Master of Science in Data Science

The Master of Science with a major in Data Science (MSDS) is an interdisciplinary degree program that begain in Fall 2018.  It is based primarily in three departments and colleges: Mathematical Sciences (CAS); Computer and Information Sciences (CoE); and Applied Economics and Statistics (CANR). The changes to be implemented for the 19-20 AY are: (i) to add a number of 4+1 options (those will be proposed separately from the Bachelors-granting departments; (ii) stylistic and clean-up changes to the program policy statement (PPS); add new pre-approved elective courses and departments that already exist in the UD catalog. The changes are as follows. (The changes are indicated in red in the attached PPS.)

1. P. 3, line 6: change Master of Science to MS (stylistic change)

2. P. 3, end of section I.B: add the sentence “Though this document governs the rules of the program, some current information such as events, elective courses offered, and so forth can be found on the program web page at www.msds.udel.edu.”

3. P. 3, end of section I.C, add the sentence: “The degree is also offered in combination with a limited number of Bachelor degrees as a “4+1” program. In that case, the background subjects are covered in the undergraduate degree, and six credits of the MSDS course work count toward the Bachelor degree as described below.”

4. P. 4, part II.B, first paragraph: revise the background requirements to include: “Applicants for the combined Bachelors and MSDS degree program must complete the background requirements prior to beginning the MSDS course work (see section III.A.5 for more information). A minimal background outside of these the above STEM majors should include at least one semester of”

5. P. 4, part II.B, list of background requirements: added equivalent course numbers at UD.

6. P. 5, part II.D, admission types, add: “3) Provisional Admission: Provisional status is offered to applicants who are seeking admission to a degree program but lack specific prerequisites needed in the University of Delaware degree requirements. All provisional requirements must be met within the deadline given before regular status can be granted. Failure to meet the provisions by this deadline is grounds for dismissal from the program.”

7. P. 7, addition of 4+1 Bx/MSDS program: “The MSDS can be obtained in conjunction with a limited numbers of Bachelor degree programs as a 4+1 combination. Here the x in Bx can be A for Arts, S for Science or other letters for other degrees.  At this time, the Bachelor degrees available are as follows. Any of the Bachelor degrees from the DMS
(BA in Mathematics or Mathematics Education; BS in Actuarial Sciences, Applied Mathematics, Mathematics and Economics, Mathematics Education, or Quantitative Biology; or honors versions of these degrees, HBx). Similarly, any of the Bachelor
degrees from CIS or from AES are available for combining with the MSDS as a 4+1 program. Up to six credits from the graduate course work may be applied to the Bachelor degree that come from the area of the undergraduate major. For example, mathematics courses may be applied to a major from DMS, computer science course can be applied to a major from CIS, and statistics courses may be applied to a major from AES.

Students who wish to be admitted to the Bx/MSDS 4+1 program should submit an application during the junior year of academic study
toward an undergraduate degree at the University of Delaware. Interested students should consult with an advisor from the MSDS program about the courses to be taken in order to fill out the “Graduate Course Approval Form for 4+1 Admission Approval” from OGPE.  After submitting that form, the student may then apply to the Bx/MSDS 4+1 program. At a minimum, the applicant must have a cumulative GPA of 3.2 and a GPA of 3.4 in their undergraduate major. For any Bachelor degree, the applicant must have completed the background requirements listed in Section II.B by the end of the fourth
year of undergraduate study.  The Bachelor degree must be awarded prior to the +1 year. All requirements for the MSDS must be satisfied, but two graduate courses will count toward the Bachelor degree. Two letters of recommendation from University of Delaware faculty and academic transcripts must be submitted. Neither the GRE nor the TOEFL exam is required for 4+1 program applications. Meeting minimum requirements is not a guarantee of admission.
Similarly, those who fail to meet minimum requirements are not precluded admission if they offer other appropriate strengths.”

8. P. 8, part III.A.6, Advisor requirements now reads: “An advisor will be assigned prior to the start of the first semester of study for the MSDS. The first semester courses shall be approved by the advisor prior to the start of that semester. The student and the advisor will develop a program of study; the program of study submitted to the
executive committee for approval prior to the end of the first semester of courses. For students accepted into the 4+1 program, an advisor for the MSDS will be assigned prior to the end of the second semester of the junior year of undergraduate study, and a program of study for the MSDS shall be approved before the end of that semester.”

9. P. 11, Part numbering fixed: IV changed to VI

10. P. 11, part VI.A, list of initial affiliated/joint faculty removed.

11. P. 14-15, part VII.A, elective courses added from Geography, College of Education and Human Resources, and Electrical and Computer Engineering.

