

# DATA SCIENCE, B.S. TO SOFTWARE ENGINEERING, M.S. ACCELERATED PROGRAM

Saint Louis University's data science B.S. to software engineering M.S. accelerated program allows a student to complete both the Bachelor in Science in Data Science and the Master of Science in Artificial Intelligence in a shorter time period than if both degrees were pursued independently.

For additional information see the catalog entries for the following programs:

Data Science, B.S.

Software Engineering, M.S.

## Requirements

Students who want to apply to this accelerated program should have completed all 2000-level coursework required of the computer science bachelor's program and have completed at least 75 credits at the time of application.

At the time of application, students must have a cumulative GPA of at least 3.00 and a GPA of at least 3.00 in their computer science coursework. Contact the graduate coordinator for more details.

## Continuation Standards

Students must maintain a cumulative GPA of at least 3.00 and a GPA of at least 3.00 in their computer science coursework.

Students who drop below that GPA while in the accelerated program will be placed on a one-semester probationary period before being dismissed from the accelerated program.

Only grades of "B" or better in the graduate courses taken while an undergraduate can be applied to the master's degree.

## Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
! CSCI 10xx	Introduction to Computer Science <sup>†</sup>	3
MATH 1660	Discrete Mathematics	3
! Core	Science	3-4

ENGL 1900 or ENGL 1940	Advanced Strategies of Rhetoric and Research or Advanced Writing	3
THEO 1000	Theological Foundations	3
<b>Credits</b>		<b>15-16</b>

<b>Spring</b>		
CSCI 1300	Introduction to Object-Oriented Programming	4
MATH 1510	Calculus I	4
Core	Science	3-4
Core	Foreign Language 1020	3
<b>Credits</b>		<b>14-15</b>

<b>Year Two</b>		
<b>Fall</b>		
CSCI 2100	Data Structures	4
MATH 1520	Calculus II	4
Core	Foreign Language 1020	3
Core	Fine and Performing Arts	3
HIST 1110	Origins of the Modern World to 1500	3
<b>Credits</b>		<b>17</b>

<b>Spring</b>		
CSCI 2300	Object-Oriented Software Design	3
CSCI 2400	Computer Architecture	3
Core	Foreign Language 2010	3
PHIL 1050	Introduction to Philosophy: Self and Reality	3
HIST 1120	Origins of the Modern World (1500 to Present)	3
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
CSCI 3500	Operating Systems	3
Additional Mathematics (2000+)		3
PHIL 2050	Ethics	3
Core	Theology 2xxx	3
Core	Social Science	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
! Application Course (p. 2)		3
! Theory Course (p. 2)		3
PHIL 3410	Computer Ethics	3
Core	Literature	3
Core	Social Science	3
<b>Credits</b>		<b>15</b>

<b>Year Four</b>		
<b>Fall</b>		
CSCI 4961	Capstone Project I	2
CSCI 5090	Computer Science Colloquium	1
! Core	Theology 3xxx	3
CSCI 51##	CSCI Elective	3
Core	Cultural Diversity in the U.S.	3
General Elective		3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
CSCI 4962	Capstone Project II	2
CSCI 51xx	CSCI Elective	3
Core	Literature	3
Core	Global Citizenship	3
General Elective		3
<b>Credits</b>		<b>14</b>

<b>Year Five</b>		
<b>Fall</b>		
CSCI 5030	Principles of Software Development	3
CSCI 5050	Computing and Society	3
CSCI 5090	Computer Science Colloquium	1
Theory Elective (p. 2)	Theory courses numbered CSCI5100-5199	3
Software Engineering Elective	Software Engineering courses numbered CSCI5300-5399	3
<b>Credits</b>		<b>13</b>

<b>Spring</b>		
CSCI 5090	Computer Science Colloquium	1
CSCI Systems Elective	Systems courses numbered CSCI5500-5599	3
Graduate Elective (p. 2)		3
Graduate Elective (p. 2)		3
Graduate Elective (p. 2)		3
<b>Credits</b>		<b>13</b>
<b>Total Credits</b>		<b>146-148</b>

## Introduction to Computer Science

Code	Title	Credits
CSCI 1010	Introduction to Computer Science: Principles	
CSCI 1020	Introduction to Computer Science: Bioinformatics	
CSCI 1030	Introduction to Computer Science: Game Design	
CSCI 1040	Introduction to Computer Science: Mobile Computing	
CSCI 1050	Introduction to Computer Science: Multimedia	
CSCI 1060	Introduction to Computer Science: Scientific Programming	
CSCI 1070	Introduction to Computer Science: Taming Big Data	
CSCI 1080	Introduction to Computer Science: World Wide Web	
CSCI 1090	Introduction to Computer Science: Special Topics	

With permission, a computing-intensive course from another discipline may be substituted. Examples of such courses include:

BME 2000	Biomedical Engineering Computing
CVNG 1500	Civil Engineering Computing
STAT 3850	Foundation of Statistics

## Applied Systems

Code	Title	Credits
CSCI 4500	Advanced Operating Systems	
CSCI 4530	Computer Security	
CSCI 4550	Computer Networks	

CSCI 4610	Concurrent and Parallel Programming
CSCI 4620	Distributed Computing

## Theory Courses

Code	Title	Credits
CSCI 3100	Algorithms	
CSCI 3200	Programming Languages	

## Graduate Electives

The general requirements must include a course from at least two of the following categories:

- CSCI 5200-5299 (Language/Compilers courses)
- CSCI 5600-5699 (Large Scale Systems courses)
- CSCI 5700-5799 (Knowledge Systems)
- CSCI 5800-5899 or BCB 5200/5250 (Advanced Applications)

## Program Notes

### Thesis Option

A master's thesis is optional. Students completing a thesis should take six credits of Thesis Research Thesis Research (CSCI 5990) as part of the elective requirements.

### Internship with Industry

Students may apply at most three credits of Internship with Industry (CSCI 5910) toward the degree requirements.

### Closely Related Disciplines

With approval, students may include up to six credits of elective graduate coursework in closely related disciplines (e.g. mathematics and statistics, bioinformatics and computational biology, electrical and computer engineering).