![Miami Dade College logo]

Computer Programming and Analysis – Business Application Programming
Associate in Science | Code: 25065 | 60 credits
CIP (1511020101**)**
Effective Term: Spring 2025 (2253)

The Computer Programming and Analysis program with a Business Application Programming concentration provides an opportunity to establish a foundation in computer programming in scientific, commercial, industrial and government data processing applications. Graduates are prepared for positions as entry-level application programmers, programmer specialists, computer programmers and programmer analysts.

GENERAL EDUCATION REQUIREMENTS (15.00 Credits)
COMMUNICATIONS (3.00 credits)

ENC 1101	English Composition 1	(3 credits)	Prerequisite: Student must meet the Developmental Education reading and writing requirements in State Rule 6A-10.0315 (by course, placement score, or eligible exemption).

HUMANITIES (3.00 credits)

ARH 1000	Art Appreciation	(3 credits)	
HUM 1020	Introduction to Humanities	(3 credits)	
LIT 2000	Introduction to Literature	(3 credits)	Prerequisite: ENC 1101
MUL 1010	Music Appreciation	(3 credits)	
PHI 2010	Introduction to Philosophy	(3 credits)	
THE 2000	Theatre Appreciation	(3 credits)	

MATHEMATICS (3.00 credits)

MAC 1105	College Algebra	(3 credits)	Prerequisite: MAT 1033♦

♦Note: Students must seek advisement for proper mathematics course from discipline chairperson.

NATURAL SCIENCE (3.00 credits)

AST 1002	Descriptive Astronomy	(3 credits)
BSC 1005	General Education Biology	(3 credits)
CHM 1020	General Education Chemistry	(3 credits)
ESC 1000	General Education Earth Science	(3 credits)
EVR 1001	Introduction to Environmental Science	(3 credits)
GLY 1010	Physical Geology	(3 credits)
OCE 1001	Introduction to Oceanography	(3 credits)
PHY 1020	General Education Physics	(3 credits)

SOCIAL SCIENCE (3.00 credits)

AMH 2010	History of the US to 1877	(3 credits)
AMH 2020	History of the US Since 1877	(3 credits)
POS 2041	American Federal Government	(3 credits)

COMPUTER COMPETENCY
Test type(s) needed:
Computer Competency Test (CCT)
---OR---

CGS 1060C	Introduction to Computer Technology and Applications

MAJOR COURSE REQUIREMENTS (21.00 Credits)

CGS 1060C	Introduction to Computer Technology and Applications	(4 credits)	
CGS 1540C	Database Concepts and Design	(4 credits)	
CIS 2331	Systems Analysis, Design and Implementation	(5 credits)	
COP 1334	Introduction to C++ Programming	(4 credits)	
COP 2800	Java Programming	(4 credits)	Prerequisite: COP 1047, COP 1334, or COP 2270

PROGRAM CONCENTRATION CORE (15.00 Credits)

COP 1047C	Introduction to Python Programming	(4 credits)	
GEB 1432	Applied Artificial Intelligence (AI) in Business	(3 credits)	

Must take **8 credits** from the following group:

COP 2041C	Python Programming 2	(4 credits)	Prerequisite: COP 1047C
COP 2335	C++ Programming 2	(4 credits)	Prerequisite: COP 1334
COP 2805C	Advanced Java Programming	(4 credits)	Prerequisite: COP 2800

PROGRAM ELECTIVES (9.00 Credits)

CAI*, CEN*, COP*, CTS*

CGS 2091	Professional Ethics and Social Issues in CS	(4 credits)
EET 1033C	Electrical Fundamentals	(4 credits)
PHI 2680	Artificial Intelligence (AI) Ethics	(3 credits)