Numbered items are broad program goals. Lettered items are learning outcomes assessed in courses.

1. MANAGING AND PREPARING DATA - Students will collect, prepare, store and manage data to devise solutions to data science tasks.
   1. Students will be able to collect, prepare, store and manage data through a data pipeline.
   2. Students will be able to manage and use data in various forms, from traditional databases to big data.
2. TRANSFORMING DATA INTO INSIGHTS - Students will demonstrate the ability to create actionable insights from data by utilizing databases, programming, statistical analysis, machine learning and optimization.
   1. Students will be able to determine the conditions for when a predictive and prescriptive model is applicable.
   2. Students will be able to design and implement algorithms to translate data into actionable insights.
3. COMMUNICATING SOLUTIONS - Students will effectively deliver data-related information to technical and non-technical audiences through visualizations, written, and oral communication.
   1. Students will be able to create, write, and orally communicate technical materials for diverse audiences
   2. Students will be able to help technical and non-technical professionals visualize, explore, interpret, and act on data science findings.
4. ETHICS AND DECISION MAKING - Students will understand how to leverage data resources to provide value in strategic decision-making within the framework of social, legal, and ethical issues relating to data science.
   1. Students will be able to identify and utilize data assets to enhance organizational effectiveness.
   2. Students will be able to interpret and apply a professional code of ethics relevant to the data science profession.

### Learning Outcomes

The following table provides a list of learning outcomes and the course(s) in which they are measured. The instruments used are a variety of authentic assessments, exercises, projects, assignments, papers, exams, and quizzes used to assess the student’s developed skills and knowledge associated with the program learning outcomes. **Bold text** indicates main learning outcome for that course.

|  |  |  |
| --- | --- | --- |
| **Program Goal** | **Course Learning Outcome** | **Class** |
| 1. MANAGING AND PREPARING DATA - Students will collect, prepare, store and manage data to devise solutions to data science tasks. | 1. Students will be able to collect, prepare, store and manage data through a data pipeline. | **DS700**  **DS730** |
| 1. Students will be able to manage and use data in various forms, from traditional databases to big data. | **DS715**  DS730 |
| 1. TRANSFORMING DATA INTO INSIGHTS - Students will demonstrate the ability to create actionable insights from data by utilizing databases, programming, statistical analysis, machine learning and optimization. | 1. Students will be able to manage and use data in various forms, from traditional databases to big data. | **DS705**  **DS740**  DS745  DS775 |
| 1. Students will be able to design and implement algorithms to translate data into actionable insights. | DS700  DS705  **DS710**  DS730  DS740  DS745  **DS775**  DS785 |
| 1. COMMUNICATING SOLUTIONS - Students will effectively deliver data-related information to technical and non-technical audiences through visualizations, written, and oral communication. | 1. Students will be able to create, write, and orally communicate technical materials for diverse audiences | DS705  **DS735**  DS785 |
| 1. Students will be able to help technical and non-technical professionals visualize, explore, interpret, and act on data science findings. | DS705  DS740  **DS745**  DS780  **DS785** |
| 1. ETHICS AND DECISION MAKING - Students will understand how to leverage data resources to provide value in strategic decision-making within the framework of social, legal, and ethical issues relating to data science. | 1. Students will be able to identify and utilize data assets to enhance organizational effectiveness. | **DS780** |
| 1. Students will be able to interpret and apply a professional code of ethics relevant to the data science profession. | **DS760** |

**Course List Institution**

DS 700 Foundations of Data Science UW-Green Bay

DS 705 Statistical Methods UW- La Crosse

DS 710 Programming for Data Science UW-Eau Claire

DS 715 Data Warehousing UW- Stevens Point

DS 730 Big Data: High-Performance Computing UW- Oshkosh

DS 735 Communicating About Data UW- Stevens Point

DS 740 Data Mining UW- Eau Claire

DS 745 Visualization and Unstructured Data Analysis UW- Green Bay

DS 760 Ethics of Data Science UW- Oshkosh

DS 775 Prescriptive Analytics UW- La Crosse

DS 780 Data Science and Strategic Decision Making UW- Superior

DS 785 Capstone UW- Superior