DATA SCIENCE & ANALYTICS (2023-2024)

Charles E. Schmidt College of Science
Bachelor of Science (BS)

FOUNDATIONS OF WRITTEN COMMUNICATION

(6 credit hours required – Writing Across the Curriculum - WAC)
Grade of "C" or higher is required in each course.

____ ENC 1101....... College Writing I **(REQUIRED)**
____ ENC 1102....... College Writing II **+**

THE FOLLOWING COURSES BELOW MAY BE SUBSTITUTED FOR ENC 1102:

____ ENC 1939 +.... Special Topic: College Writing

____ HIS 2050 +..... Writing History

Note: *Students must take four Writing-Across-the-Curriculum (WAC) courses, two of which must be taken from Foundations of Written Communication.*

FOUNDATIONS OF SCIENCE & THE NATURAL WORLD

(6 credit hours required - **One of the courses must have a lab**)
Student must take 2 of the following courses, 1 must be from group A.
The second course may be from group A or group B.

Group A

------For Non-Science Majors-----

____ AST 2002
Intro. to Astronomy
____ BSC 1005 & L
Life Science (3 cr. w/Lab)
____ CHM 1020C
Contemp. Chemical Issues
____ ESC 2000
The Blue Planet **(online)**
____ EVR 1001
Env. Sci. and Sustainability

--------For Science Majors--------

____ BSC 1010 & L
Biological Principles
(4 cr. w/Lab)
____ BSC 2085 & L
Anatomy & Physiology 1
(4 cr. w/Lab)
____ CHM 2045 & L
General Chemistry 1
(4 cr. w/Lab) **‡**
____ PHY 2048 & L
General Physics 1
(5 credits w/Lab) *****
____ PHY 2053 & L
College Physics 1
(5 credits w/Lab) ******

Group B

------For Non-Science Majors-----

____ ANT 2511 & L
Intro to Biological
Anthropology (4 cr. w/ Lab)
____ ETG 2831
Nature: Inter. of Sci., Eng., &
the Humanities
____ GLY 2010C
Physical Geol. (4 cr. w/Lab)
____ GLY2100
History of Earth and Life
____ IDS 2382
Human Mission to Mars
____ MET 2010
Weather, Climate & Climate
Change
____ PSC 2121
Physical Science

--------For Science Majors--------

____ BSC 1011 & L
Biodiversity (4 cr. w/Lab)

**Note: students seeking BS degree must select either
CHM 2045 & Lab or PHY 2048 & Lab**

FOUNDATIONS OF MATHEMATICS & QUANTITATIVE REASONING

(6 credit hours required – Grade of "C" or higher is required)
Student must take 2 of the following courses, 1 must be from group A.
The second course may be from group A or group B.

Group A

____ MAC 1105 ..... College Algebra
____ STA 2023 .... Introductory Statistics **(REQUIRED)**
____ MAC 2311 ..... Calculus with Analytic Geometry 1 (4 cr.) **(REQUIRED)**
or any mathematics course for which one of the above courses is the direct prerequisite

Group B

____ COP 1031C .... Computer Programming & Data Literacy for Everyone
(For Non-College Engineering & Computer Science majors)

____ MAC 1147 ..... Precalculus Algebra & Trigonometry (4 credits)
____ MAC 2210 ..... Intro Calculus w/Applications (4 credits) **(Permit Only)**
____ MAC 2233 ..... Methods of Calculus
____ MAC 2241 ..... Life Science Calculus 1 (4 credits)
____ MAC 2312 ..... Calculus with Analytic Geometry 2 (4 credits)

____ PHI 2102........ Logic

FOUNDATIONS OF SOCIETY & HUMAN BEHAVIOR

(6 credit hours required)
Student must take 2 of the following courses, 1 must be from group A.
The second course may be from group A or group B.

