Engineering, Computing & Mathematical Sciences

Cutting-Edge Programs in Computer Science, Cybersecurity, Data Science, Information Technology, Mathematics, and Engineering

Distinct, comprehensive programs in today's hottest fields

- Computer Engineering
- Computer Science
- Computer Science + X
- Cybersecurity
- Data Science
- Electrical Engineering
- Information Technology
- Mathematics

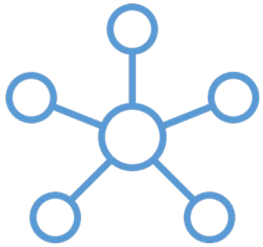
We're one of the the largest private-school computer science programs in the state of Illinois

We are one of only 7 ABET-accredited computer engineering programs in Illinois.

We are a National Center of Academic Excellence in Cyber Defense Education

We have lots of concentrations

Computer Science Concentrations



Information Technology Concentrations

and minors to combine your interests

Computer Science

Cybersecurity

Data Science

Information Technology

Mathematics

4+1 Programs

Earn a graduate degree with just one additional year of study.

- BS CompSci – MS CompSci
- BS CompSci – MS Data Science
- BS CompSci – MS Cybersecurity
- BS Data Science – MS Data Science
- BS Mathematics – MS Data Science
- BS Mathematics – MA Education
- BA Mathematics –MA Education

Limitless possibilities

Bachelor of Science in Information Technology with a Concentration in Digital Forensics and a Minor in Cybersecurity

Bachelor of Science in Computer Science with a Concentration in Secure Programming and a Minor in Computer Engineering

Bachelor of Science in Computer Science with a Concentration in Software Engineering and a Minor in Mathematical Modeling

Bachelor of Science in Cybersecurity with a minor in Data Science

Bachelor of Science in Computer Engineering with a Minor in Data Science and a Minor in Mathematics

Bachelor of Science in Data Science with a Minor in Mathematical Modeling and pursuing the 4+1 in Data Science

Bachelor of Science in Mathematics with a Minor in Data Science

Bachelor of Science in Electrical Engineering with a Minor in Cybersecurity

Bachelor of Arts in Mathematics and Secondary Education (Double Major)

We Are One Department

Plenty of opportunities to double-major or pursue minors.

We're competitive

- We won the national championship at the Department of Energy Cyber Defense Competition in April 2018.
- We placed 9th out of 200 schools in the most recent national competition.
- We regularly place in the top three at local programming competitions.
- We placed 2nd in the 2021 ACCA Calculus Competition.
- Illinois Outstanding Undergraduate Mathematics Research Award Winners: 2020, 2021, 2022

We're real-world

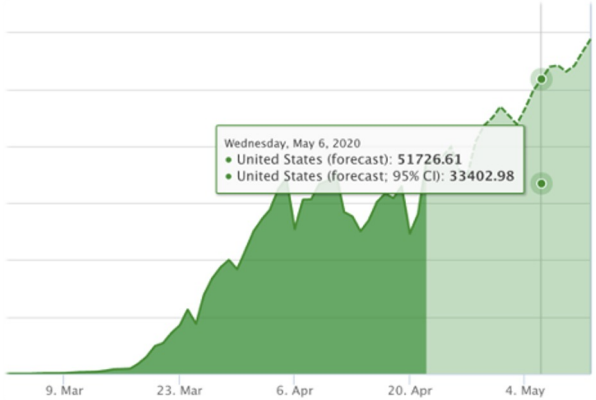
We are a Cisco Networking Academy, a Red Hat Academy, an AWS Academy, and a CompTIA partner.

We have NetLabs, a platform for doing network and security coursework online.

We do cutting-edge research

- We have undergraduate research opportunities (projects such as disease modeling, sports analytics, searchable encryption, and traffic simulation).
- There are multiple opportunities for students to get involved in research during the semester and the summer!
- We have two high-performance computer clusters.
- We have research teams such as DataSAIL (Data Science and Artificial Intelligence Laboratory).

Predict Covid 19 Cases

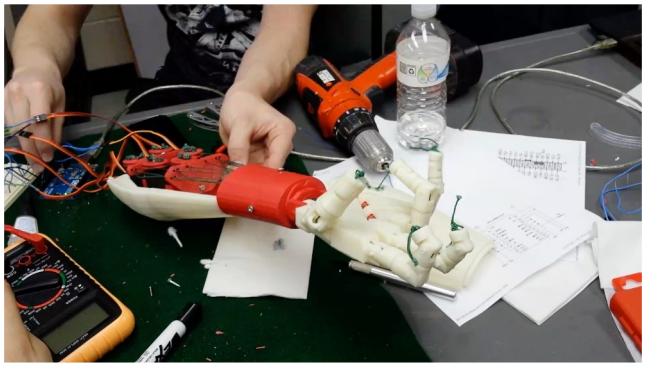


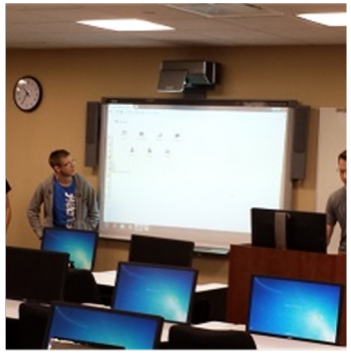
We're fun!

