling I MATH 488 - Ordinary Differential Equations and Dynamical Systems MATH 489 - Partial Differential Equations MATH 491 - Reading and Research MATH 493 - Summer Research and Independent Study MATH 497 - Special Problems
Program Type	Degree
Degree Type	Bachelor of Science (BS)

CIP Code

27.0503 - Mathematics and Statistics.

Is there more than one Academic Unit proposer?

No

Program Code	BS-STAI
Program Attribute	
Total Program Credit Hours	120

Program Narrative and Justification

Narrative description of how the institution determined the need for the program. For example, describe what need this program will address and how the institution became aware of that need. If the program is replacing a current program(s), identify the current program(s) that is being replaced by the new program(s) and provide details describing the benefits of the new program(s). If the program will be offered in connection with, or in response to, an initative by a governmental entity, provide details of that initiative.

Illinois Tech identified the need for the Bachelor of Science in Statistics + AI through departmental curriculum review and alignment with university-wide artificial intelligence initiatives, including the development of the Certificate in AI Fluency and Certificate in AI Management. Faculty recognized increasing demand for graduates who combine statistical reasoning, data analysis, and computational skills with applied AI competencies.

The BS Statistics + AI is not a fundamentally new degree program. Rather, it is an enhancement of the existing BS Statistics curriculum in which the traditional minor requirement is replaced with six courses drawn from the two AI certificates. This redesign embeds structured AI competencies directly into the degree while preserving the full Statistics core and academic rigor.

Students in the +AI pathway complete the same required statistics coursework as students in the original BS Statistics program, ensuring curricular continuity and preventing enrollment cannibalization. Any enrollment growth driven by the +AI designation will increase participation in core Statistics courses. The program is intended to prepare statistically grounded professionals with applied AI fluency, rather than to function as a specialized AI research degree.

The structure of the BS Statistics + AI was formally approved by the AMAT Undergraduate Studies Committee on February 19, 2026, reflecting faculty consensus on the importance of integrating AI skills into quantitative majors.

This program does not replace the existing BS Statistics degree. Instead, it modernizes the curriculum by embedding applied AI coursework in place of the minor requirement, providing students with market-relevant skills while maintaining the foundational identity of the Statistics program.

Narrative description of how the program was designed to meet local market needs, or for an online program, regional or national market needs. For example, indicate if Bureau of Labor Statistics data or State labor data systems information was used, and/or if State, regional, or local workforce agencies were consulted. Include how the course content, program length, academic level, admission requirements, and prerequisites were decided; including information received from potential employers about course content; and information regarding the target students and employers.

The BS Statistics + AI was designed to address workforce demand for professionals who can integrate statistical modeling, data analysis, computational thinking, and applied AI tools. Rather than creating a standalone AI degree, Illinois Tech embedded AI competencies within its established Statistics program to ensure graduates retain strong statistical foundations while gaining practical exposure to AI concepts and applications.

The program incorporates coursework from the Certificate in AI Fluency and Certificate in AI Management, providing students with foundational AI knowledge, data literacy, ethical considerations, and organizational applications of AI. This structure reflects employer expectations for graduates who possess statistical depth alongside applied AI awareness.

Course content, program length, academic level, and prerequisites were determined through internal faculty review to preserve alignment with the rigor of the existing BS Statistics degree. The program targets students pursuing careers in analytics, data science, quantitative modeling, and AI-enabled professional environments, as well as employers seeking statistically trained graduates with applied AI fluency.

Admission standards and degree length remain unchanged from the BS Statistics program, ensuring accessibility while integrating structured AI competencies.

Narrative description of any wage analysis the institution may have performed, including any consideration of Bureau of Labor Statistics wage data related to the new program.

To inform development of the BS Statistics + AI, Illinois Tech reviewed publicly available wage data from the U.S. Bureau of Labor Statistics for occupations aligned with statistical, analytical, and data-oriented careers. According to the BLS Occupational Outlook Handbook, data scientists, a role that broadly reflects applications of statistics and AI skills, had a median annual wage of approximately $112,590 in May 2024, markedly above the median for all occupations nationwide.