Group A

____ AMH 2020 & D...... United States History Since 1877 ◊
____ ANT 2000 & D .... Introduction to Anthropology **(WAC)**
____ ECO 2013 .... Macroeconomic Principles §
____ POS 2041.............. Government of the United States ◊
____ PSY 1012 .... Introduction to Psychology
____ SYG 1000.............. Sociological Perspectives

Group B

____ AMH 2010 & D...... United States History to 1877
____ CCJ 2002................ Law, Crime & the Criminal Justice System ±
____ DIG 2202 .... Digital Culture
____ ECO 2023 .... Microeconomic Principles §
____ ECP 2002 .... Contemporary Economic Issues
____ EEX 2091 .... Disability and Society
____ EME 2620.............. Digital Literacy in a Globally Connected World ¤
____ EVR 1110.............. Climate Change: The Human Dimensions
____ EVR 2017.............. Environment and Society
____ LIN 2001 .... Introduction to Language **(online course)**
____ PAD 2081 .... Risk Resilience and Rising Seas ±
____ PAD 2258 .... Changing Environment of Soc., Bus., & Gov't
____ SYG 2010.............. Social Problems
____ URP 2051 .... Designing the City

FOUNDATIONS IN GLOBAL CITIZENSHIP
(6 credit hours required)
Student must choose two (2) courses from among the following:

____ ANT 2410 .... Culture and Society

____ EDF 2854 .... Educated Citizen in Global Context

____ GEA 2000 .... World Geography

____ INR 2002 .... Introduction to World Politics

____ JST 2452 .... Global Jewish Communities Ω

____ LAS 2000 .... Intro to Caribbean & Latin American Studies

____ LIN 2607 .... Global Perspectives on Language

____ MAR 2142 .... Culture, Consumers and the Global Marketplace ¤

____ MUH 2121............. Music in Global Society Ω

____ POT 2000............... Global Political Theory

____ SYP 2450 .... Global Society

____ SOW 1005 .... Global Perspectives of Social Services

____ SOW 1130 .... Race and Cultural Inclusion in Social Work

____ WOH 2012 & D ..... History of Civilization 1 **(WAC) ++**

____ WOH 2022 .... History of Civilization 2

____ WST 2351.............. Gender and Climate Change

FOUNDATIONS OF HUMANITIES
(6 credit hours required)
Student must take 2 of the following courses, 1 must be from group A.
The second course may be from group A or group B.

Group A

____ ARH 2000............... Art Appreciation

____ MUL 2010 .... Music Appreciation

____ PHI 2010 & D .... Introduction to Philosophy **(WAC) ++**

____ THE 2000 .... Theatre Appreciation

Group B

____ ARC 2208 .... Culture & Architecture

____ DAN 2100 .... Appreciation of Dance

____ FIL 2000 & D .... Film Appreciation

____ HUM 2471 .... Racism and Anti-Racism

____ LIT 2010 .... Interpretation of Fiction **(WAC) ++**

____ LIT 2030 .... Interpretation of Poetry **(WAC) ++**

____ LIT 2040 .... Interpretation of Drama **(WAC) ++**

____ LIT 2070 .... Interpretation of Creative Nonfiction **(WAC) ++**

____ LIT 2100 .... Introduction to World Literature

____ LIT 2931 .... Special Topics in Literature **(WAC) ++** Ω

____ SPC 2608................ Public Speaking ±

Legend

+ - ENC 1101 is a prerequisite.

++ - Two Foundations of Written Communications classes are required before taking this course.

§ - Sophomore standing (30 credits earned) is a requirement to take this course.

* - MAC 2311 is a prerequisite for this course.

** - MAC 2233 is a prerequisite for this course. If a lab is needed, then take General Physics 1 Lab (PHY 2048 Lab).

‡ - Co-requisite of College Algebra (MAC 1105) or a prerequisite of Introductory Chemistry (CHM 1025).

± - Starting Spring 2022

Ω - Starting Spring 2023

¤ - Starting Fall 2023

◊ - See information box below regarding Civic Literacy Requirement

WAC - (WAC) Writing across the curriculum course.

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§ Writing Across the Curriculum (WAC)/Gordon Rule
Students must attain grades of "C" or higher. 12 credits of writing (WAC) and 6 credits of mathematics are required.

