

## UC San Diego - WASC Exhibit 7.1 Inventory of Educational Effectiveness Indicators

Academic Program	(2a) What are these learning outcomes?  <u>Students graduating with a degree should be able to:</u>	(3) Other than GPA, what data/evidence are used to determine that graduates have achieved stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)?	(4) Who interprets the evidence? What is the process?	(5) How are the findings used?
<p><b>Department: HDSI</b></p> <p><b>Major: BS in Data Science</b></p> <p><b>(1) Have formal learning outcomes been developed?</b> Yes</p> <p><b>(6) Date of the last Academic Senate Review? [i.e. 2015-16 if the review takes place this academic year]</b></p> <p>Please date the form <b>January 2024</b></p>	<p><b>Written Communication</b></p> <ul style="list-style-type: none"> <li>- clearly communicate the results of data analysis to both technical and non-technical audiences, making clear the assumptions and limitations of the methods used.</li> <li>- write reports incorporating effective data visualizations.</li> <li>- document the methodologies and processes used in analysis for clarity and reproducibility.</li> </ul> <hr/> <p><b>Oral Communication</b></p> <ul style="list-style-type: none"> <li>- communicate the results of data analyses via oral presentations, to both technical and non-technical audiences.</li> <li>- develop presentations that make effective use of data visualization.</li> <li>- communicate effectively with domain experts to gather relevant domain-specific information necessary for solving the problem at hand.</li> <li>- communicate effectively and collaboratively as part of a technical team.</li> </ul> <hr/> <p><b>Quantitative Reasoning:</b></p> <ul style="list-style-type: none"> <li>- design, conduct, and evaluate experiments to test hypotheses.</li> <li>- develop mathematical models for the purpose of inference or prediction.</li> <li>- identify the mathematical assumptions used in data science methods and judge when those assumptions are realistic.</li> <li>- use and develop efficient computational tools and software for analyzing large data sets.</li> <li>- structure and maintain large software projects that work with data.</li> </ul> <hr/> <p><b>Information Literacy</b></p> <ul style="list-style-type: none"> <li>- interpret data critically, assess its quality, and evaluate its significance, including recognizing biases and errors.</li> <li>- understand and adhere to ethical, legal, and regulatory guidelines related to data usage, privacy, and security.</li> </ul>	<ul style="list-style-type: none"> <li>- A Senior Capstone course. The course's deliverables map to the Program Learning Outcomes. Written and Oral communication are evaluated through a report and presentation. Quantitative Reasoning, Information Literacy, and Critical Thinking are demonstrated by carrying out a complete data science project from beginning to end.</li> <li>- Feedback from alumni and employers, particularly through HDSI's Industry Partner Alliance.</li> <li>- Feedback about the curriculum from current students collected through a yearly town hall, course evaluations, and by the DSC Student Representatives.</li> </ul>	<ul style="list-style-type: none"> <li>- Faculty who mentor capstone projects evaluate the preparedness of graduating students and report their evaluations to Capstone organizer and to the wider faculty.</li> <li>- Faculty with expertise in a particular area of the curriculum assess the learning outcomes within that area and adjust their courses accordingly.</li> <li>- HDSI's Faculty Council Chair, Vice Chair for Undergraduate Studies, and Undergraduate Program Committee review feedback from current students, alumni, and industry partners.</li> <li>- The Academic Senate reviews the program every 7 years.</li> </ul>	<ul style="list-style-type: none"> <li>- Individual instructors assess the evidence and use their findings to adjust the content of their courses, if necessary.</li> <li>- The Undergraduate Program Committee adjusts graduation requirements and prerequisites, after the review of HDSI's Faculty Council.</li> </ul>

	<p><b>Critical Thinking</b></p> <ul style="list-style-type: none"> <li>- navigate uncertain problem spaces through the use of exploratory data analysis.</li> <li>- develop complete data science projects by following the data science life cycle: identify the research question, select appropriate data sources, design the analysis, interpret the results, and communicate them.</li> <li>- apply ethical considerations in data analysis, recognizing the societal impact and potential consequences of data-driven decision-making.</li> <li>- understand the limitations of data-driven analyses.</li> </ul>			
	<p>Additional Learning Outcomes (All other items not color coded)</p>			
	<p style="text-align: center;"><b>(2b)</b> <b>Where are the learning outcomes published?</b> <b>Please provide your department/program website address.</b></p>			