Data Science Major with Physics and Astronomy Cognate Requirements
Catalog Year: 2013-14
Degree: Bachelor of Science
Credit Hours: 72+

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses

- DATA 101 Introduction to Data Science (3) PR: None
- DATA 210 Dataset Organization and Management (3) PR: None
- DATA 495 Data Science Capstone (3) PR: DATA 210, CSCI 470, and MATH 441

Math Requirement

- MATH 120 Introductory Calculus (4) PR: Placement or C- or better in MATH 111
- MATH 203 Linear Algebra (3) PR: MATH 220 or instructor permission
- MATH 207 Discrete Structures I (3) PR: MATH 105, MATH 111, or MATH 120
- MATH 220 Calculus II (4) PR: MATH 120 or HONS 115
- MATH 250 Statistical Methods I (3) PR: MATH 111 or MATH 120 or instructor permission
- MATH 350 Statistical Methods II (3) PR: MATH 203, MATH 220, MATH 350
- MATH 440 Statistical Learning I (3) PR: MATH 203, MATH 220, MATH 350
- MATH 441 Statistical Learning II (3) PR: MATH 440

Computer Science Requirement

- CSCI 220 Computer Programming I (3) PR: CSCI 120 or CSCI 180 or CSCI 210 or MATH 111 CO: CSCI 220L
- CSCI 220L Computer Programming I Lab (1) CO: CSCI 220
- CSCI 221 Computer Programming II (3) PR: CSCI 220, CSCI 220L; CO or PR: MATH 207
- CSCI 230 Data Structure and Algorithms (3) PR: CSCI 221, MATH 207
- CSCI 310 Advanced Algorithms (3) PR: CSCI 230, MATH 207
- CSCI 334 Data Mining (3) PR: CSCI 221, MATH 207, MATH 250
- CSCI 470 Principles of Artificial Intelligence (3) PR: CSCI 230, MATH 307

Select a cognate from the following: Accounting, Biomechanics, Customer Relationship Management, e-Commerce, Economics, Exercise Physiology, Finance, Geoinformatics, Molecular Biology, Organismal Biology, Physics and Astronomy, Psychology, Sociology and Supply Chain Management.

Physics and Astronomy Cognate Requirements (18 credit hours)

- PHYS 111 General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111L
- PHYS 111L General Physics I Lab (1) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111
- PHYS 112 General Physics II (3) PR: PHYS 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112L
- PHYS 112L General Physics II Lab (1) PR: PHYS 111 or HONS 157; PR or CO: MATH 220; CO: PHYS 112
PHYS 230 Introduction to Modern Physics (3) PR: PHYS 112 or HONS 158; CO or PR: MATH 221 or instructor permission

PHYS 331 Introduction to Modern Physics II (3) PR: PHYS 230 or instructor permission

PHYS 370 Experimental Physics (4) PR: PHYS 230 or instructor permission