Data Science Major with Molecular Biology Cognate Requirements
Catalog Year: 2015-16
Degree: Bachelor of Science
Credit Hours: 82+

“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 120 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 120, MATH 250
- 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 MATH 111 or higher or department permission; CO: CSCI 220L
- CSCI 222L Computer Programming Lab I (1) CO: CSCI 220
- CSCI 221 Computer Programming II (3) PR: CSCI 220 with a C- or better, CSCI 220L with a C- or better; CO or PR: MATH 207
- CSCI 230 Data Structures and Algorithms (3) PR: CSCI 221 with a C- or better, MATH 207
- CSCI 310 Advanced Algorithms (3) PR: CSCI 230 with a C- or better, MATH 207
- CSCI 334 Data Mining (3) PR: CSCI 221 with a C- or better, MATH 207, MATH 250
- CSCI 470 Principles of Artificial Intelligence (3) PR: CSCI 230 with a C- or better

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 or Supply Chain Management.

Molecular Biology Cognate Requirements (28 credit hours)
- BIOL 111 Introduction to Cell and Molecular Biology (3) CO: BIOL 111L
- BIOL 111L Introduction to Cell and Molecular Biology Lab (1) CO: BIOL 111
- BIOL 112 Evolution, Form, and Function of Organisms (3) PR: BIOL 111/111L; CO: BIOL 112L
- BIOL 112L Evolution, Form, and Function of Organisms Lab (1) CO: BIOL 112
☐ BIOL 305  Genetics (3) PR: BIOL 111/111L, BIOL 112/112L; CO or PR: BIOL 211/211D, MATH 250, or instructor permission

☐ BIOL 305L  Genetics Lab (1) PR: BIOL 111/111L, BIOL 112/112L; CO or PR: BIOL 211/211D, BIOL 305, MATH 250, or instructor permission

☐ BIOL 312  Molecular Biology (3) PR: BIOL 111/111L, BIOL 112/112L, BIOL 211/211D, BIOL 305, CHEM 101 and CHEM 102 or CHEM 111 and CHEM 112

AND

☐ BIOL 312L  Molecular Biology Laboratory (1) CO or PR: BIOL 312, MATH 250, or instructor permission

OR

☐ BIOL 453  Special Topics in Advanced Genetics (3) PR: BIOL 111/111L, 112/112L, BIOL 211/211D; CO or PR: BIOL 305, MATH 250