We have lots of student groups (ACM, ACM-W, IEEE, DataSAIL, Programming Club, Actuarial Science Club, Math Club) and take students to conferences.

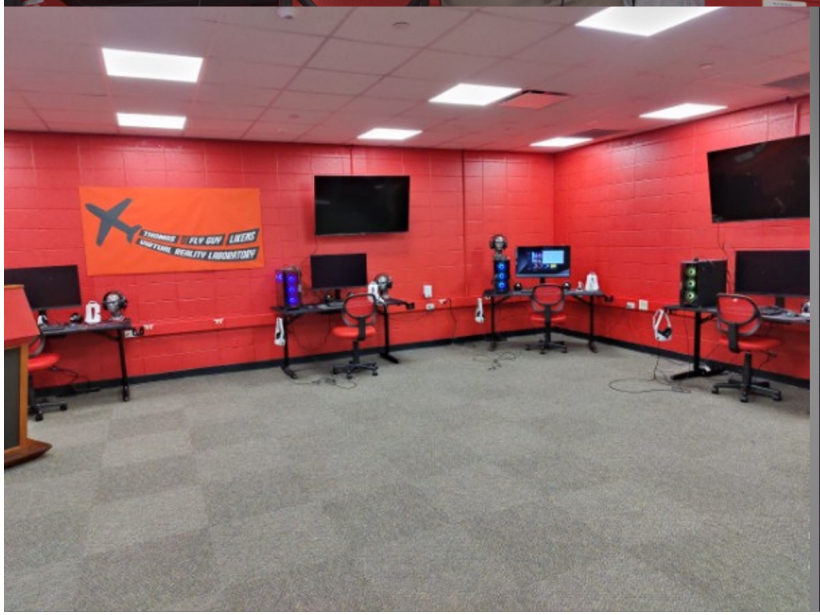
Student Computing Resources

- We have our own robotics and maker labs.
- Sentinel Cybersecurity Lab
- Our Virtual Reality Lab opened in Fall 2021.
- Our labs are exclusively for our student's 24x7 use.





Thomas "Fly Guy" Likens Virtual Reality Lab



Study Abroad

- We offer study-abroad opportunities
  - Brazil
  - China
- We also offer virtual study-abroad experiences

A **Closer Look** at a few of our programs …

Computer Science

HOW TO WRITE SOFTWARE

for a variety of platforms and applications

A. Artificial Intelligence Concentration (9)

Concentration: ARIN

CPSC-47000	Artificial Intelligence	3
DATA-47100	Machine Learning	3
DATA-47200	Introduction to Data Mining	3

B. Game and Simulation Programming Concentration (9)

Concentration: GAME

CPSC-41000	Video Game Programming 1	3
CPSC-41500	Video Game Programming 2	3
CPSC-43000	Computer Graphics Programming	3

C. Mobile Computing Concentration (9)

Concentration: MOBC

CPSC-23000	.NET Programming	3
CPSC-24700	Web and Distributed Programming	3
CPSC-41700	Mobile Application Development	3

D. Secure Programming Concentration (9)

Concentration: SECP

CPSC-42500	Encryption and Authentication Systems	3
CPSC-42700	Programming for Penetration Testing	3
CPSC-42800	Programming for Digital Forensics	3

E. Software Engineering Concentration (9)

Concentration: SWEN

CPSC-33000	Database Systems	3
CPSC-36000	Programming Tools and Techniques	3
CPSC-44500	Application Frameworks	3

F. Systems Programming Concentration (9)

Concentration: SYSP

CPSC-22000	Introduction to Unix	3
CPSC-35500	Cloud Computing and Virtualization	3
CPSC-48000	Client-Server Computing	3

Cybersecurity

How to defeat hackers

Today, tomorrow, and always.

