

**GRADUATE**  
**Certificate in**  
**Data Science**

**UMSL**

UMSL is a NSA/DHS National Center of Academic Excellence in Cyber Defense Education



College of Arts and Sciences

**Department of Computer Science**

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## Graduate Certificate in Data Science



The graduate certificate in Data Science is a four-course (12 credit-hours) program. It provides skills, both statistical and computational, and technologies for the growing and popular fields involving data science and analysis. All students must take three required courses and one elective, subject to the [graduate school regulations](#).

A minimum of three courses must be taken from UMSL. A maximum of two courses can be used from the 4000-level. Courses may be substituted with the permission of the certificate coordinator. For more information, students can contact the department chair or email [info@arch.umsl.edu](mailto:info@arch.umsl.edu).

Required core courses		Availability
<a href="#">CMP SCI 4200</a>	Python for Scientific Programming and Data Science	E F
<a href="#">CMP SCI 5340</a>	Machine Learning	E F
<a href="#">CMP SCI 5342</a>	Data Mining	E P
Choose one elective		
<a href="#">CMP SCI 5320</a>	Evolutionary Computation	E P
<a href="#">CMP SCI 5370</a>	Biological Data Science	E P
<a href="#">CMP SCI 5390</a>	Deep Learning	E P
<a href="#">MATH 4005</a>	Exploratory Data Analysis with R	E F
<a href="#">MATH 4200</a>	Mathematical Statistics I	E P
<a href="#">MATH 4210</a>	Mathematical Statistics II	E F
<b>Total courses (credit hours)</b>		<b>4(12)</b>

For more info visit [umsl.edu/cs](http://umsl.edu/cs). For careers visit [umsl.edu/cs/careers](http://umsl.edu/cs/careers).

For electronic version visit <http://umsl.edu/cs/certificates>.

**Availability:** Online as of FS2020 (O), Evening (E), Summer (S), Fall (F), Spring (P)