



Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: <https://catalog.uvu.edu/>

Semester: Spring

Course Prefix: 38116

Course Title: Data Science Capstone

Year: 2025

Course and Section #: 4800-001

Credits: 3

Course Description

Solves a real-world data science problem or dilemma for an industry partner. Provides an opportunity to work in teams on a project from an industrial firm. Includes realistic industry evaluations such as teamwork, communication, individual initiative, and final product.

Course Attributes

This course has the following attributes:

- General Education Requirements
- Global/Intercultural Graduation Requirements
- Writing Enriched Graduation Requirements
- Discipline Core Requirements in Program
- Elective Core Requirements in Program
- Open Elective

Other: *Click here to enter text.*

Instructor Information

Instructor Name: Brian Knaeble

Student Learning Outcomes

Analyze real-world data science problems
Implement a data science solution for an industry partner
Present and discuss solutions in a professional manner
Apply practices of data science, such as modeling, statistics, and machine learning to design a solution for a real-world data science application
Compose a variety of disciplinary-appropriate texts within multiple situations and for multiple audiences

Course Materials and Texts

NA

Course Requirements

Course Assignments, Assessments, and Grading Policy

You will be graded out of 100 points based on your project. You can earn up to 25 points for each of the following:

1. Did you incorporate your knowledge of data bases?
2. Did you incorporate your knowledge of statistics?
3. Did you incorporate your knowledge of machine learning?
4. Did you attend other presentations and did you give an effective presentation summarizing the results of your project by the end of the semester?

You must complete all work for this course by the hard deadline of April 24th 2025 at midnight.

Grades: Your total points out of 100 will determine your grade according to

93-100 A

90-92 A-

87-89 B+

83-86 B

80-82 B-

77-79 C+

73-76 C

70-72 C-

67-69 D+

63-66 D

60-62 D-

0-59 F

Academic misconduct can result in a failing grade for the course.

Required or Recommended Reading Assignments

Various articles posted on Canvas.

General Description of the Subject Matter of Each Lecture or Discussion

Students will work to complete their data science capstone projects. Students will start by selecting a topic for their project. During January they will write abstracts for submission to a local data science conference. During February they will complete their project. Each project must involve data bases, statistical reasoning, and data scientific reasoning (e.g. machine learning or other modern techniques). Students will build a product. Examples include apps or algorithms to accomplish some analytic task. Students will give their presentations in class in March, and then in April they will prepare to either give a talk at the conference (if the abstract is accepted) or attend the conference.

Required Course Syllabus Statements

Generative AI

AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your 3 | Page

own individual voice. At the same time, you should learn how to use AI and in what instances AI can be helpful to you. However, there may be numerous oral examinations throughout this course. So make sure you are prepared to demonstrate genuine understanding of learned material.

Using Remote Testing Software

This course does not use remote testing software.

This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: Student Code of Conduct](#).

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a [specially dedicated space](#) for meditation, prayer, reflection, or other forms of religious expression.