Data Analytics
Bachelor of Science | Code: S9510 | 120 credits
CIP (1101101011**)**
Effective Term: Fall 2024 (2247)

The Bachelor of Science (BS) in Data Analytics program is designed to train and supply a workforce of skilled graduates in data manipulation and analysis across a spectrum of industries. Through the cross-disciplinary curriculum, students will learn to clean, organize, analyze, and interpret unstructured data, to derive knowledge and communicate discoveries using sophisticated visualization techniques. Students will demonstrate competence with fundamental algorithmic approaches to analyzing large data sets.

GENERAL EDUCATION REQUIREMENTS – 36 Credits Required
Courses require a grade of "C" or higher to satisfy the general education requirement.

		Credits	Requisites
1. Communications – 6 Credits Required			
ENC 1101	English Composition 1 (W)	3	Appropriate college placement
ENC 1102	English Composition 2 (W)	3	Pre-Req ENC 1101
2. Oral Communications – 3 Credits Required			
Select one course from the following offerings.			
ENC 2300	Advanced Composition & Communication (W)	3	Pre-Req ENC 1101, 1102
LIT 2480	Issues in Literature & Culture (W)	3	Pre-Req ENC 1102
SPC 1017	Introduction to Communications (W)	3	
SPC 2608	Introduction to Public Speaking (W)	3	
3. Humanities – 6 Credits Required			
Select one course from Group A-State Core AND one course from Group B-MDC Core. At least one Gordon Rule Writing (W) course must be selected from Group A or Group B.			
Group A: State Core (3 credits)			
ARH 1000	Art Appreciation	3	
HUM 1020	Introduction to Humanities	3	
LIT 2000	Introduction to Literature (W)	3	Pre-Req ENC 1101
MUL 1010	Music Appreciation	3	
PHI 2010	Introduction to Philosophy (W)	3	Pre-Req ENC 1101
THE 2000	Theatre Appreciation (W)	3	
---AND---			
Group B: MDC Core (3 credits)			
ARC 2701	History of Architecture 1	3	
ARC 2702	History of Architecture 2 (W)	3	
ARH 1000	Art Appreciation	3	
ARH 2050	Art History 1	3	
ARH 2051	Art History 2 (W)	3	Pre-Req ARH 2050
ARH 2740	Cinema Appreciation (W)	3	
DAN 2100	Dance Appreciation	3	
DAN 2130	Dance History 1 (W)	3	
HUM 1020	Introduction to Humanities	3	
IND 1100	History of Interiors 1	3	
IND 1130	History of Interiors 2 (W)	3	
LIT 2000	Introduction to Literature (W)	3	Pre-Req ENC 1101
LIT 2120	A Survey of World Literature 2 (W)	3	Pre-Req ENC 1101, 1102
MUH 2111	Survey of Music History 1	3	
MUH 2112	Survey of Music History 2 (W)	3	Pre-Req MUH 2111
MUL 1010	Music Appreciation	3	
MUL 2380	Jazz & Popular Music in America (W)	3	
PHI 2010	Introduction to Philosophy (W)	3	Pre-Req ENC 1101
PHI 2604	Critical Thinking/Ethics (W)	3	Pre-Req ENC 1101
THE 2000	Theatre Appreciation (W)	3	

4. Social Sciences – 6 Credits Required

Select one course from Group A-State Core AND one course from Group B-MDC Core. To meet the Civic Literacy Competency Requirement for graduation **one course selection must be AMH 2010 or AMH 2020 or POS 2041** AND receive a passing score on the Florida Civic Literacy Examination (or an equivalent AP or CLEP exam).

