

DATA SCIENCE (BA)

The Bachelor of Arts in Data Science is designed to meet the growing demand for data scientists or data analysts. The increasing availability of digital information is changing the way businesses and organizations operate. More and more companies are in need of data science professionals with deep analytical and technical skills who can analyze massive amounts of data and extract information from complex data sources.

Program Requirements	Quarter Hours
Liberal Studies Requirements	76
Major Requirements	76-80
Open Electives	36-40
Total hours required	192

Learning Outcomes

Students will be able to:

- Collect, manage, interpret, and analyze data in order to assist in data-driven decision-making and to identify and solve problems using data-based analytical approaches.
- Use statistical software packages and computational software platforms to execute various statistical and mathematical procedures for data analysis and to sanitize, process, and visualize data.
- Employ suitable tools and techniques to access data from various sources, such as data from relational databases or from the web.
- Critique data analyses performed on a particular data set, identify limitations in the inferences drawn from the data, and effectively communicate, in verbal form, the results.

College Core Requirements

Modern Language Requirements

Students who intend to graduate with the Bachelor of Arts (BA) degree will be required to demonstrate competence in a modern language equivalent to the proficiency attained from one year of college-level language study. Such competence may be demonstrated in one of several ways:

- completing the last course in the fourth-year high school sequence of any language
- completing the last course in the first-year college sequence of any language
- completing a college course beyond the first-year level in any language
- achieving a satisfactory score on any of the Modern Language placement examinations administered at DePaul
- achieving a satisfactory rating in a proficiency examination accepted by DePaul
- achieving a score of 3 or higher on the Advance Placement (AP) test for any language
- achieving a score of 5 or higher in the Language B assessment from a Standard or Higher Level International Baccalaureate (IB) program
- achieving a satisfactory score on the CLEP examination

Please note: Modern Languages courses with an E-designation are taught in English and may not be applied to the Modern Language Requirement.

For further information regarding satisfactory scores and possible credit from the DePaul placement, AP, CLEP, or IB examinations, please contact Student Records.

Students who complete an Inter-College Transfer (ICT) to the College of Science and Health will abide by the College of Science and Health Modern Language Requirement in place on the effective date of the ICT.

BA students who meet College requirements and wish to pursue further work in the language may elect the Language for Liberal Studies Option (<https://catalog.depaul.edu/undergraduate-core/liberal-studies-program/liberal-studies-program-guidelines/language-for-liberal-studies-option/>) of the Liberal Studies Program. While Bachelor of Science (BS) students are not required to demonstrate competency in a modern language, the Language for Liberal Studies Option is available to them for language study at any level. Modern Languages courses with an E-designation are taught in English and may not be applied to the Language for Liberal Studies Option.

Major Declaration Requirements

All students in the College are required to declare a major field prior to beginning their junior year. After researching College programs, the student should declare a major field by visiting Campus Connection and using the Declarations and Inter-College Transfer tool. The student will then be assigned a faculty advisor or staff advisor in the department or program and should make an appointment to see that advisor at his or her earliest convenience.

To change major fields, or to declare a minor or concentration, the student must use the Declarations and Inter-College Transfer tool described above. However, for the purpose of exploring the possibility of changing a major field, the student should consult an academic advisor in the College or an academic advisor in the Office for Academic Advising Support.

Liberal Studies Requirements

Honors program requirements can be found in the individual Colleges & Schools section of the University Catalog. Select the appropriate college or school, followed by Undergraduate Academics and scroll down.

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		
Race, Power, and Resistance		
LSP 200	SEMINAR ON RACE, POWER, AND RESISTANCE	4
Junior Year		
Experiential Learning		
Required		4

Senior Year**Capstone**

DSC 394	DATA SCIENCE PROJECT ^{1,2}	4
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¹ Students must earn a C- or better in this course.

² Students with a primary major in Data Science are required to complete the Capstone offered by the Data Science department. Students double majoring or pursuing dual degrees with the primary major or primary degree in Data Science are required to complete the Capstone offered by the Data Science department. Data Science students in the University Honors Program shall take the University Honors Capstone. They are not expected to take both the Honors Capstone and the primary major or primary degree Capstone.

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

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

- 2 Courses Required

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/>)

- 2 Courses Required

Notes

Courses offered in the student's primary major cannot be taken to fulfill LSP Domain requirements. If students double major, LSP Domain courses may double count for both LSP credit and the second major. Students who choose to take an experiential learning course offered by the major may count it either as a general elective or the Experiential Learning requirement.

In meeting learning domain requirements, no more than one course that is outside the student's major and is cross-listed with a course within the student's major, can be applied to count for LSP domain credit.

This policy does not apply to those who are pursuing a double major or earning BFA or BM degrees.

Major Requirements

Course	Title	Quarter Hours
Select one of the following options:		4-8
Option A		
CSC 241 & CSC 242	INTRODUCTION TO COMPUTER SCIENCE I and INTRODUCTION TO COMPUTER SCIENCE II	
Option B		
CSC 243	PYTHON FOR PROGRAMMERS	
Select one of the following Calculus sequences:		12
Sequence One		
MAT 150	CALCULUS I	
MAT 151	CALCULUS II	
MAT 152	CALCULUS III	
Sequence Two		
MAT 147	CALCULUS WITH INTEGRATED PRECALCULUS I	
MAT 148	CALCULUS WITH INTEGRATED PRECALCULUS II	
MAT 149	CALCULUS WITH INTEGRATED PRECALCULUS III	
Sequence Three ¹		
MAT 155	SUMMER CALCULUS I	
MAT 156	SUMMER CALCULUS II	
CSC 300	DATA STRUCTURES I	4
CSC 301	DATA STRUCTURES II	4
CSC 321	DESIGN AND ANALYSIS OF ALGORITHMS	4
DSC 323	DATA ANALYSIS AND REGRESSION	4
DSC 324	ADVANCED DATA ANALYSIS	4
CSC 355	DATABASE SYSTEMS	4
DSC 341	FOUNDATIONS OF DATA SCIENCE	4
IT 223	DATA ANALYSIS	4
MAT 140	DISCRETE MATHEMATICS I	4
MAT 220	APPLIED LINEAR ALGEBRA	4
or MAT 262	LINEAR ALGEBRA	
MAT 260	MULTIVARIABLE CALCULUS I	4
MAT 349	APPLIED PROBABILITY	4
MAT 350	BAYESIAN STATISTICS	4
MAT 360	GENERALIZED LINEAR MODELS	4
MAT 384	MATHEMATICAL MODELING	4

¹ This Calculus sequence is offered only during the summer, in two 6-credit hour courses. Students successfully completing MAT 131, MAT 147, MAT 150 or MAT 160 should enroll in MAT 155; students who successfully complete MAT 148, MAT 151 or MAT 161 should enroll in MAT 156. Students who successfully complete MAT 155 may enroll in either MAT 151 or MAT 156.

Open Electives

Open elective credit also is required to meet the minimum graduation requirement of 192 hours.

Students are advised to talk with their advisor before double majoring, because some major combinations are prohibited. No more than 50% of the credits that apply to one major may be drawn from another major.