

# Data Science and Visualization Certificate

<https://ischool.arizona.edu/data-science-and-visualization-certificate>

Name:	SID:
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CORE: 9 UNITS	
Choose One:	
ESOC 214: Introduction to Data Science <b>or</b>	<input type="checkbox"/>
ISTA 116: Statistical Foundation of the Information Age	
Take Both:	
ISTA 320: Applied Data and Visualization	<input type="checkbox"/>
ISTA 321: Data Mining and Discovery	<input type="checkbox"/>
ELECTIVES: 3 UNITS	
Choose One:	
BIOS 376: Introduction to Biostatistics <i>Requires MATH 108 or MATH 112 or higher</i>	<input type="checkbox"/>
ISTA 130: Computational Thinking and Doing <i>MATH 107 or higher recommended but not required</i>	<input type="checkbox"/>
ESOC 302: Quantitative Methods for the Digital Marketplace	<input type="checkbox"/>
ESOC 414: Computational Social Science <i>Requires ISTA 116 or ESOC 214</i>	<input type="checkbox"/>
ISTA 322: Data Engineering <i>Requires ISTA 130 or CSC 110 or equivalent</i>	<input type="checkbox"/>
ISTA 331: Principles and Practice of Data Science <i>Requires ISTA 116 and 131</i>	<input type="checkbox"/>
ISTA 421: Introduction to Machine Learning <i>Requires ISTA 116 and ISTA 130 or CSC 110</i>	<input type="checkbox"/>
ISTA 429: Applied Cyberinfrastructure concepts	<input type="checkbox"/>
LIS 470: Database Management and Development	<input type="checkbox"/>
WFSC 223: Dealing with Data in the Wild	<input type="checkbox"/>
	<input type="checkbox"/>

Comments:


## Double-dipping

Up to 6 units may be shared with a degree requirement (major, minor, General Education) or second certificate.

At least 9 units must be in residency at UArizona (not transfer)