

**New Undergraduate Program (Majors, Minors, Sequences) Proposal  
Illinois State University - University Curriculum Committee**

**Program Department** Interdisciplinary Studies  
**Initiator** Amy Hurd  
**Phone** 438-5557  
**Initiator Department** Interdisciplinary Studies  
**Coauthor(s)** None  
**Title of New Program** Data Science Major

**Submission Date** Tuesday, December 13, 2022  
**Email** arhurd@ilstu.edu  
**Campus Address** Provost's Office

**Version** 1 **ID** 418  
**Proposed Starting Catalog Year** 2024-2025

**1. Proposed Action**

- ✓ New Major
- New Minor
- New Sequence
- More than 50% of courses in this program are Distance Education

**Degree Type(s)**

Bachelor of Science

**2. Provide Undergraduate Catalog copy for new program.**

Page: <https://illinoisstate.edu/catalog/undergraduate/interdisciplinary-studies/>

The Interdisciplinary Studies Data Science major is a collaboration between the following departments and schools: Accounting, Health Sciences, Information Technology, Marketing, Mathematics, Politics and Government, and Sociology/Anthropology.

**Program Director:** TBA

**Advisor:** TBA

The major prepares students with the technical knowledge and computational skills to meet current and future problem solving and analysis of large data sets. The IDS Data Science major is an interdisciplinary major with three core areas of curricula including: 1) mathematics and statistics, 2) information technology and computer science, and 3) an applied sequence for contextual application in an area linked to the future career path of the student.

**Students must complete one of the following sequences:**

- **Big Data and Computational Intelligence Sequence**

This sequence provides students with an extensive education in cutting-edge theoretical and practical skills, including machine learning, deep learning, computational mathematics, and statistics. Upon completion, graduates will be equipped with the necessary knowledge and skills to proficiently analyze, visualize, and model large-scale datasets across diverse industries and fields.

[View Sequence Course Requirements](#)

- **Business Analytics Sequence**

In the Business Analytics sequence students develop and apply advanced data analytics skills needed to generate actionable business insights and address business problems across a variety of functional areas, such as marketing and sales, accounting, supply chain management, human resources, and finance.

[View Sequence Course Requirements](#)

- **Population Health Sequence**

Students in the Population Health sequence will be prepared to work in a government, non-profit, or public setting. After graduation, students might gain employment at a health insurance company, healthcare software vendor, diagnostic center, healthcare consulting firm, or at a healthcare organization including hospitals, clinics, and private practices.

[View Sequence Course Requirements](#)

- **Social Demographic/Public Policy Analysis Sequence**

Students in this sequence will apply data science to understanding dynamics of population size and change and to the process of understanding, predicting, and evaluating policy implications.

[View Sequence Course Requirements](#)

- **Individualized Plan of Study Sequence**

This sequence has two purposes: 1) allow students to develop an individualized focus of study and 2) provide for a path towards completion of the degree if a student does not fulfill all the requirements in one of the other sequences.

[View Sequence Course Requirements](#)

**3. Provide a description for the proposed program.**

The IDS Data Science major prepares students with the technical knowledge and computational skills to meet current and future problem solving and analysis of large data sets. The IDS Data Science major is an interdisciplinary major with three core areas of curricula including: 1) mathematics and statistics, 2) information technology and computer science, and 3) an applied sequence for contextual application in an area linked to the future career path of the student. The sequences include 1) Big Data and Computational Intelligence, 2) Business Analytics, 3) Population Health, 4) Social Demographic/Public Policy analytics, and 5) Individualized Plan of Study.

The core curriculum will include 32 credit hours of Mathematics courses (20 hours basic and 12 hours advanced courses), 14 credit hours of Information Technology courses, one ethics course, one data visualization course, and one capstone/internship course. The capstone course will be an instructor led course to complete an applied data science project from an external partner. As an alternative to the campus-based capstone project course, students may elect to complete an externally based internship for the equivalent of a 3-credit hour course. The sequence will consist of five to seven additional courses. The proposal provides for five sequences including: 1) Big Data and Computational Intelligence, 2) Business Analytics, 3) Population Health, 4) Social Demographic/Public Policy analytics, and 5) Individualized Plan of Study.

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**4. Provide a rationale of proposed program.**

An increase in employer demand and a large number of relevant job postings indicate strong need for program graduates. In the last 12 months, employers posted a high number of relevant job postings both locally and regionally (i.e., 49,180 and 113,459 job postings, respectively). Between June 2018 and May 2021, employer demand growth for bachelor's-level data science professionals outpaced employer demand growth for all bachelor's-level professionals both locally (i.e., 1.60 percent compared to 0.92 percent), and regionally (i.e., 1.81 percent compared to 0.92 percent). Additionally, local and regional employment is projected to increase faster than average in all top occupations. This indicates a large and growing labor market for program graduates with increasing employment opportunities in the coming years.

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**5. Describe the expected effects of the proposed program on existing campus programs (if applicable).**

Upon approval, the major will begin with approximately 50 students and this number of students can be absorbed within the existing departments and courses. As demand grows, faculty will be needed in the core areas of mathematics and information technology. If there is disproportionate distribution of students to the sequences, there may need to be additional faculty resources with future growth. As this is a distinct major, it is anticipated that this will attract new students to Illinois State University who are not currently choosing ISU.