BLS wage estimates for related computer and information technology occupations also show strong earnings potential, with median annual wages above $100,000 for roles involving analysis and computational problem solving.

These wage levels underscore the market value of quantitative skills integrated with AI competencies, supporting the program’s focus on preparing graduates for data-intensive professional environments where strong analytical and computational skills are rewarded with competitive wages.

Narrative description of how the program was reviewed or approved by, or developed in conjunction with, one or more of the following: a) business advisory committees; b) program integrity boards; c) public or private oversight or regulatory agencies (not including the state licensing/authorization agency and accrediting agency); and d) businesses that would likely employ graduates of the program. For example, describe the steps taken to develop the program, identify when and with whom discussions were held, provide relevant details of any proposals or correspondence generated, and/or describe any process used to evaluate the program.

The BS Statistics + AI was developed through departmental curriculum planning and faculty governance processes. The program structure was reviewed and approved by the AMAT Undergraduate Studies Committee on February 19, 2026.

Program design leveraged existing institutional AI initiatives, including the Certificate in AI Fluency and Certificate in AI Management, and was coordinated internally to ensure curricular coherence, academic rigor, and workforce relevance. Faculty discussions focused on integrating AI coursework without diminishing the statistical core of the degree.

This collaborative process ensured the program meets academic standards while responding to evolving employer expectations for statistically trained graduates with applied AI skills.

Admission Entry Details

Available Fall Admit	Yes	Available Spring Admit	Yes
		Available Summer Admit	No
Available On Campus	Yes	Available Online	No
Available Full-Time	Yes	Available Part-Time	Yes
Available International	Yes	Available Domestic	Yes

What are the enrollment estimates?

Year 1	5	Year 2	10	Year 3	20

Attach Additional Program Justification Document(s)

Academic Information

Advising

Since quality advising is a key component of good retention, graduation, and career placement, how will students be mentored? What student professional organizations will be formed? How will the department work with the Career Services office to develop industry connections?

Students in the BS Statistics + AI program will receive the same advising and mentoring support currently provided to BS Statistics students. Faculty advisors within the Department of Applied Mathematics will guide students in academic planning, integration of AI certificate coursework, and preparation for internships, research opportunities, and post-graduate pathways.

Students will be encouraged to participate in existing statistics-, mathematics-, and data-focused student organizations, undergraduate research, and interprofessional projects. The department will continue its established collaboration with Illinois Tech's Career Services office to support career readiness through resume development, interview preparation, internship placement, and employer engagement. Faculty advisors and Career Services will leverage existing industry and alumni connections to help students access experiential learning and professional opportunities.

This program does not require new advising infrastructure; it operates within the current BS Statistics advising framework while incorporating applied AI coursework.

Program Resources

Which program resources are necessary to offer this program?

Personnel

Describe the personnel requirements necessary to offer the program. Describe how and when resources will be made available to hire any additional personnel that are required.

The BS Statistics + AI will be delivered using existing faculty and instructional resources in the Department of Applied Mathematics, together with courses already offered through the Certificate in AI Fluency and Certificate in AI Management. No new faculty or staff hires are required to implement this program. All core Statistics courses are currently staffed, and the AI certificate courses are already approved and scheduled through existing departments.

Because this program restructures the current BS Statistics degree rather than creating a new standalone program, no additional personnel resources are needed at this time.