12. P. 17, a sample 4+1 schedule added.

**Courses oustide of the departments:**

Elective courses from the Department of Geography may come from the following (F=Fall semester; S=Spring semester):

* GEOG670 Geographic Information Systems and Science (F)
* GEOG671 Advanced Geographic Information Systems (S)
* GEOG673 Select Technical Topics: GIS (F/S)
* GEOG681 Remote Sensing (S)

Elective courses from the College of Education and Human Resources may come from the following:

* EDUC812   Regression & Structural Equation Modeling
* HDFS815   Research Issues and Designs
* EDUC862   Randomized Field Trials in Education
* EDUC865   Educational Measurement Theory
* EDUC874   Multivariate Statistics in Education
* EDUC873   Multilevel Models in Education
* EDUC872   Advanced Educational Measurement
* EDUC876   Latent Variables for Educational Research

Elective Courses from the Department of Electrical and Computer Engineering may come from the following:

* ELEG 630 Information Theory
* ELEG 631 Digital Signal Processing
* ELEG 815 Analytics I: Statistical Learning
* ELEG 817 Large Scale Machine Learning
* ELEG 845 Modern Machine Learning
* [**Master of Data Science PPS 2019-20 v4.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/Master%20of%20Data%20Science%20PPS%202019-20%20v4.pdf?response-content-disposition=attachment%3B%20filename%3D%22Master%20of%20Data%20Science%20PPS%202019-20%20v4.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=sb0GJYicsJzx7bVfGUVFcRbQRTA%3D)

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* [**CAS-Dean-Support-Letter-for-MSDS-4+1-Math.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/CAS-Dean-Support-Letter-for-MSDS-4%2B1-Math.pdf?response-content-disposition=attachment%3B%20filename%3D%22CAS-Dean-Support-Letter-for-MSDS-4%2B1-Math.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=0X02Mv8lh%2Fck%2BPbBRiZntDemeng%3D)

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* [**ECE-letter-for-electives-Oct-31-2018.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/ECE-letter-for-electives-Oct-31-2018.pdf?response-content-disposition=attachment%3B%20filename%3D%22ECE-letter-for-electives-Oct-31-2018.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=uLGmZPmZEyFiAe9m4tifoDTAs0M%3D)

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* [**MSDS\_GEOG\_Support\_Levia.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/MSDS_GEOG_Support_Levia.pdf?response-content-disposition=attachment%3B%20filename%3D%22MSDS_GEOG_Support_Levia.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=G8JGjwQgz1c3POhjZJpZYmvddEE%3D)

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* [**CEHD-Dean-letter-for-electives-Oct-28-2018.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/CEHD-Dean-letter-for-electives-Oct-28-2018.pdf?response-content-disposition=attachment%3B%20filename%3D%22CEHD-Dean-letter-for-electives-Oct-28-2018.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=7Dq%2FLd7P8XJa5aX85LG9QqKX26E%3D)

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* [**MSDS\_4+1\_support\_from\_CIS\_Chair.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/MSDS_4%2B1_support_from_CIS_Chair.pdf?response-content-disposition=attachment%3B%20filename%3D%22MSDS_4%2B1_support_from_CIS_Chair.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=lv%2FxvI2F55Uc3ao64EPj5x83y7g%3D)

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* [**MSDS\_4+1\_support\_from\_Math\_Chair.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/MSDS_4%2B1_support_from_Math_Chair.pdf?response-content-disposition=attachment%3B%20filename%3D%22MSDS_4%2B1_support_from_Math_Chair.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=nGabTMnTXSgoHVmhRhu7JTkqJ1s%3D)

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* [**BraunR\_4+1\_Bachelors\_MS\_ Data Science\_DawesT\_LibrarySupportLetter\_2018-11-09.pdf**](http://s3.amazonaws.com/curriculog_storage/prod1/p3348/u879/BraunR_4%2B1_Bachelors_MS_%20Data%20Science_DawesT_LibrarySupportLetter_2018-11-09.pdf?response-content-disposition=attachment%3B%20filename%3D%22BraunR_4%2B1_Bachelors_MS_%20Data%20Science_DawesT_LibrarySupportLetter_2018-11-09.pdf%22&AWSAccessKeyId=AKIAIKWTII56T2MPMPKQ&Expires=1552675146&Signature=II3Jje9nRr0VGKPSZvEUw6qu2LA%3D)

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