

# ARTIFICIAL INTELLIGENCE, MINOR

<sup>1</sup> Topics: Graph Learning (3 credits), Trustworthy AI (3 Credits), Natural Language Processing (3 credits)

At William & Mary's School of Computing, Data Sciences & Physics, we empower students and faculty to push boundaries through innovation, interdisciplinary collaboration, and cutting#edge research. Grounded in the university's liberal arts tradition, we cultivate ethical leaders fluent in technology, data, and science—prepared to tackle critical challenges from AI and quantum computing to societal transformation. Through immersive hands#on learning, close mentorship, and engagement with industry and the public sector, CDSP prepares its graduates to generate new knowledge, drive meaningful change, and shape a vibrant future.

## Artificial Intelligence, Minor

The Minor in Artificial Intelligence provides students with a foundational understanding of modern AI by combining coursework in programming, machine learning, and related computational topics. Students begin with core programming skills, progressing into algorithm design and data structures before exploring machine learning methods used in classification, prediction, and decision-making. The curriculum emphasizes both theoretical understanding and applied techniques, enabling students to develop, evaluate, and deploy AI models across a range of domains. Additional electives allow students to explore specialized areas such as computer vision, natural language processing, or the ethical implications of intelligent systems.

| Code                                                                         | Title                                                       | Hours |
|------------------------------------------------------------------------------|-------------------------------------------------------------|-------|
| Required Credit Hours                                                        |                                                             |       |
| CSCI 141                                                                     | Modern Programming Fundamentals                             | 4     |
| CSCI 243                                                                     | Logic and Discrete Structures                               | 3     |
| DATA 210                                                                     | Research Design and Statistics                              | 3     |
| DATA 301                                                                     | Applied Machine Learning                                    | 3     |
| Restricted Electives                                                         |                                                             | 6     |
| Choose 2 of the following restricted electives (totaling at least 6 Credits) |                                                             |       |
| CSCI 356                                                                     | Large Language Models                                       |       |
| CSCI 416                                                                     | Fundamentals of Artificial Intelligence/Machine Learning    |       |
| CSCI 420                                                                     | Special Topics in Computer Science                          |       |
| CSCI 436                                                                     | Data Mining                                                 |       |
| CSCI 446                                                                     | Neural Networks for Machine Learning                        |       |
| CSCI 455                                                                     | Generative Artificial Intelligence for Software Development |       |
| DATA 209                                                                     | Applied Linear Algebra & Calculus                           |       |
| DATA 440                                                                     | Special Topics <sup>1</sup>                                 |       |
| DATA 441                                                                     | Advanced Applications of AI                                 |       |
| DATA 442                                                                     | Neural Networks & Deep Learning                             |       |
| DATA 444                                                                     | Agent-Based Modeling                                        |       |
| DATA 446                                                                     | Generative AI                                               |       |
| DATA 447                                                                     | Bayesian Reasoning in Data Science                          |       |
| DATA 448                                                                     | Reinforcement Learning                                      |       |
| Total Hours                                                                  |                                                             | 19    |