Data Science, Graduate Certificate

CIP Code
~~110899~~ 307001 – ~~Computer Software and Media Applications; Other~~ Data Science, General.

The graduate certificate in Data Science is a four-course (12 credit hour) 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 two required courses and two electives.

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.

Required Courses

CMP SCI 4200	Python for Scientific Computing and Data Science	3
CMP SCI 5340	Machine Learning	3
CMP SCI 5342	Data Mining	3
Elective Courses		**3**
Choose one of the following:		
CMP SCI 4610	Database Management Systems	
CMP SCI 5151	Statistical Methods for Data Science	
~~CMP SCI 5320~~	~~Evolutionary Computation~~	
CMP SCI 5370	Biological Data Science	
CMP SCI 5390	Deep Learning	
CMP SCI 5411	Data Visualization	
MATH 4005	Exploratory Data Analysis with R	
~~MATH 4200~~	~~Mathematical Statistics I~~	
~~MATH 4210~~	~~Mathematical Statistics II~~	
MATH 4220	Bayesian Statistical Methods	
Total Hours		**12**

If other departments are affected by this proposal, please secure "sign-offs" and indicate for each department the following:

Department	Contact Person	Phone #	Objections
Information Systems and Technology	Dinesh Mirchandani		No
Supply Chain and Analytics	Haitao Li		No

Justification for request:
Adding a new course on stat for computer science replacing the other math courses