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**6. Provide a sample four-year plan of study that fulfills the following requirements:** 120 hours, 42 senior college hours (200 and 300 level courses), and 39 General Education Program hours or 36 hours with exemption. If the program is a BS program, show the BS-SMT degree requirement. If the program is from CAS, show Foreign Language Requirement (LAN 111/LAN 112). Confirm General Education requirement exemptions on the General Education page of the current Academic Catalog. *4-year plans are not required for minor program proposals.*

To be provided within the sequence proposals

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**7. Describe the expected curricular changes required, including new courses. If proposals for new courses have also been submitted, please reference those related proposals here:**

This program will require two new courses including a capstone course (IDS 388) and an internship course (IDS 398.05). These proposals have been submitted.

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**8. Anticipated funding needs and source of funds.**

This program will need 1.5 administrative personnel staff hired by year 5 of the program. An AP staff with duties including academic advising and a capstone/internship coordination will be needed in year 1. By year 5 the initial AP will coordinate internship/capstone courses and teach 1 course each semester in the capstone. At this point a .5 advisor will be needed to cover the highly-specialized advisement.

In year 1, the program will need 1 MAT tenure track faculty member who specializes in Applied & Pure Mathematics and 1 IT faculty member. In year 2, the program will need 1 BIS and 1 MKT faculty members. By year 5 the total number of new tenure track faculty members will be 11 comprised of:

4 MAT tenure track faculty members who specialize in Applied & Pure Mathematics and Statistics  
3 IT  
2 BIS  
2 MKT

With a projection of 50 students per year, by year 5 with 250 and projected tuition revenue of \$8500 per student, the program will generate \$2,125,000. The personnel costs will be \$1,300,000.

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**9. No Does this program count for teacher education?**

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**10. Yes Is this an Interdisciplinary Studies program?**

**List all departments who share in the administration of this program.**

Interdisciplinary Studies  
Accounting  
Health Sciences  
School of Information Technology  
Marketing  
Mathematics  
Politics and Government  
Sociology

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**11. The following questions must be answered.**

- Yes** Have you confirmed that Milner Library has sufficient resources for the proposed program?  
**No** Are more than 120 hours required to complete a degree with this major?  
**Yes** Beyond General Education, does the major require more than 66 semester hours?

[Rationale for mandating over 66 hours in the major.](#) [Required Hours Policy](#)

As an interdisciplinary program, it is necessary to included depth of knowledge in disciplines along with the breadth of knowledge across disciplines. Required courses for the major along with General Education requirements still puts students below the 120 credit hour mark.

- Yes** Does this B.A., B.S., B.S.Ed. require more than 55 semester hours of major courses?

**No** Does this program stipulate specific general education courses offered in the major department/school as a part of the major requirements only if such courses serve as prerequisites for other courses required by the major?

**Yes** Does this program stipulate specific course requirements (majors/sequences only) that also satisfy general education and/or IAI requirements?

Please specify those courses below.

See individual sequences

**No** Is the proposed program intended to be longer than four years (as indicated by the plan of study)?

**Yes** Have letter(s) of concurrence from affected departments/schools been obtained?  
*A departments/school is affected if it has a program with significant overlap or if it teaches a required or elective course in the program.*

**12. Routing and action summary for New Program:**

**1. Interdisciplinary Studies Department Curriculum Committee Chair**

<u>Amy Hurd (website)</u>	<u>Amy Hurd</u>	<u>12/13/2022 1:03:59 PM</u>
Signature	Print	Date

**2. Interdisciplinary Studies Department Chair/School Director**

<u>Amy Hurd (website)</u>	<u>Amy Hurd</u>	<u>12/13/2022 1:04:35 PM</u>
Signature	Print	Date

**3. Sociology Department Chair**

<u>Joan Brehm (website)</u>	<u>Joan Brehm</u>	<u>12/13/2022 1:12:59 PM</u>
Signature	Print	Date

**4. Marketing Department Chair**

<u>Horace Melton (website)</u>	<u>Horace Melton</u>	<u>12/13/2022 1:28:29 PM</u>
Signature	Print	Date

**5. Mathematics Department Chair**

<u>Gaywalee Yamskulna (website)</u>	<u>Gaywalee Yamskulna</u>	<u>12/13/2022 1:38:59 PM</u>
Signature	Print	Date

**6. Health Sciences Department Chair**

<u>David Grieshaber (website)</u>	<u>David Grieshaber</u>	<u>12/14/2022 4:37:20 PM</u>
Signature	Print	Date

**7. School of Information Technology Department Chair**

<u>Traci Carte (website)</u>	<u>Traci Carte</u>	<u>12/15/2022 2:36:36 PM</u>
Signature	Print	Date

**8. Accounting Department Chair**

<u>Joseph Johnston (website)</u>	<u>Joseph Johnston</u>	<u>12/15/2022 2:41:31 PM</u>
Signature	Print	Date

**9. Politics and Government Department Chair**

<u>Thomas McClure (website)</u>	<u>Thomas McClure</u>	<u>12/16/2022 10:23:24 AM</u>
Signature	Print	Date

**10. Council on General Education Chair**

<u>Gregory Ferrence (website)</u>	<u>Gregory Ferrence</u>	<u>2/9/2023 1:55:37 PM</u>
Signature	Print	Date

**11. University Curriculum Committee Chair**

Mary Califf (website)

Signature

Mary Califf

Print

3/10/2023 11:59:13 AM

Date

All new programs (majors, minors, sequences) are routed by the U.C.C. to the Academic Senate

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**Comments**

**Amy Hurd (Interdisciplinary Studies Department Curriculum Committee Chair):**

Dr. Rivadeneyra has the letters of support from PHI. She is following up with the CTK letter.