Degree Requirements

Program: BS-CYBS-1

I. Core Courses (64)

CPSC-20000	Introduction to Computer Science	3
CPSC-21000	Programming Fundamentals	3
CPSC-22000	Introduction to Unix	3
CPSC-25000	File Systems and Digital Forensics	3
CPSC-28100	Introduction to Networks	3
CPSC-30000	Computer Organization	3
CPSC-33000	Database Systems	3
CPSC-34000	Algorithms and Data Structures	3
CPSC-35000	Operating Systems	3
CPSC-42000	Cybersecurity Essentials	3
CPSC-42100	Advanced Cybersecurity	3
CPSC-42200	Wireless Security	3
CPSC-42500	Encryption and Authentication Systems	3
CPSC-42700	Programming for Penetration Testing	3
CPSC-49300	Computer Infrastructure Capstone Project	3
INSY-23000	Legal and Ethical Issues in Computing	3
INSY-35000	Cybersecurity Policy and Strategy	3
INSY-35100	Security Assessment and Risk Management	3
INSY-45000	Enterprise Security	3
INSY-46000	Cybercrime Prevention Tools	3
MATH-21000	Discrete Mathematics	4

II. Elective (3)

Choose any 30000-level or higher CPSC elective.

Information Technology

How to design and build Integrated computing systems

Networks, software, and hardware

A. Cybersecurity (12)
Concentration: CYBS

CPSC-42000	Cybersecurity Essentials	3
CPSC-42100	Advanced Cybersecurity	3
CPSC-42200	Wireless Security	3
CPSC-42300	Ethical Hacking	3

B. Data Privacy (12)
Concentration: DTPR

CPSC-42500	Encryption and Authentication Systems	3
INSY-35000	Cybersecurity Policy and Strategy	3
INSY-35100	Security Assessment and Risk Management	3
INSY-45000	Enterprise Security	3

C. Digital Forensics (12)
Concentration: DGTL

CPSC-25000	File Systems and Digital Forensics	3
CPSC-42600	Mobile Devices Forensics	3
INSY-33600	Computer Forensics for Business Applications	3
INSY-46000	Cybercrime Prevention Tools	3

D. Enterprise Computing (12)
Concentration: ENCC

CPSC-35500	Cloud Computing and Virtualization	3
CPSC-48000	Client-Server Computing	3
INSY-45000	Enterprise Security	3
BSAN-33400	Business Intelligence	3

E. Networking (12)
Concentration: NETW

CPSC-28200	Switching, Routing, and Wireless Essentials	3
CPSC-35500	Cloud Computing and Virtualization	3
CPSC-38200	Network Security	3
CPSC-42200	Wireless Security	3

F. Project Management (12)
Concentration: PROJ

INSY-31000	Principles of Project Management	3
INSY-32500	Introduction to Six Sigma	3
INSY-42500	Advanced Project Management	3
INSY-43500	Business Process Management	3

Engineering

- Our Computer Engineering program focuses on Internet of Things (IoT).
- Our Electrical Engineering program focuses on high-voltage electric power systems, machines, renewable energy, and power electronics.

Lewis University Electrical and Computer Engineering Student Projects Highlights - YouTube

Computer Engineering Courses

II. Computer Engineering Core Courses (37)

CPSC-21000	Programming Fundamentals
CPSC-24500	Object-Oriented Programming
CPSC-34000	Algorithms and Data Structures
CPSC-35000	Operating Systems
ECEN-10000	Introduction to Electrical and Computer Engineering
ECEN-21000	Logic Design
ECEN-22000	Circuit Analysis I
ECEN-23000	Signals and Systems
ECEN-25000	Semiconductor Devices
ECEN-30000	Computer Architecture 1
ECEN-31000	Computer Architecture 2
ECEN-32000	Hardware and Software Systems

A few of the optional courses

ECEN-33000	Digital Communications
ECEN-34000	Introduction to VLSI Design
ECEN-45000	Robotics
ECEN-49700	ECE Fundamentals of Engineering Exam Review
ECEN-49800	Electrical and Computer Engineering Internship
MATH-36500	Mathematical Modeling
PHYS-31000	Electricity and Magnetism
PHYS-31100	Analog and Digital Electronics
PHYS-44200	Solid State Physics

Electrical Engineering Courses

II. Electrical Engineering Core (34)

ECEN-10000	Introduction to Electrical and Computer Engineering
ECEN-21000	Logic Design
ECEN-22000	Circuit Analysis I
ECEN-22100	Circuit Analysis II
ECEN-23000	Signals and Systems
ECEN-25000	Semiconductor Devices
ECEN-27000	Applied Electromagnetics
ECEN-35000	Electronic Circuits
ECEN-37000	Electromechanics
ECEN-37500	Control Systems
ECEN-38000	Electric Power Systems

III. Electrical Engineering Electives (9)

Select at least three courses from the following electives:

ECEN-30000	Computer Architecture 1
ECEN-31000	Computer Architecture 2
ECEN-32000	Hardware and Software Systems
ECEN-33000	Digital Communications
ECEN-33500	Digital Signal Processing
ECEN-34000	Introduction to VLSI Design
ECEN-41000	Artificial Intelligence
ECEN-45000	Robotics
ECEN-47500	Power Electronics
ECEN-48000	Renewable Energy Systems
ECEN-49700	ECE Fundamentals of Engineering Exam Review
ECEN-49800	Electrical and Computer Engineering Internship
PHYS-33100	Thermodynamics
PHYS-41100	Computational Electrodynamics

