



Bachelor of Science in Data Science - Visualization & Visual Analytics for Built Environment

The interdisciplinary Bachelor of Science in Data Science at MSU goes beyond data analytics and embraces a vision in which data become the power behind the digital transformation of every field of human endeavor. The concentration in Visualization & Visual Analytics for Built Environments helps students bring together computational statistics, data analysis, and visualization skills to support a design and construction process that leverages Building Information Modeling techniques and Internet-of-Things sensors to achieve more sustainable, accurate, and efficient design, planning, evaluation, and construction.

Freshman Year

Fall Semester			Spring Semester		
EN 1103	English Composition I	3	EN 1113	English Composition II	3
MA 1713	Calculus I	3	MA 1723	Calculus II	3
DSCI 2013	Data Science Literacy	3	PHI 1113	Intro to Logic	3
— —	Natural Science 1 + Lab	3	— —	Natural Science 2 + Lab	3
— —	Fine Arts	3	CSE 1284	Introduction to Programming	4

Sophomore Year

Fall Semester			Spring Semester		
— —	Social Science	3	MA/ST 3123	Statistical Inference	3
MA 2733	Calculus III	3	MA 3113	Intro to Linear Algebra	3
DSCI 3013	Fundamentals of Data Acquisition	3	BIS 3233	Management Information Systems	3
DSCI 2012	Lab - Data Wrangling	2	DSCI 4013	Data Visualization	3
CSE 1384	Intermediate Programming	4	CSE 2383	Data Structures and Analysis of Algorithms	3

Junior Year

Fall Semester			Spring Semester		
CSE 2813	Discrete Structures	3	CSE 3763	Legal & Ethical Issues Computing	3
DSCI 3012	Lab - Desc., Analysis, Inference	2	CO 1003	Fundamentals of Public Speaking	3
DSCI 3022	Lab - Data Visualization	2	DSCI 3032	Lab - Artificial Intelligence	2
ART 1123	*Design I (2D)	3	CSE 4503	Database Management Systems	3
CSE 4633	Artificial Intelligence	3	ART 2803	*Intro to Comp. Art	3
— —	Humanities	3	DSCI 2022	Lab - Cloud, Quantum, HPC	2

Senior Year

Fall Semester			Spring Semester		
MGT 3213	Organizational Communication	3	MA/ST 4523	Intro to Probability	3
ART 2813	*Intermediate Computing for Design	3	ART 4813	*Multimedia I	3
BCS 2313	*Virtual Dsign & Construction	3	ID 3603	*Digital Design for Interiors	3
ID 3363	*3D CAD Modeling	3	ARC 2713	*Passive Building Systems	3
DSCI 4553	Capstone 1	3	DSCI 4663	Capstone 2	3

***Choose 8 courses from the following list:**

- ART 1123 Design I (2D)
- ART 2803 Intro to Comp. Art
- ART 2813 Intermediate computing for Design
- ART 4813 Multimedia I
- BCS 2313 Virtual Design & Construction
- ID 3603 Digital Design for Interiors
- ID 3363 3D CAD Modeling
- ARC 2713 Passive Building Systems
- ARC 3723 Active Building Systems
- ARC 4633 Architecture and Virtual Spaces