# COMPUTER SCIENCE + ECONOMICS (BS)

## Overview

| Program Requirements | Quarter Hours |
| --- | --- |
| Liberal Studies Requirements | 72 |
| Modern Language Requirements | 12 |
| CS ICRS Requirements | 48 |
| ECON ICRS Requirements | 48 |
| Open Electives | 12 |
| **Total hours required** | **192** |

**Learning Outcomes**

- Student is able to model a computational problem, select appropriate algorithms and data structures for a solution, justify the correctness of the algorithm, and implement an application solving the problem.
- Student is able to analyze and select an algorithm based on system effects.
- Student is able to analyze the efficiency of a computational solution mathematically and validate the analysis experimentally.
- Student is able to criticize a program on the basis of its maintainability and suggest improvements.
- Economic Vocabulary and Institutions: Student can define economic concepts needed to analyze issues in the popular press and identify the function of key economic institutions, such as the Federal Reserve System.\\n
- Economic Reasoning and Analysis: Student can employ an economic theory or model to analyze the impact of changes in economic variables.
- Impact of Government Policies: Student can assess the potential impact of government interventions on individuals, markets and/or the macroeconomy.
- Breadth of Knowledge: Student gains exposure the application of economic concepts/models in a variety of fields within economics (e.g., Labor Economics, Health Economics, Urban Economics, International Economics, Development Economics, History of Economic Thought, etc).

## Liberal Studies Requirements

The distribution of LS domain requirements is based on the existing LS requirements for Computer Science and Economics [LASS] programs. We think that is justified because the CS+ECO BS degree program embraces the multidisciplinary spirit of the LS program in that students in the program will take many more STEM courses than a student majoring in a social science would and vice versa. The Senior Capstone requirement is fulfilled via either the computer science or economics capstone course. Administration of the Liberal Studies requirements is shared by the School of Computing and the Department of Economics; any changes to the requirements must be agreed to by both units.

| First Year Program | | Hours |
| --- | --- | --- |
| **Chicago Quarter** | | |
| LSP 110 or LSP 111 | DISCOVER CHICAGO or EXPLORE CHICAGO | 4 |
| **Focal Point** | | |
| LSP 112 | FOCAL POINT SEMINAR | 4 |
| **Writing** | | |
| WRD 103 | COMPOSITION AND RHETORIC I [1] | 4 |
| WRD 104 | COMPOSITION AND RHETORIC II [1] | 4 |
| **Quantitative Reasoning** | | |
| Not Required | | |
| **Sophomore Year** | | |
| **Multiculturalism in the US** | | |
| LSP 200 | SEMINAR ON RACE, POWER, AND RESISTANCE | 4 |
| **Junior Year** | | |
| **Experiential Learning** | | |
| One Course Required | | 4 |
| **Senior Year** | | |
| **Capstone** | | **4** |

See Major Requirements

## Learning Domains

**Arts and Literature (AL) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/arts-and-literature/)**

- 3 Courses Required

**Historical Inquiry (HI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/historical-inquiry/)**

- 2 Courses Required

**Math and Computing (MC) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/math-and-computing/)**

- Not Required

**Philosophical Inquiry (PI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/philosophical-inquiry/)**

- 2 Courses Required (See note below)

**Religious Dimensions (RD) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/religious-dimensions/)**

- 2 Courses Required (See note below)

**Scientific Inquiry (SI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/scientific-inquiry/)**

- 1 Lab Course Required

**Social, Cultural, and Behavioral Inquiry (SCBI) (https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-learning-domains/social-cultural-and-behavioral-inquiry/)**

- 1 Course Required:

## Total Credit Hours: 72

**Major Requirements**

## Modern Language Requirement

Administration of the Modern Language Requirement is shared by the School of Computing and the department of Economics; any changes to the requirements must be agreed to by both units.

| Program Requirements | Quarter Hours |
|---|---|
| Up to 3 courses required per MLR rules. Students who complete the MLR with 4 years high school language or place out of language courses via test will have the associated credit hours added to open electives. | 12 |
| **Total hours required** | **12** |

## Major Requirements

The CS+ECO BS major requirements are split between the CS ICRS, managed by the Computer Science Program Committee (CS), and the ECON ICRS, managed by the Department of Economics (ECON).

| Course | Title | Quarter Hours |
|---|---|---|
| MAT 140 | DISCRETE MATHEMATICS I | 4 |
| MAT 141 | DISCRETE MATHEMATICS II | 4 |
| CSC 241 | INTRODUCTION TO COMPUTER SCIENCE I [1] | 4 |
| CSC 242 | INTRODUCTION TO COMPUTER SCIENCE II [1] | 4 |
| CSC 300 | DATA STRUCTURES I | 4 |
| CSC 301 | DATA STRUCTURES II | 4 |
| CSC 321 | DESIGN AND ANALYSIS OF ALGORITHMS | 4 |
| CSC 373 | COMPUTER SYSTEMS I | 4 |
| CSC 374 | COMPUTER SYSTEMS II | 4 |
| 1 course from the following: | | 4 |
| CSC 347 | CONCEPTS OF PROGRAMMING LANGUAGES | |
| CSC 376 | DISTRIBUTED SYSTEMS | |
| SE 350 | OBJECT-ORIENTED SOFTWARE DEVELOPMENT | |
| 2 additional courses, can be any 300-level CSC, CSEC, DSC, or SE course | | 8 |
| **Total Hours** | | **48** |

[1] CSC 243 Python for Programmers & a CS elective can take place of CSC 241 & CSC 242

## Major Requirements (ECON ICRS)

| Course | Title | Quarter Hours |
|---|---|---|
| ECO 105 | PRINCIPLES OF MICROECONOMICS | 4 |
| ECO 106 | PRINCIPLES OF MACROECONOMICS | 4 |
| ECO 304 | ANALYTICS FOR ECONOMICS | 4 |
| ECO 305 | INTERMEDIATE MICROECONOMICS | 4 |
| ECO 306 | INTERMEDIATE MACROECONOMICS | 4 |
| MAT 137 | BUSINESS STATISTICS | 4 |
| 6 additional 300-level ECO elective except ECO 393 and ECO 395 | | 24 |
| **Total Hours** | | **48** |

## Senior Capstone Options

Students in the CS+ECO BS program have a choice of two Senior Capstone options, each of which is a course that fulfills the Liberal Studies Senior Capstone requirement. Administration of the Capstone options is shared by the School of Computing and the department of Economics; any changes to the Senior Capstone requirement must be agreed to by both units.

| Course | Title | Quarter Hours |
|---|---|---|
| One course from the following: | | 4 |
| CSC 394 | SOFTWARE PROJECTS | |
| ECO 395 | CAPSTONE SEMINAR IN ECONOMICS | |

## Open Electives

CS+ECO BS students have 12 open elective credit hours. Administration of the Open Electives is shared by the School of Computing and the Department of Economics, any changes to these requirements must be agreed to by faculty in both units.