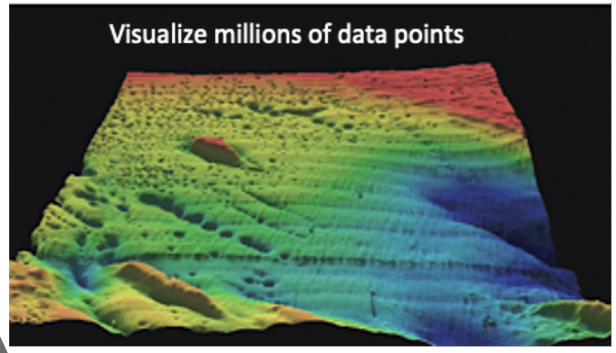
Data Science

- Our Data Science program prepares you for careers in the blossoming Big Data industry.

Make recommendation predictions for products

NETFLIX amazon.com PANDORA

DataSAIL



Data Science Core Courses

I. Core Courses (27)

DATA-20000	Introduction to Data Science
CPSC-21000	Programming Fundamentals
DATA-23500	Programming for Data Analysis
DATA-30000	Visualizing and Communicating Data Knowledge
CPSC-33000	Database Systems
DATA-40000	Big Data Systems
DATA-47100	Machine Learning
DATA-47200	Introduction to Data Mining
DATA-49000	Data Science Undergraduate Capstone Project

Mathematics

- Award Winning Faculty and Students
- New 4+1 Program: Math + Education
- Math+ Secondary Education Major
- Small Classes
- Tight-knit Student Community
- Excellent Job Preparation
- Research Opportunities
- Easy to add double major or minor

Forbes: "The top 15 highest-earning degrees you can get all have one thing in common -Math Skills"

I. Core Courses (37)

MATH-20900	Calculus 1
MATH-21000	Discrete Mathematics
MATH-23500	Calculus 2
MATH-25000	Calculus 3
MATH-30500	Linear Algebra
MATH-22000	Applied Probability and Statistics
MATH-32500	Foundations of Advanced Mathematics
MATH-44000	Abstract Algebra 1
MATH-45000	Real Analysis 1
CPSC-20000	Introduction to Computer Science
	OR
DATA-20000	Introduction to Data Science
CPSC-21000	Programming Fundamentals

Applied Mathematics

CS, Data Science, and Engineering Majors only need two additional classes to add a Math Minor!

Actuarial Science Minor

I. Required Courses (17)

- **Calculus I or Applied Calculus (4)**
- **Calculus 2 (4)**
- **Probability Theory (3)**
- **Advanced Statistics (3)**
- **Financial Mathematics (3)**

II. Statistics Course (3)

Choose one of the following courses:

BIOL-32000	Biostatistics
BSAN-34900	Business Statistics
MATH-22000	Applied Probability and Statistics
PSYC-30300	Statistics for the Social Sciences

III. Choose one of the following tracks: (6)

- Macroeconomics + Microeconomics
- Principles of Finance + Principles of Accounting I

Mathematical Modeling Minor

I. Required Courses (13)

MATH-12300	Modeling our World with Mathematics
MATH-20600	Applied Calculus
	OR
MATH-20900	Calculus 1
MATH-30500	Linear Algebra
MATH-36500	Mathematical Modeling

II. Statistics Course (3)

Choose one of the following courses:

BIOL-32000	Biostatistics
BSAN-34900	Business Statistics
MATH-21500	Probability and Statistics Concepts for Educators
MATH-22000	Applied Probability and Statistics
PSYC-30300	Statistics for the Social Sciences

III. Elective Courses (6)

Choose two of the following courses:

MATH-30000	Differential Equations
MATH-31500	Probability Theory
MATH-31600	Advanced Statistics
MATH-35000	Numerical Analysis
CPSC-31500	Scientific Computing
DATA-20000	Introduction to Data Science
DATA-23500	Programming for Data Analysis

Academic Experience

WE RECORD OUR CLASSES.

WE HAVE AN OPEN-DOOR POLICY.

WE HAVE OUR OWN TUTORING SERVICES.

WE HAVE LOTS OF INTERNSHIP AND CAREER CONNECTIONS.

WE USE MICROSOFT TEAMS TO SHARE NEWS ABOUT CLUBS, COURSES, AND INTERNSHIPS.

WE ARE THE FASTEST-GROWING DEPARTMENT ON CAMPUS.

WE ARE STUDENT-FOCUSED AND STUDENT-DRIVEN.

The Bottom Line …

Big-School Opportunities in a Small-School Setting