Proposed Catalog Entry

Admission Requirements

Same as BS Statistics

Course Requirements

Required Courses

Applied Mathematics Requirements		**(29)**
MATH 100	Introduction to the Profession	3
or DS 100	Introduction to the Profession	
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 230	Introduction to Discrete Math	3
MATH 251	Multivariate and Vector Calculus	4
MATH 332	Elementary Linear Algebra	3
MATH 350	Introduction to Computational Mathematics	3
MATH 435	Linear Optimization	3
Statistics Requirements		**(15)**
STAT 225	Introductory Statistics	3
MATH 446	Introduction to Time Series	3
MATH 475	Probability	3
MATH 476	Statistics	3
MATH 484	Regression	3
Applied Mathematics Electives		**(15)**
Select 15 credit hours from the following courses, or any other approved AMAT elective: [1]		15
MATH 252	Introduction to Differential Equations	4
MATH 380	Mathematical Modeling with Data	3
MATH 400	Real Analysis	3
MATH 481	Introduction to Stochastic Processes	3
MATH 483	Design and Analysis of Experiments	3
CS 422	Data Mining	3
Certificate in AI Fluency		**(9)**
MATH 123	AI for Computational Mathematics and Coding	3
COM 200	AI, Data, and Communications	3
CS 180	Artificial Intelligence Foundations	3
Certificate in AI Management		**(9)**

Data Literacy		3
Choose 1 of the 2 courses below		
DS 151	Introduction to Data Science	3
BUS 102	Introduction to Business Analytics	3
Organizational Transformation Through AI		
BUS 432	Artificial Intelligence in Business	3
Ethics and Responsible Use of AI		3
Choose 1 of the following 3 courses		
PHIL 381	Artificial Intelligence, Philosophy and Ethics	3
DS 261	Ethics and Privacy in Data Science	3
PHIL 372	Ethics of Technology and Communication	3
Computer Science Requirements		**(7-9)**
Select one of the following sequences:		4-6
CS 115 & CS 116	Object-Oriented Programming I and Object-Oriented Programming II	4
CS 104 & CS 201	Introduction to Computer Programming for Engineers and Accelerated Introduction to Computer Science	6
CS 105 & CS 201	Introduction to Computer Programming and Accelerated Introduction to Computer Science	6
CS 331	Data Structures and Algorithms	3
Natural Science and Engineering Requirements		**(10)**
See Illinois Tech Core Curriculum, section D		10
Humanities and Social Science Requirements		**(21)**
See Illinois Tech Core Curriculum, sections B and C		21
Interprofessional Projects (IPRO)		**(6)**
See Illinois Tech Core Curriculum, section E		6
Free Electives		**(3-5)**
Select 3 to 5 credits		3-5

Minimum degree credits required: 120

[1] Applied mathematics/statistics electives are to be chosen after consultation with an academic adviser. Student goals, interests, and course availability should be determining factors in this selection process. Students can take CS 422 to replace one applied mathematics/statistics elective. CS 422 must be taken after CS 331, which is a required computer science course in this curriculum. The following courses do not count toward the requirements for this degree: MATH 119, MATH 122, MATH 130, MATH 148, MATH 180, MATH 333, MATH 374, MATH 425, MATH 426, and MATH 474.

Sample Curriculum/Program Requirements

Bachelor of Science in Statistics + AI Curriculum

Year 1			
Semester 1	Credit Hours	Semester 2	Credit Hours
STAT 225	3	MATH 152	5
MATH 100	3	MATH 230	3
MATH 151	5	Science Elective	4
MATH 123	3	Computer Science Course[1]	2
Computer Science Course[1]	2	Social Sciences Elective	3
	16		17

Year 2			
Semester 1	Credit Hours	Semester 2	Credit Hours
MATH 251	4	MATH 435	3
MATH 332	3	CS 180	3
CS 331	3	Applied Mathematics/Statistics Elective[2]	3
COM 200	3	Science Elective	3
Data Literacy	3	Social Sciences Elective (300+)	3
	16		15

Year 3			
Semester 1	Credit Hours	Semester 2	Credit Hours
MATH 475	3	MATH 350	3
BUS 432	3	MATH 476	3
Applied Mathematics/Statistics Elective[2]	3	Applied Mathematics/Statistics Elective[2]	3
Science Elective	3	IPRO Elective I	3
Humanities Elective (300+)	3	Social Sciences Elective (300+)	3
	15		15

Year 4			
Semester 1	Credit Hours	Semester 2	Credit Hours
MATH 484	3	MATH 446	3
Applied Mathematics/Statistics Elective[2]	3	Applied Mathematics/Statistics Elective[2]	3
Free Elective	3	Humanities Elective (300+)	3
Free Elective	2	Ethics and Responsible Use of AI	3
IPRO Elective II	3		
	14		12

Total Credit Hours: 120

1

Students must complete one of the following computer science sequences: CS 115 and CS 116, CS 104 and CS 201, or CS 105 and CS 201.

