COLLEGE OF ENGINEERING & COMPUTER SCIENCE
DEARBORN | UNIVERSITY OF MICHIGAN-DEARBORN

Student name: ID #:

Sample Pathway to Concurrent Bachelor of Science in *Computer Science and Data Science*, 139 total credits, **Fall 2024**

Semester 1	Semester 2	Semester 3
☐ ****CIS 150** (4) *Computer Science I,* or ****CIS 1501** (4) *Computer Science for DS I* (MATH 115*) ☐ **COMP 105** (3) *Writing & Rhetoric I* DDC GEWO ☐ **MATH 115** (4) *Calculus I* (MATH 105 'C-' or placement); DDC GEQT ☐ **DDC course** (3) GEHA See DDC master list for options	☐ ****CIS 200** (4) *Computer Science II,* or ****CIS 2001** (4) *Computer Science for DS II* (CIS 1501 'C-', MATH 115) ☐ **MATH 116** (4) *Calculus II* (MATH 115 'C-') ☐ **CIS 275** (4) *Discrete Structures I* (MATH 115, CIS 200/2001*) ☐ **DDC course** (3) GEHA See DDC master list for options	☐ **DDC Course** (3) GESB ☐ **MATH 227** (3) *Intro to Linear Algebra* (MATH 116 'C-') **Must choose one of the following: ➢ **Group 1**: CIS 1501, CIS 2001, and CIS 296/CIS 297, or ➢ **Group 2**: CIS 150, CIS 200, CIS 298. Courses cannot be mixed from the two groups
Semester 4	**Semester 5**	**Semester 6**
☐ **MATH 215** (4) *Calculus III* (MATH 116 'C-') ☐ **CIS 306** (4) *Discrete Structures II* (CIS 275) ☐ **CIS 350** (4) *Data Structures* (MATH 115, CIS 200 or 2001 'C-', CIS 275) ☐ **STAT 305** (3) *Intro to Data Science*	☐ **CIS 310** (4) *Assembly Language* (MATH 115, CIS 200 or 2001, CIS 275) ☐ **COMP 270** (3) *Technical Writing* (COMP 105 or placement); DDC GEWO ☐ **Lab Science I** (4) Choose from: BIOL 130, GEOL 118, CHEM 134, PHYS 125, PHYS 150; DDC GENS ☐ **IMSE 317** (3) *Probability and Statistics* (MATH 116)	☐ **ECON 201** (3) *Macroeconomics,* or **ECON 202** (3) *Microeconomics* (MATH 105 recommended) ☐ **Lab Science Sequence II** (4) Choose from: BIOL 320, GEOL 218, CHEM 136, PHYS 126, PHYS 151; DDC GENS

* denotes a corequisite course
Courses listed in parentheses () are prerequisites for the listed course

Semester 7	Semester 8	Semester 9
☐ **CIS 450** (4) *Operating Systems* (CIS 310, CIS 350, IMSE 317*) ☐ **CIS 296** Fall (3) *Java*, or **CIS 297** Winter (3) *Intro to C#*, or **CIS 298** Winter (3) *Intro to Python* (CIS 200) ☐ **CIS 375** (4) *Software Engineering I* (COMP 270, CIS 350) ☐ **ECE 3100** Fall (3) *Data Science I* (CIS 150 or 1501, MATH 227, IMSE 317*)	☐ **CIS 427** (4) *Comp Networks* (IMSE 317, CIS 350) ☐ **CIS 479** (3) *Artificial Intelligence* (CIS 350) ☐ **CIS 3200** Winter (3) *Data Science II* (ECE 3100, CIS 200 or 2001 'C-') ☐ **HHS 470** Winter (3) *Info Science and Ethics*	☐ **Additional Lab Science** (4) Choose course in different subject area from Lab Science Sequence on the previous page. Options include: ASTR 130 + 131, GEOL 118, GEOL 218, CHEM 134, PHYS 125, PHYS 150 ☐ **ENT 400** (3) *Entrepreneurship* (55 credits), or **ENGR 400** (3) *Applied Business Techniques* (85 credits); DDC GEIN
Semester 10	**Semester 11**	**Semester 12**
☐ **STAT 430** Fall (3) *Applied Regression Analysis* (IMSE 317) ☐ **CIS 422** Fall (4) *Massive Data Management* (CIS 350) ☐ **DDC course** (3) GESB See DDC master list for options ☐ **DS Application** (3) See course options on next page	☐ **CIS 4981** (2) *Senior Design I* (CIS 375, IMSE 317, CIS 3200, CIS 310, and CIS 427 or 450) ☐ **DS Application** (3) ☐ **DS Application** (3) ☐ **DS Application** (3) ☐ **DS Application** (3) See course options on next page	☐ **CIS 4982** (2) *Senior Design II* (CIS 4981, STAT 430*) ☐ **DS Application** (3) • Application Area must total at least **18 credits** • **DS Elective requirement is 3 credits if STAT 325 was taken, or 4 credits if IMSE 317 was taken • Each student's pathway is unique and yours may differ slightly from what you see here

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BACHELOR OF SCIENCE IN COMPUTER SCIENCE & DATA SCIENCE: APPLICATION AREA

Computational Analytics

Take 18 credit hours from the following:

- ☐ CCM 404 (3) *Dynamical Systems*
- ☐ CCM 472 (3) *Numerical Analysis*
- ☐ CCM 473 (3) *Matrix Computation*
- ☐ CIS 376 (4) *Software Engineering II*
- ☐ CIS 405 (3) *Algorithm Analysis & Design*
- ☐ CIS 411 (3) *Natural Language Processing*
- ☐ CIS 412 (3) *Introduction to Quantum Computing*
- ☐ CIS 423 (3) *Decision Support & Expert Systems*
- ☐ CIS 439 (3) *Text Mining & Information Retrieval*
- ☐ CIS 446 (3) Wireless and Mobile Computing Security
- ☐ CIS 449 (3) *Introduction to software Security*
- ☐ CIS 451 (3) *Computer Graphics*
- ☐ CIS 452 (3) *Computer Animation*
- ☐ CIS 481 (3) *Computational Learning*
- ☐ CIS 482 (3) *Trustworthy Artificial Intelligence*
- ☐ CIS 4851 (3) *Data Security and Privacy*
- ☐ CIS 490H (3) *Advanced Topic: Edge Computing*

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