Group A: State Core (3 credits)

AMH 2020	**History of the US Since 1877**	**3**
ANT 2000	Introduction to Anthropology	3
ECO 2013	Principles of Economics (Macro) (W)	3
POS 2041	**American Federal Government**	**3**
PSY 2012	Introduction to Psychology	3
SYG 2000	Introduction to Sociology	3

---AND---

Group B: MDC Core (3 credits)

AMH 2010	**History of the US to 1877**	3
AMH 2020	**History of the US Since 1877**	**3**
ANT 2000	Introduction to Anthropology	3
ANT 2410	Introduction to Cultural Anthropology	3
CLP 1006	Psychology of Personal Effectiveness	3
DEP 2000	Human Growth and Development	3
ECO 2013	Principles of Economics (Macro) (W)	3
ISS 1120	The Social Environment	3
ISS 1161	The Individual in Society	3
POS 2041	**American Federal Government**	**3**
PSY 2012	Introduction to Psychology	3
SYG 2000	Introduction to Sociology	3
WOH 2012	History of World Civilization to 1789	3
WOH 2022	History of World Civilization from 1789	3

5. Natural Sciences – 6 Credits Required

Select one course from Group A-State Core AND one course from Group B-MDC Core.

Group A: State Core (3 credits)

AST 1002	Descriptive Astronomy	3	
BSC 1005	General Education Biology	3	
BSC 2010	Principles of Biology	3	Pre/Co-Req CHM 1045/BSC 2010L
BSC 2085	Human Anatomy and Physiology 1	3	Co-Req BSC 2085L
CHM 1020	General Education Chemistry	3	
CHM 1045	General Chemistry and Qualitative Analysis	3	Pre/Co-Req CHM1025 & MAC1105/CHM1045L
ESC 1000	General Education Earth Science	3	
EVR 1001	Introduction to Environmental Science	3	
PHY 1020	General Education Physics	3	
PHY 2048	Physics with Calculus 1	4	Pre/Co-Req HS physics, or PHY1025 or 2053, or dept. approval, and MAC2311/PHY2048L
PHY 2053	Physics (without Calculus) 1	3	Pre/Co-Req MAC1147, 1114, 1140/PHY2053L

---AND---

Group B: MDC Core (3 credits)

AST 1002	Descriptive Astronomy	3	
BOT 1010	Botany	3	Co-Req BOT 1010L
BSC 1005	General Education Biology	3	
BSC 1030	Social Issues in Biology	3	
BSC 1050	Biology & Environment	3	
BSC 1084	Functional Human Anatomy	3	
BSC 2010	Principles of Biology	3	Pre/Co-Req CHM 1045/BSC 2010L
BSC 2020	Human Biology: Fund. of Anatomy & Physiology	3	
BSC 2085	Human Anatomy and Physiology 1	3	Co-Req BSC 2085L
BSC 2250	Natural History of South Florida	3	
ESC 1000	General Education Earth Science	3	
EVR 1001	Introduction to Environmental Sciences	3	
HUN 1201	Essentials of Human Nutrition	3	
OCB 1010	Introduction to Marine Biology	3	
PCB 2033	Introduction to Ecology	3	Pre-Req PSC 1515 or BSC 2011
PSC 1121	General Education Physical Science	3	Pre-Req MAT 1033
PSC 1515	Energy in the Natural Environment	3	
ZOO 1010	Zoology	3	Co-Req ZOO 1010L

CHM*, GLY*, MET*, OCE*, PHY*

6. Mathematics – 6 Credits Required

MAC 1105 may be replaced by a higher-level mathematics with prefix MAC*, MAD*, MAS*, or MAP*. All courses accepted in this section fulfill the Gordon Rule Computation (C) graduation requirements.

MAC 1105	College Algebra (C)	3	Pre-Req MAT 1033
STA 2023	Statistical Methods (C)	3	Pre-Req MAT 1033 or MGF 1131

7. General Education Elective – 3 Credits Required
See Academic Advisor for approved selection.

Computer Competency Requirement
Students must satisfy the requirement by successfully completing a course (CGS 1060C or CTS 0050, an equivalent college credit course), or passing MDC's Computer Skills Placement examination, or a test exemption.

Foreign Language Competency Requirement
Students must fulfill this requirement via three options:
1: Successful completion of two (2) credits (i.e., the equivalent of two years) in one (1) foreign language at the secondary (high school) level.

---**OR---**

2: Successful completion of the following courses at the elementary 2 level: ASL 1150C, CHI 1121, FRE 1121, GER 1121, HAI 1121, HBR 1121, ITA 1121, JPN 1121, POR 1121, RUS 1121, SPN 1121. These credits count towards the Lower Division Requirements area.

---**OR---**

3: Students may demonstrate completion of the elementary 2 level through standardized examination that document the required foreign language competency.

