Physics Education/Data Science 4+1 (BA/MS)

The MS in Data Science (MSDS) is working with Physics and Astronomy (in CAS) and Mechanical Engineering (CoE) to add the MSDS as a 4+1 option for their undergraduate degrees.

This proposal is for modification of the MSDS to add new 4+1 options for all Bachelors degrees from the **Department of Physics and Astronomy (DPA)** to begin in the 2020-21 acdemic year.

Technically, the MSDS is not part of Mathematical Sciences (in CAS), but since the director is in Math and CAS, that college is being used as the base for the proposal.

The DPA undergraduate programs provide a very good background for the MSDS. Our students typically receive training in computational methods, fundamental mathematics, statistics and probability. Adding this degree for one more year of study opens many possible doors for employment in industry, commerce, or government, as well as for graduate school.

DPA has approved the following majors to be offered in 4+1 (H)Bx/MSDS combinations:  BS, BA, HBS, HBA options in each of Physics or Astronomy, as well as BA and HBA in Physics Education.   The program policy statement uploaded with this proposal includes these proposed majors for 4+1 options, with the changes marked in red text.

In all cases, the (H)Bx degree requirements must be satisfied, the MSDS requirements must be satisfied, six graduate credits from the MSDS may be applied towards the (H)Bx degree, and the (H)Bx degree must be completed before the start of the +1 year.

* WHEREAS, the University of Delaware has established an interdisciplinary Master of Science in Data Science (MSDS) which has already admitted a number of students, and

          WHEREAS, all such national and regional data suggest a significant demand for the training in data science, which requires expertise in mathematics, computer science, statistics, as well as a domain (or application) field, and

          WHEREAS, the program allows students to take courses in three departments and in application domains; such flexibility allows training in different categories of positions, and

          WHEREAS, the proposed master in data science program can offer training with breadth and depth, placing graduates from the program in a better position to lead in new techniques in data science and analytics, and

          WHEREAS, the proposed program will contribute to a strategic initiative in data science on campus, and

          WHEREAS, the program could provide well-prepared applicants for those data intensive Ph.D. programs such as Astronomy or experimental Physics, or for Ph.D. programs in Mathematics, Computer Science, and Statistics, as well as other application fields,

          WHEREAS, a number of majors around campus give excellent background for the new MSDS program, including the majors from the Department of Physics and Astronomy, and

          WHEREAS, the Department of Physics and Astronomy approved the 4+1 Bachelors/MSDS options for all of their undergraduate majors, and

          WHEREAS, the executive committee of the MSDS has approved the offering of 4+1 Bachelors/MSDS options for all of those undergraduate majors, and

          WHEREAS, students in the program can be expected to pay for their courses of study, which will generate revenue for the university; be it therefore

          RESOLVED, that the Faculty Senate recommends provisional approval of the establishment of 4+1 Bachelors/MSDS degree for all of the Bachelors degrees offered by the Department of Physics and Astronomy.