Please note:

Students must take four (4) WAC courses. Two (2) courses are to be taken from Foundations of Written Communication. We strongly recommend the two additional WAC courses come from these courses: ANT 2000, PHI 2010, WOH 2012, LIT 2010, LIT 2030, LIT 2040, LIT 2070 or LIT 2931. See advisor for additional details.

https://myfau.fau.edu
Go to MyFAU to:
   Check e-mail
   See FAU Announcements
   FAU Self-Service:
      Course schedules
      Registration (drop/add classes) and withdrawals
      Student records and financial aid
      Tuition payments
      The University Course Catalog

(D) = Discussion, (L) = Lab
Courses indicating a (D) or (L) are linked with a lecture, a lab, and/or a discussion. If you select one of these courses, you must register for the lecture, lab, and/or discussion. You **must** attend the lecture, lab, and/or discussion.

Elective Credits
The number of elective credits allowed varies by major. Please consult with an academic advisor to determine the number of elective credits required for your major. ***Certain majors do not allow any electives.***

◊ Civic Literacy Requirement
https://www.fau.edu/ugstudies/civic-literacy-requirement/

Beginning in Fall 2018, students entering a Florida public institution as a degree-seeking student for the first time needs to demonstrate civic literacy through either taking a certain course (AMH 2020 or POS 2041) or passing an assessment exam. Beginning in Summer 2021, Florida Legislature amended the statute and now requires students to complete **both** a civic literacy course (AMH 2020 or POS 2041) and an assessment exam.

FOREIGN LANGUAGE (4 - 8 credits, 1 or more courses in the same language) - **REQUIRED FOR MAJOR**

Students with more than one year of a foreign language in high school should enroll in the second half of the beginners' foreign language class (ARA/CHI/FRE/GER/HBR/ITA/JPN/LAT/SPN 1121) or a higher-level course. Proficiency for a first- level course can be earned by successfully completing a second-level course. For questions related to this requirement, consult an academic advisor. CLEP exam credits meet this requirement: see the catalog.

NOTE: Native Speakers of a foreign language must consult the Languages, Linguistics, and Comparative Literature Department regarding this requirement.

NOTE: Honors Seminars SHALL BE ACCEPTED AS MEETING THE WAC/GRW REQUIREMENT. *See the University Advising Services Office for details.*

FREE ELECTIVES (36 credits, 12 or more courses)

Free electives are courses in any college, any department not previously taken. These credits are needed to meet the 120 credits required for graduation.

36 credits	Intellectual Foundations Program
36 credits	Free Electives
48 credits	Major Requirements
120 CREDITS	TOTAL

Note: See the catalog for specific requirements, course descriptions and additional information. The requirements for some core curriculum & other courses may be satisfied by passing the appropriate AP or CLEP exam. Check with your advisor and college.

Bachelor of Science with Major in Data Science and Analytics			
Common Core Courses (21cr)			
	Course Title	*Credits*	*Course #*
	Introductory Statistics	*3*	STA 2023
	Tools for Data Science	3	CAP 2751
	Experimental Design and Data Analysis	3	CAP 2753
	Mathematics for Data Science	3	MAP 2192
	Artificial Intelligence for Social Good	3	CCJ 3071
	Data Science Capstone	3	ISC 4941
	Data Management and Analysis with Excel	3	QMB 3302
Data Science in the Natural Sciences Concentration			
Concentration Core Requirements (9cr)			
	Introduction to Computational Mathematics	3	MAD 2502
	RI: Introduction to Data Science	3	CAP 3786
	Computational Statistics	3	STA 3100

		Concentration Core Electives. Choose four courses (12cr):		
		Cryptography and Information Security	3	CIS 4362
		Graph Theory	3	MAD 4301
		Applied Mathematical Modeling	3	MAP 4103
		RI: Industrial Problems in Applied Math	3	MAP 4913
		Topology for Data Science	3	MTG 4325
		SAS for Data and Statistical Analyses	3	STA 3024
		Introduction to Biostatistics	3	STA 3173
		Statistical Designs	3	STA 4222
		Applied Statistics 1	3	STA 4234
		Applied Statistics 1 Lab	1	STA 4202L
		Probability and Statistics 1	3	STA 4442
		Probability and Statistics 2	3	STA 4443
		Applied Statistics 2	3	STA 4702
		Applied Time Series and Forecasting	3	STA 4853

