COMPUTER SCIENCE + ECONOMICS, BSLAS

for the degree of Bachelor of Science in Liberal Arts and Sciences Major in Computer Science + Economics

Few disciplines are more impacted by "big data" than economics—a field with demand for analysts who not only have the sophisticated skills necessary to examine large datasets but also have the ability to write their own algorithms and software tools to do so. The computer science + economics curriculum produces students who can develop both skill sets by providing them with the opportunity to learn a variety of economic analytical skills, both theoretical and empirical, as well as computational skills.

Students in this STEM-designated Bachelor of Science program will be exposed to the tools of both disciplines with the aim of acquiring valuable skills that are in demand by a variety of employers. Graduates will not only be able to work with large datasets, but they will be able to create, analyze, and interpret this information. This major will prepare students for a variety of careers such as banking, finance, insurance, policy centers, and government agencies. In addition, this joint degree is ideal for preparing students for a variety of graduate programs.

Undergraduate Degree Programs in Economics

- Econometrics & Quantitative Economics, BSLAS (http://catalog.illinois.edu/undergraduate/las/econometrics-quantitative-economics-bslas/)
- Economics, BALAS (http://catalog.illinois.edu/undergraduate/las/economics-balas/)
- Computer Science & Economics, BSLAS (p. 1)

For further information, please visit the Economics undergraduate program page (http://www.economics.illinois.edu/undergrad/info/).

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Please visit the computer science advisor as well as the economics advising office.

A Major Plan of Study Form must be completed and submitted to the LAS Student Affairs Office by the beginning of the fifth semester (60-75 hours).

Graduation Requirements

Minimum hours required for graduation: 120 hours.

Minimum hours required major and supporting course work: normally equates to 66 hours. Twelve hours of 300- and 400-level 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 (https://studentcode.illinois.edu/article3/part8/3-801/) (§ 3-801) and in the Academic Catalog (http://catalog.illinois.edu/general-information/degree-general-education-requirements/).

General Education Requirements

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

Code	Title	Hours
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
fulfilled by ECON 102 and ECON 103		
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 CS 124, CS 128, CS 225, MATH 220 or 221, MATH 231		
Language Requirement (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

Major Requirements

Code	Title	Hours
Required Computer Science Courses:		
CS 100	Computer Science Orientation (recommended; CS 100 is an orientation course aimed at first-year students, so students who declare the major after the freshman year are not required to complete it.)	1
CS 124	Introduction to Computer Science I	3
CS 128	Introduction to Computer Science II	3
CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 222	Software Design Lab	1
Choose one of the following combinations		8-11
CS 233 & CS 341	Computer Architecture and System Programming	
OR		
CS 340	Introduction to Computer Systems	

& two CS courses at the 400 level above CS 403, excluding CS 421 and CS 491. These two courses must be distinct from all other courses used to fulfill program requirements or options.

Choose one of the following:		3
ECON 202	Economic Statistics I	
STAT 200	Statistical Analysis	
STAT 212	Biostatistics	
CS 361	Probability & Statistics for Computer Science	
CS 374	Introduction to Algorithms & Models of Computation	4
CS 421	Programming Languages & Compilers	3
Mathematics (may also fulfill the General Education Quantitative Reasoning I and II requirements):		
MATH 220	Calculus	4-5
or MATH 221	Calculus I	
MATH 225	Introductory Matrix Theory	2 or 3
or MATH 257	Linear Algebra with Computational Applications	
MATH 231	Calculus II	3
Required Economics Coursework -- minimum 24 hours		
ECON 102	Microeconomic Principles	3
ECON 103	Macroeconomic Principles	3
ECON 203	Economic Statistics II	3
ECON 302	Inter Microeconomic Theory	3
Four 400-level courses in Economics selected from an approval list of computation-focused courses		12
Total Hours		**66-71**

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Sample Sequence

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a fourth level of a language other than English. See the corresponding section on the Degree and General Education Requirements page *(*http://catalog.illinois.edu/general-information/degree-general-education-requirements/*).*

First Year

First Semester	Hours
Free Elective course	1
CS 100	1
MATH 220 or 221	4
ECON 102 or 103	3
Composition I or General Education course	4

CS 124	3
	16

Total Hours 16

First Year

Second Semester	Hours
MATH 231	3
CS 128	3
ECON 103 or 102	3
CS 173	3
General Education course or Composition I	3
	15

Total Hours 15

Second Year

First Semester	Hours
CS 225	4
CS 233 or 340	4
ECON 202, STAT 200, STAT 212, or CS 361	3
Language Other Than English (3rd level)	4
	15

Total Hours 15

Second Year

Second Semester	Hours
CS 222	1
CS 341 (or CS 400-level course)	4
ECON 203	3
Language Other Than English (4th level)	4
General Education course	3
	15

Total Hours 15

Third Year

First Semester	Hours
CS 421	3
ECON 302	3
CS 374	4
MATH 225 or 227	3
General Education course	3
	16

Total Hours 16

Third Year

Second Semester	Hours
CS 400-level course or Free elective course	3
General Education course	3
Free elective course	3
Free elective course	3

Free elective course	3
	15

Total Hours 15

Fourth Year

First Semester	**Hours**
General Education course	3
General Education course	3
ECON 400-level course	3
ECON 400-level course	3
Free Elective course	2
	14

Total Hours 14

Fourth Year

Second Semester	**Hours**
General Education course	3
General Education course	3
ECON 400-level course	3
ECON 400-level course	3
Free Elective course	2
	14

Total Hours 14

Total Hours: 120

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To accomplish the educational objectives and to fulfill accreditation criteria, all economics programs provide the knowledge, experience, and opportunities necessary for students to demonstrate their attainment of the following outcomes:

- Analytical Skills/Problem-Solving: ECON students will effectively visualize, conceptualize, articulate, and solve complex problems or address problems that do not have a clear answer, with available information, through experimentation and observation, using microeconomic and macroeconomic theory, as well as calculus and statistical tools.
- Critical Thinking: ECON students will apply economic analysis to everyday problems helping them to understand events, evaluate specific policy proposals, compare arguments with different conclusions to a specific issue or problem, and assess the role played by assumptions in arguments that reach different conclusions to a specific economic or policy problem.
- Quantitative Reasoning: ECON students will understand how to apply empirical evidence to economic arguments. Specifically, they may obtain and/or collect relevant data, develop empirical evidence using appropriate statistical techniques, and interpret the results of such analyses.
- Specialized Knowledge and Practical Application: ECON students will develop deeper analytical, critical, and quantitative skills in specialized areas by applying economic concepts to real world situations.

- Interdisciplinary Knowledge, Diverse Issues, and Global Consciousness: ECON students will broaden their global and disciplinary knowledge, enhancing their understanding of the world around them both within economics and beyond.
- Communication and Leadership: ECON students will build skills to work as part of a team and lead others, ensuring they are prepared to navigate diverse audiences and situations.

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CS + X Degrees (https://cs.illinois.edu/academics/undergraduate/degree-program-options/cs-x-degree-programs/#requirements)
CS + Economics (https://economics.illinois.edu/academics/undergraduate-program/majors-minor/cs-econ/)
Economics department page (https://economics.illinois.edu/)

Overview of College Admissions & Requirements: Liberal Arts & Sciences (http://catalog.illinois.edu/schools/las/)

College of Liberal Arts and Sciences website (https://las.illinois.edu/)
Grainger College of Engineering website (https://grainger.illinois.edu)

Economics email: econug@illinois.edu
Computer Science email: undergrad@cs.illinois.edu