LOWER DIVISION TECHNOLOGY – 24 Credits Required

Group A: 16 credits

CAP 1788	Introduction to Data Analytics	4	
CAP 2761C	Intermediate Analytics	4	Pre-Req CAP 1788 and CGS 1540C
CGS 1540C	Database Concepts and Design	4	
COP 1047C	Introduction to Python Programming	4	

Group B: 8 credits
Any transferable credit type 01 and credit type 02 course. Please see academic advisor.

UPPER DIVISION REQUIREMENTS – 40 Credits Required

Program Core: 28 credits

CAP 3321C	Data Wrangling	4	Pre-Req CAP 1788 and CAP 2761C
CAP 4631C	Machine Learning for Data Analytics I	4	Pre-Req COP 1047C; STA 3164 or CAP 3330
CAP 4633C	Machine Learning for Data Analytics II	4	Pre-Req CAP 4631C
CAP 4744	Data Visualization	4	Pre-Req CAP 1788 and CAP 2761C
CAP 4767	Data Mining	4	Pre-Req CAP 1788 and CAP 2761C
CAP 4784	Big Data	4	Pre-Req CAP 1788 and CAP 2761C
CAP 4910	Data Analytics Capstone	4	Departmental Approval Required

Upper-Division Statistics: 4 credits
Select one course from the following offerings.

CAP 3330	Programming R for Statistics	4	Pre-Req STA 2023
STA 3164	Statistical Methods II	4	Pre-Req STA 2023

Topics in Data Analytics: 8 credits
Select two courses from the following offerings. Special Topics courses may be repeated as long as the topics are different.

CAP 4936	Special Topics in Data Analytics	4	Departmental Approval Required
CIS 3368	Data Security & Governance	4	

PROGRAM ELECTIVES – 20 Credits Required
Electives are restricted to courses listed below:
ACG*, CAI* CAP*, CGS*, CIS*, CNT*, COP*, CTS*, FIN*, GEB*, MAC*, MAD*, MAN*, QMB*, STA*, ASL 1150C, CHI 1121, FRE 1121, GER 1121, HAI 1121, HBR 1121, ITA 1121, JPN 1121, POR 1121, RUS 1121, SPN 1121

IMPORTANT INFORMATION

Civic Literacy Competency: To earn a baccalaureate, students first entering the Florida College System or State University System in the 2021-2022 school year and thereafter must demonstrate competency in civic literacy. This requirement may be satisfied by passing AMH 2020 or POS 2041 (listed under the Social Sciences core) AND passing an approved assessment. Civic literacy requirements vary for students who entered the College or University system prior to academic year 2021-22. Please see the Testing and Assessment Department for examinations and guidelines.

Computer Competency: All MDC degree-seeking students with 16 or more credits must demonstrate computer competency prior to graduation. Students demonstrate this competency by passing the MDC computer competency test, currently known as CSP (Computer Skills Placement) examination or by enrolling in and successfully completing an equivalent course.

Foreign Language: Students admitted to the baccalaureate degree program without meeting the foreign language admissions requirement of at least 2 courses (8-10 credit hours) of sequential foreign language at the secondary level or the equivalent of such instruction at the postsecondary level must earn such credits prior to graduation.

Required Credit Hours and GPA: The baccalaureate requires student to earn a minimum of 120 unduplicated credit hours with a minimum cumulative grade point average of 2.0. All general education and all upper division requirements must be passed with the grade of "C" or better.

Pursuing or Have Earned an Associate's Degree: Students entering with an AS or AAS degree may have more than 24 elective credits and may need additional General Education credits to meet the 36 General Education credits required for the baccalaureate degree. Students entering with an AA degree may need additional electives to provide appropriate background for the baccalaureate program.

Graduation Requirements: Additional requirements may apply, which include, but are not limited to Gordon Rule (college level communication and computational skills) and residency (number of credits that must be earned at MDC). Students should review their individualized Degree Audit Report to determine the specific graduation policies in effect for their program of study for the year and term they entered Miami Dade College. Students are highly encouraged to meet with their academic advisor on a regular basis and review the College Catalog to learn about all requirements to receive the baccalaureate. The final responsibility for meeting graduation requirements rests with the student.