Minor in Data Science

Data science is a methodological approach rather than a substantive field, one which is integrated into the ways in which we assess the world. This is reflected in the requirement that students who minor in data science take introductory coursework and then apply insights from this coursework to an empirical project.

Minor advisory board: Chaves-Fonnegra, Fily, Hoim, Lanning, McGovern, Ruest

Requirements for the minor:
Note that at least 9 credits of the minor must be at the upper level (3000 or 4000) and only 4 credits of courses may be double-counted with the student’s concentration.

**I.** **Three required courses (10 credits)**: Students must complete all of the following courses with a minimum GPA of 2.0:

|  |  |  |  |
| --- | --- | --- | --- |
| Course | Title | Prereq | Credit |
| COP 3073 | Honors Introduction to Data Science | STA 2023 | 3 credits |
| COP 2000\* | Honors Foundations of Programming |  | 3 credits |
| MAC 2311 | Honors Calculus with Analytic Geometry I | MAC 1147 | 4 credits |

\* If COP 2000 is unavailable, COP 2220 (Introduction to Programming in C) may be taken via Distance Learning through the College of Engineering and Computer Science.

**II. Minimum 6-8 credits of data-relevant courses:** Students must take at least six credits in additional data-relevant courses from the following list. No more than four of these credits may be counted towards the major concentration:

|  |  |  |  |
| --- | --- | --- | --- |
| Course | Title | Prereq | Credit |
| ART 3657C | Honors Introduction to Programming for Visual Arts |  | 4 cr |
| BSC 4930 | Honors Experimental Design and Data Analysis for Biology | STA 2023 | 3 cr |
| CHM 3121/L | Honors Quantitative Analysis/Lab | CHM 2045/L, 2046/L | 4 cr |
| COP 3012 | Honors Advanced Programming (or any other upper level course with COP or COT prefix) | COP 2000 | 3 cr |
| ECO 4412 | Honors Econometrics: Applied Regression Analysis | STA 2023 | 3 cr |
| GIS 3044C | Honors Geographic Information Systems |  | 3 cr |
| ISS 4304 | Honors Computational Social Science |  | 3 cr |
| IDS 3932 | Honors Beginner’s Programming for Biologists |  | 3 cr |
| IDS 3932 | Honors Empirical Analysis of Investment/Financial Markets |  | 3 cr |
| IDS 3932 | Honors Art and Science of Data Visualization |  | 1 cr |
| MAD 2104 | Honors Discrete Mathematics |  | 3 cr |
| PHY 4523 | Statistical Physics | PHY 2049 | 3 cr |
| PHY 4936 | Honors Computational Physics | PHY 3221, PHY 3323 | 3 cr |
| PSY 3213/L | Honors Research Methods in Psychology/Lab | PSY 1012 | 4 cr |
| STA 3164 | Honors Intermediate Statistics (or any upper level course with STA prefix) | STA 2023 | 3 cr |

**III.**  **Data proficiency (0-3 credits)**The student must demonstrate data proficiency. This may be accomplished either by:
1) Submitting a thesis in the student’s Concentration to the Data Science Minor Advisory Board which the board approves as demonstrating data proficiency.
2) Directed Independent Study (1-3 credits) in which the student demonstrates data proficiency as documented by completing the form at: http://bit.ly/WHCDSMinorProficiency and having a board member review and confirm.

**TOTAL CREDITS: 16-21** (NOT INCLUDING PREREQUISITE COURSES)