2

Applied mathematics/statistics electives are to be chosen after consultation with an academic adviser. Student goals, interests, and course availability should be determining factors in this selection process. Students can take CS 422 to replace one applied mathematics/statistics elective. CS 422 must be taken after CS 331, which is a required computer science course in this curriculum. The following courses do not count toward the requirements for this degree: MATH 119, MATH 122, MATH 130, MATH 148, MATH 180, MATH 333, MATH 374, MATH 425, MATH 426, and MATH 474.

Specialization Requirements

Program Outcomes and Assessment Process

What are your learning objectives in this program? Please list each learning objective in the boxes below:

Note: These should be the same as described in your assessment plan at the bottom of this form.

LO #1: SWBA to demonstrate the fundamentals of probability theory, statistical reasoning, and inferential methods.

LO #2: SWBA to work with data: to describe it, model it, analyze it, and present it.

LO #3: SWBA to propose statistical models, evaluate their validity, use them to draw conclusions, and understand their limitations.

LO #4: SWBA to effectively use statistical computing to answer real-world questions and demonstrate strong computational skills.

LO #5: SWBA to communicate statistical analyses and conclusions clearly and effectively.

LO #6: SWBA to discuss the broader and dynamical societal context in which statistics is used and demonstrate awareness in ethical issues associated with sound statistical practice.

Upload your assessment plan here:

BS Stats Assessment Plan-v2023-06-15-2023.xlsx

Undergraduate Program Requirements

What courses will factor the major GPA?

Undergraduate Degree Requirements

Minimum credit hours 120

Specialization required?
No

Minor required?
No

Proposed General Curriculum

List Major Course Requirements
Same as outlined in the proposed catalog entries.

List Mathematics Requirements
Same as outlined in the proposed catalog entries.

List Science Requirements
Same as outlined in the proposed catalog entries.

List Computer Science Requirements
Same as outlined in the proposed catalog entries.

List Humanities and Social Sciences Requirements
Same as outlined in the proposed catalog entries.

List Interprofessional Project (IPRO) Requirements
Same as outlined in the proposed catalog entries.

List Technical Elective Course Options

List Free Elective Credit Hours (if applicable)

Semester-by-semester plan of study for the degree program

Reviewer Comments

Ayesha Qamer (aqamer) (02/25/26 1:59 pm): Rollback: Please revise the name of the program if you want AI to be reflected in the degree name it should be written as: Bachelor of Science in Statistics + AI. Additionally, please revise sample curriculum requirements section as it is showing 124 credit hours which does not match the total program credit hours at the top.

Ayesha Qamer (aqamer) (02/25/26 2:57 pm): Rollback: Rollback requested by Kiah Ong

Ayesha Qamer (aqamer) (02/26/26 9:08 am): 2/26/2026, AQ: Revised program code. Incubator program*

Joseph Gorzkowski (jgorzkow) (02/26/26 12:13 pm): Rollback: COM 200 is showing as 0 credit hours in the sample curriculum instead of 3.

Nicole Beebe (nbeebe1) (02/27/26 4:47 pm): The provost has asked at all of the "X+AI" degrees be NAME <<X>> with Artificial Intelligence. I suspect others are coming through incorrectly, given the speed at which folks are creating these. Is this something we can change university wide later? I'm going to edit this proposal accordingly, if it permits me to without rolling it back to the beginning.

Key: 694