Program Requirements Guide 2021-2022

Data Science AS DEGREE

Program Overview
Data Science uses the techniques and theories from many different fields of study including mathematics, statistics, computer science, and information theory. Data scientists sort through great amounts of unstructured data such as emails, videos, social media, and other user-generated content and write algorithms to extract insights from the data. In essence, they turn data into knowledge.

Students entering into this program of study will learn to collect, manage, interpret and analyze data in order to assist in making data-informed decisions for the benefit of a company or organization.

Career Opportunities
There is a growing need for individuals who have the skills to effectively collect and analyze data to make informed, data-driven decisions. Jobs for data scientists, business intelligence analysts, data mining analysts and other data science professions have emerged across all industries that use data extensively, including government, business, healthcare, online commerce and more.

Program Outcomes
1. Gather, cleanse and store large data sets for future analysis.
2. Manage large scale databases in specialized data management systems.
3. Analyze large data sets using specialized software.
4. Utilize sound mathematical and statistical principles to give meaning to data found in large data sets.
5. Apply effective technical communication skills.
6. Develop database applications using an industry standard database management system.
7. Design and code computer programs in a variety of computer-programming languages.

Transfer Opportunities
Saint Paul College has a transfer articulation agreement between the following program and post-secondary institution for the baccalaureate degree. See the Saint Paul College catalog for transfer agreement information.

Program Faculty
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Program Requirements
☐ Check off when completed

Course Cr
☐ CSCI 1410 Computer Science & Information Systems .................. 4
☐ CSCI 1523 Intro to Computing and Programming Concepts ........ 4
☐ CSCI 1524 Intro to Algorithms and Data Structures .............. 4
☐ CSCI 1541 Java Programming 1 ........................................ 4
☐ CSCI 1550 Database Management Fundamentals .................. 4
☐ CSCI 1714 Introduction to Data Science ............................ 4
☐ Technical Electives ....................................................... 6
Select from CSCI, GISC, MATH; the following are recommended:
CSCI 1450 Web Fund/HTML - 4 cr
CSCI 1544 Enterprise Op Systems – 4 cr
CSCI 2470 Enterprise Database Systems – 4 cr
GISC 1760 Intro to GIS – 4 cr
GISC 1765 Cartography – 3 cr
GISC 2730 Programming and Scripting in GIS – 4 cr
MATH 2749 Calculus 1 – 4 cr
Subtotal ......................................................... 30

General Education/MnTC Requirements Cr
Refer to the Minnesota Transfer Curriculum Course List for each Goal Area
☐ Goal 1: Communication ......................... 7
ENGL 1711 Composition 1 – 4 cr
COMM 17XX – 3 cr
☐ Goal 4: Mathematical/Logical Reasoning ........... 11
MATH 1740 Introduction to Statistics – 4 cr
MATH 2100 Intermediate Statistics – 4 cr
PHIL 1710 Logic – 3 cr
☐ Goal 5: History, Social Science and Behavioral Sciences ........................................... 3
ECON 1720 Macroeconomics – 3 cr
ECON 1730 Microeconomics – 3 cr
☐ Goal 6: Humanities & Fine Arts ......................... 3
PHIL 1720 Ethics – 3 cr
☐ Goals 1-10 of the Minnesota Transfer Curriculum ......................................................... 6
Students must select a minimum of 5 additional credits such as courses from at least six (6) goal areas of the Minnesota Transfer Curriculum are met.

General Education Requirements ........................................ 30
Total Program Credits ........................................... 60

Program Start Dates
Fall, Spring, Summer

Course Sequence
This course sequence is recommended for a full-time student; however, this sequence is not required. Not all courses are offered each semester; a selection of courses is offered summer term. Students should consult with the Program Faculty each semester.

First Semester
CSCI 1410 Computer Science & Information Systems .................. 4
Goal 1: ENGL 1711 Composition 1 ........................................ 4
Goal 1: COMM 17XX .................................................................. 3
Goal 4: PHIL 1710 Logic ......................................................... 3
Total Semester Credits .................................................... 14

Second Semester
CSCI 1523 Intro to Computing and Programming Concepts ........ 4
CSCI 1550 Database Management ........................................ 4
Goal 4: MATH 1740 Introduction to Statistics ................. 4
Goal 5: ECON 1720 Macroeconomics OR ECON 1730 Microeconomics .... 3
Total Semester Credits .................................................... 15

Third Semester
CSCI 1541 Java Programming 1 ........................................ 4
CSCI 1714 Introduction to Data Science ............................ 4
Goal 4: MATH 2100 Intermediate Statistics ................. 4
Goal 6: PHIL 1720 Ethics ......................................................... 3
Total Semester Credits .................................................... 15

Fourth Semester
CSCI 1524 Intro to Algorithms and Data Structures ........ 4
Technical Electives ......................................................... 6
MnTC Electives ............................................................ 6
Total Semester Credits .................................................... 16
Total Program Credits ........................................................... 60

Minimum Program Entry Requirements
Students entering this program must meet the following minimum program entry requirements:

Reading: Score of 250+ or grade of "C" or better in READ 0722 or READ 0724 or EAPP 0900
Writing: Score of 250+ or Reading Comprehension grade of "C" or better in ENGL 0922 or EAPP 0900
Quant. Reasoning, Algebra & Stats: Score of 270+ or Adv. Algebra & Functions: Score of 250+ or grade of "C" or better in MATH 0920

Assessment Results and Prerequisites:
Students admitted into Saint Paul College programs may need to complete additional courses based on assessment results and course prerequisite requirements. Certain MATH, READ, and ENGL courses have additional prerequisites.