		Choose two courses from any section below (6cr):		
		Arts and Letters Electives		
		Research Methods in Bioarchaeology	3	ANT 4192
		Information Technology in Public Administration	3	PAD 3712
		Introduction to the Nonprofit Sector	3	PAD 4144
		Quantitative Inquiry for Public Managers	3	PAD 4702
		Research Methods for Public Management	3	PAD 4704
		RI: Research Methods in Political Science	3	POS 3703
		Public Opinion and American Politics	3	POS 4204
		Sociological Analysis: Quantitative Methods	3	SYA 4400

		Business Electives		
		Business Communication for Data Analysts	3	GEB 3231
		Rev Man & Pred Analysis in Hospt & Tourism Ind.	3	HFT 4481
		Introduction to Business Analytics and Big Data	3	ISM 3116
		Contemporary Issues of Digital Data Management	3	ISM 4041
		Data Mining and Predictive Analytics	3	ISM 4117
		Database Management Systems	3	ISM 4212
		Management of Information Assurance and Security	3	ISM 4323
		Advanced Business Analytics	3	ISM 4403
		Social Media and Web Analytics	3	ISM 4420
		Bus Analytics for Mar & Cust Relation Man	3	MAR 4615

		Engineering Electives		
		Introduction to Deep Learning	3	CAP 4613
		Introduction to Artificial Intelligence	3	CAP 4630
		Introduction to Data Mining and Machine Learning	3	CAP 4770
		Introduction to Data Science and Analytics	3	CAP 4773
		Introduction to Computer Systems Performance Evaluation	3	CEN 4400
		Introduction to Database Structures	3	COP 3540
		Introduction to Internet Computing	3	COP 3813
		Python Programming	3	COP 4045
		Applied Database Systems	3	COP 4703

	Science Electives		
	Solar System Astronomy	3	AST 3110
	Laboratory Methods in Biotechnology	3	BSC 4403L
	Concepts in Bioinformatics	3	BSC 4434C
	RI: Introduction to Data Science	3	CAP 3786
	Cryptography and Information Security	3	CIS 4362
	Spatial Data Analysis	3	GEO 4167C
	Photogrammetry and Aerial Photograph Interpretation	3	GIS 4021C
	Applications of Geographic Information Systems	3	GIS 4048C
	Geospatial Databases	3	GIS 4118
	Graph Theory	3	MAD 4301
	Applied Mathematical Modeling	3	MAP 4103
	RI: Industrial Problems in Applied Math	3	MAP 4913
	Epidemiology of Infectious Diseases	3	MCB 4276
	Topology for Data Science	3	MTG 4325
	Practical Cell Neuroscience	3	PCB 4843C
	Computational Physics	3	PHZ 3151C
	Mathematical Methods for Physics	3	PHZ 4113
	SAS for Data and Statistical Analyses	3	STA 3024
	Computational Statistics	3	STA 3100
	Introduction to Biostatistics	3	STA 3173
	Statistical Designs	3	STA 4222
	Applied Statistics 1	3	STA 4234
	Probability and Statistics 1	3	STA 4442
	Probability and Statistics 2	3	STA 4443
	Applied Statistics 2	3	STA 4702
	Applied Time Series and Forecasting	3	STA 4853
	Social Work and Criminal Justice Electives		
	Teen Technology Misuse	3	CCJ 4554
	Methods of Research in Criminal Justice	3	CCJ 4700
	Criminal Justice Technology	3	CJE 3692C
	Crime Analysis	3	CJE 4663
	Computer Crime	3	CJE 4668
	Research Methods in Social Work	3	SOW 4403
(Total 48 credits)			

The Major in Data Science and Analytics:
- **(1)** 45 credits minimum of upper division course work,
- **(2)** students must get a "C" or higher in all major courses to receive major credit.