### Science & Math MINORS (2019-2020)

For more info on these minors, prerequisites & course descriptions, please refer to the current JU Academic Catalog

**BIOLOGY**
- BIOL 180 Biological Diversity 4 hours
- BIOL 190 Biological Unity 3
- BIOL 280 Methods in Field Biology 3
- or BIOL 290 Basic Lab Techniques
- MATH 206 Statistical Methods Science 4
- BIOL xxx One 300 or 400 level 4-credit
  - BIOL lab course
- BIOL xxx One 300 or 400 level 3 or 4
  - 3-4 credit BIOL course.

Total: 21-22 hours

**CHEMISTRY**
- CHEM 103 General Chemistry I 4 hours
- CHEM 104 General Chemistry II 4
- CHEM 322 Analytical Chemistry 4
- CHEM xxx Two CHEM courses 8
  - numbered above 300
  - for minimum of 20 credit hours.

Total: 20 hours

**COMPUTING SCIENCE**
- CS 158 Application Development I 4 hours
- CS 160 Application Development II 4
- CS 360 Database Design & Devel/imt 3
- CS xxx Additional six (6) credit hours
  - of CS course electives --
    - (three (3) credit hours
      - numbered 300 or above)

Total: 17 hours

**CYBERSECURITY**
- CS 158 Application Development I 4 hours
- CS 160 Application Development II 4
- CS 301 Introduction to Cybersecurity 3
- CS 303 Operating Systems 3
- CS xxx Two CS elective courses from
  - CS 345, CS 362, CS 414
    - and/or CS 427.

Total: 20 hours

**DATA SCIENCE**
- MATH 270 Intro to Data Science 3
- MATH 316 Applied Statistics 3
- MATH 320 Linear Algebra 3
- Choose two (2) 3
- MATH 420 Linear Algebra II
- MATH 470 Machine Learning Algorithms
- MATH 475 Models & Simulation for Data Sci
- Choose one (1) 4-3
- CS 160 Appl Development II
- CS 170 Intro to Scientific & Engr Prg

Total: 18-19 hours

**CHEMISTRY**
- CHEM 103 General Chemistry I 4 hours
- CHEM 104 General Chemistry II 4
- CHEM 322 Analytical Chemistry 4
- CHEM xxx Two CHEM courses 8
  - numbered above 300
  - for minimum of 20 credit hours.

Total: 20 hours

**COMPUTING SCIENCE**
- CS 158 Application Development I 4 hours
- CS 160 Application Development II 4
- CS 360 Database Design & Devel/imt 3
- CS xxx Additional six (6) credit hours
  - of CS course electives --
    - (three (3) credit hours
      - numbered 300 or above)

Total: 17 hours

**CYBERSECURITY**
- CS 158 Application Development I 4 hours
- CS 160 Application Development II 4
- CS 301 Introduction to Cybersecurity 3
- CS 303 Operating Systems 3
- CS xxx Two CS elective courses from
  - CS 345, CS 362, CS 414
    - and/or CS 427.

Total: 20 hours

**DATA SCIENCE**
- MATH 270 Intro to Data Science 3
- MATH 316 Applied Statistics 3
- MATH 320 Linear Algebra 3
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- MATH 420 Linear Algebra II
- MATH 470 Machine Learning Algorithms
- MATH 475 Models & Simulation for Data Sci
- Choose one (1) 4-3
- CS 160 Appl Development II
- CS 170 Intro to Scientific & Engr Prg

Total: 18-19 hours

**MATHEMATICS**
- MATH 220WI Math & Reasoning 3 hours
- MATH 300 Calculus III 4
- MATH 3xx At least six additional credit
  - hours in math courses numbered above 300
- MATH xxx Additional 5 credit hours in
  - mathematics courses

Total: 18 hours

**APPLIED MATHEMATICS**
- MATH 300 Calculus III 4 hours
- MATH 320 Linear Algebra 3
- MATH 331 Differential Equations 3
- MATH 3xx At least 3 additional credit
  - hours in math courses numbered above 300
- MATH xxx Additional 5 credit hours in
  - mathematics courses

Total: 18 hours
PHYSICS
PHYS 101 Freshman Physics Seminar 1 hour
PHYS 151 Gen Phys: Mechanics 4
PHYS 152 Gen Phys: Elec/Magnetism 4
PHYS xxx Additional six credit hours 6
of physics courses numbered
200 or higher for a minimum
of 17 credit hours.

Any one(1) of: 2
PHYS 251RI Computational Res Meth
PHYS 252RI Experimental Res Meth
PHYS 253RI Theoretical Res Meth

Total: 17 hours