DATA SCIENCE, B.S.

Program Learning Outcomes

Graduates of the program will be able to:

- demonstrate facility with analytical and algebraic concepts.
- write proofs.
- apply their mathematical knowledge and critical thinking to solve problems.
- use technology to solve problems.
- speak about their work with precision, clarity, and organization.
- write about their work with precision, clarity, and organization.
- identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
- collaborate effectively in teams.
- understand and create arguments supported by quantitative evidence.
- understand the professional, ethical, and social issues and responsibilities with the implementation and use of mathematical models and technology.

Available Tracks

- Biology (p. 1)
- Finance (p. 1)
- Psychology (p. 2)
- Sports Science (p. 2)

Biology Track

Code	Title	Units
Lower-Division Requirements		
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
CSC 1054 and CSC 1054L	Objects and Elementary Data Structures and Objects and Elementary Data Structures Lab	4
MTH 1064 and MTH 1064L	Calculus I (GE) and Calculus I Lab (GE)	4
MTH 1074 and MTH 1074L	Calculus II and Calculus II Lab	4
MTH 2033	Linear Algebra	3
MTH 2074	Calculus III	4
Upper-Division Requirements		
CSC 3003	Python and UNIX	3
CSC 3011 or CSC 3031	Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R	1
ISS 4014	Data Base Systems and Web Integration	4
MTH 3012	Number Theory with Proofs	2
MTH 3033	Differential Equations	3
MTH 3043	Discrete Mathematics	3
MTH 3073	Mathematical Modeling	3
MTH 3083	Mathematical Probability and Statistics	3
MTH 4024 or MTH 4044	Real Analysis Abstract Algebra	4
MTH 4053	Advanced Applied Statistics	3
MTH 4081	Senior Seminar in Mathematics	1
Choose one (1) sequence from the following:		2-3
MTH 4072	Internship in Data Science	
MTH 4142 and MTH 4151	Data Science Project I and Data Science Project II	
Biology Courses		
BIO 2010 and BIO 2010L	Cell Biology and Biochemistry (GE) and Cell Biology and Biochemistry Lab (GE)	4
Choose one (1) of the following: [1]		4
BIO 2011 and BIO 2011L	Ecological and Evolutionary Systems (GE) and Ecological and Evolutionary Systems Lab (GE)	
BIO 3045 and BIO 3045L	Genetics and Genetics Lab	
Total Units		**62-63**

[1] Recommended: Take both BIO 2011/BIO 2011L and BIO 3045/BIO 3045L if there is space in your schedule.

Finance Track

Code	Title	Units
Lower-Division Requirements		
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
CSC 1054 and CSC 1054L	Objects and Elementary Data Structures and Objects and Elementary Data Structures Lab	4
MTH 1064 and MTH 1064L	Calculus I (GE) and Calculus I Lab (GE)	4
MTH 1074 and MTH 1074L	Calculus II and Calculus II Lab	4
MTH 2033	Linear Algebra	3
MTH 2074	Calculus III	4
Upper-Division Requirements		
CSC 3003	Python and UNIX	3
CSC 3011 or CSC 3031	Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R	1
ISS 4014	Data Base Systems and Web Integration	4
MTH 3012	Number Theory with Proofs	2
MTH 3033	Differential Equations	3
MTH 3043	Discrete Mathematics	3
MTH 3073	Mathematical Modeling	3
MTH 3083	Mathematical Probability and Statistics	3
MTH 4024 or MTH 4044	Real Analysis Abstract Algebra	4
MTH 4053	Advanced Applied Statistics	3
MTH 4081	Senior Seminar in Mathematics	1
Choose one (1) sequence from the following:		2-3
MTH 4072	Internship in Data Science	
MTH 4142 and MTH 4151	Data Science Project I and Data Science Project II	
Finance Courses		
ACC 2000	Principles of Accounting for Non-Business Majors	3
FIN 3035	Business Finance	3
Choose one (1) course from the following: [1]		3
ECO 1001	Principles of Macroeconomics (GE)	

ECO 1002	Principles of Microeconomics (GE)	
Total Units		**63-64**

[1] If you are planning on becoming an Actuary, the Society of Actuaries requires **both** ECO 1001 and ECO 1002. The Society of Actuaries also requires FIN 3035 and FIN 3085. If you complete these two sequences with a B or better, you will receive credit for two of the 10 requirements for becoming an actuary.

