



DATA SCIENCE MINOR COURSE DESCRIPTIONS

CIS 2370: Foundations of Data Analytics I

Develop the skills to confidently work with data in today's information-driven world. In this course, you'll build a strong foundation in data literacy by learning to organize, analyze, and interpret real-world datasets using spreadsheets. Topics include data management, descriptive and inferential statistics, pivot tables, data visualization, probability, and presenting insights that support informed decision-making. By the end of the course, you'll be prepared to turn data into meaningful, actionable information—an essential skill for success across a wide range of careers.

CIS 2371: Foundations of Data Analytics II

Building on the foundations of data analytics, this course expands students' ability to work with data through advanced spreadsheet techniques, Python programming, and predictive modeling. Students will explore concepts such as Bayesian thinking, hypothesis testing, A/B testing, linear regression, and identifying bias in data analysis. Through hands-on application and data-driven problem solving, students will strengthen their ability to interpret information, develop insights, and communicate findings effectively. This course prepares students to approach complex data challenges with confidence and integrity.

CIS 2375: Career Navigation and Exploration in Data Science

Prepare for a successful career in data science by exploring professional pathways, identifying career goals, and developing the skills employers value. This course helps students discover opportunities that align with their interests, strengths, and long-term goals while building a strong professional presence through résumé development, networking, LinkedIn optimization, and interview preparation. Students will also learn effective job search strategies and the importance of continuous skill development, graduating with a clear plan to confidently pursue meaningful careers in the rapidly growing field of data science.

CIS 3370: Data Science I

Expand your data analytics skills through the power of Python and modern data science tools. This course introduces students to Python programming for data-driven problem solving, including data management, advanced visualization, SQL integration, and foundational machine learning concepts. Through hands-on experience with real-world datasets, students will learn to transform raw information into meaningful insights and develop predictive models that support informed decision-making. This course prepares students to confidently apply data science techniques across a variety of professional settings.



The **Data Science** minor is offered online through a consortium of accredited colleges and universities (the Lower Cost Models Consortium or LCMC). All courses within the program are delivered by faculty employed by partner institutions in the consortium, with technology and administrative support provided by **Rize Education**.

Oversight of courses offered through the consortium are reviewed and approved by **HPU**. Students register through **HPU** and receive academic credit from **HPU**.



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CIS 3371: Data Science II

Take your data science expertise to the next level by exploring advanced machine learning techniques and predictive analytics in Python. This course covers topics including time series forecasting, advanced regression models, unsupervised learning, deep learning, feature engineering, and the ethical use of artificial intelligence. Through hands-on application, students will strengthen their ability to build sophisticated models, uncover meaningful insights, and make responsible, data-informed decisions. Graduates will be equipped with advanced analytical skills to address complex challenges across a variety of industries.

CIS 4370: AI and Machine Learning

Explore the next generation of artificial intelligence and its real-world business applications. In this course, students learn to deploy machine learning models, work with natural language processing, computer vision, and large language models, and develop AI solutions that address complex organizational challenges. Emphasizing both technical expertise and ethical responsibility, the course prepares students to evaluate AI risks, adapt to emerging technologies, and confidently apply innovative solutions in a rapidly evolving digital landscape.

CIS 4371: Practicum

Bring together everything you've learned through a hands-on capstone experience that reflects the work of today's data science professionals. Using real-world datasets, students will complete the full data science process—from data exploration and model development to presenting actionable insights. The course also emphasizes professional preparation through interview practice, stakeholder communication, and the development of the technical and leadership skills needed to succeed in data science careers. At Howard Payne University, this capstone equips students to confidently apply their knowledge with excellence, integrity, and purpose.

CIS 1070: Integration of Faith and Technology

This seminar asks how a distinctly Christian worldview can impact technology usage and implementation. Through case studies and guided discussion, you will probe questions relating to ethics, stewardship of data, and vocational calling in tech fields. This course may be repeated as many times as needed. Students shall complete this course once per year during a regular semester for any calendar year in which the student takes an LCMC-Rize course.



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