Psychology Track

Code	Title	Units
Lower-Division Requirements		
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
CSC 1054 and CSC 1054L	Objects and Elementary Data Structures and Objects and Elementary Data Structures Lab	4
MTH 1064 and MTH 1064L	Calculus I (GE) and Calculus I Lab (GE)	4
MTH 1074 and MTH 1074L	Calculus II and Calculus II Lab	4
MTH 2033	Linear Algebra	3
MTH 2074	Calculus III	4
Upper-Division Requirements		
CSC 3003	Python and UNIX	3
CSC 3011 or CSC 3031	Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R	1
ISS 4014	Data Base Systems and Web Integration	4
MTH 3012	Number Theory with Proofs	2
MTH 3033	Differential Equations	3
MTH 3043	Discrete Mathematics	3
MTH 3073	Mathematical Modeling	3
MTH 3083	Mathematical Probability and Statistics	3
MTH 4024 or MTH 4044	Real Analysis Abstract Algebra	4
MTH 4053	Advanced Applied Statistics	3
MTH 4081	Senior Seminar in Mathematics	1
Choose one (1) sequence from the following:		2-3
MTH 4072	Internship in Data Science	
MTH 4142 and MTH 4151	Data Science Project I and Data Science Project II	
Psychology Courses		
PSY 1003	General Psychology (GE)	3
PSY 3020	Social Psychology	3
PSY 4009	Psychology of Cognition and Learning	4
Total Units		**64-65**

Sports Science Track

Code	Title	Units
Lower-Division Requirements		
CSC 1043 and CSC 1043L	Introduction to Computer Programming and Introduction to Computer Programming Lab	3
CSC 1054 and CSC 1054L	Objects and Elementary Data Structures and Objects and Elementary Data Structures Lab	4
MTH 1064 and MTH 1064L	Calculus I (GE) and Calculus I Lab (GE)	4
MTH 1074 and MTH 1074L	Calculus II and Calculus II Lab	4
MTH 2033	Linear Algebra	3
MTH 2074	Calculus III	4
Upper-Division Requirements		
CSC 3003	Python and UNIX	3
CSC 3011 or CSC 3031	Machine Learning and Multivariate Modeling in R Data Visualization and Communication with R	1
ISS 4014	Data Base Systems and Web Integration	4
MTH 3012	Number Theory with Proofs	2
MTH 3033	Differential Equations	3
MTH 3043	Discrete Mathematics	3
MTH 3073	Mathematical Modeling	3
MTH 3083	Mathematical Probability and Statistics	3
MTH 4024 or MTH 4044	Real Analysis Abstract Algebra	4
MTH 4053	Advanced Applied Statistics	3
MTH 4081	Senior Seminar in Mathematics	1
Choose one (1) sequence from the following:		2-3
MTH 4072	Internship in Data Science	
MTH 4142 and MTH 4151	Data Science Project I and Data Science Project II	
Kinesiology Courses		
KIN 2080	Care and Prevention of Athletic Injuries	2
Choose six (6) units from the following:		6
KIN 2050	Medical Terminology	
KIN 2080L	Care and Prevention of Athletic Injuries Lab	
KIN 3027	Applied Biomechanics	
KIN 3027L	Biomechanics Lab	
KIN 3070	Praxis of Strength Training and Conditioning	
Total Units		**62-63**

Note(s): An elective course may not count as both an upper-division requirement and a required “additional elective.”

Total Non-GE Units for Degree: 59