



The American Statistical Association (ASA) is pleased to respond to the Department of Education’s request for comments on the [Proposed 2020 Update to the Classification of Instructional Programs \(CIP\) and Request for Comment](#), as invited in the *Federal Register* of December 27, 2018 (ED–2018–IES–0126).

The ASA is the nation’s oldest scientific professional society with a proud tradition of supporting federal statistics and the practice and profession of statistics. We are the world’s largest community of statisticians. Our members serve in industry, government and academia in more than 90 countries, advancing research and promoting sound statistical practice to inform public policy and improve human welfare.

For context in the recommendations below, we use this definition of statistics: “Statistics is the science of learning from data, and of measuring, controlling, and communicating uncertainty.”<sup>1</sup>

ASA’s recommendations and suggestions are applied to four CIP Codes:

1. For “27.0601 Applied Statistics, General. (New)”, we agree applied statistics should be added and recommend that “inference” be included in the list of topics to be instructed. We also suggest the addition of “statistical computing” in that list.
2. For “30.7001 Data Science, General. (New)”, we agree data science should be added and suggest that the following terms be included in the list of topics to be instructed:
  - a. data storage
  - b. data representation
  - c. data modeling
  - d. applied statistics

For “social media trend spotting”, we suggest just “trend spotting” because the identification of trends is important widely. We also suggest reconsideration of including “human-computer interaction” belongs in the list.

3. For “30.7101 Data Analytics, General. (New)”, we agree data analytics should be added and urge that the following terms be included in the list of topics to be instructed:
  - a. statistics
  - b. inference
  - c. uncertainty quantification

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<sup>1</sup> “Why Statistics?” Marie Davidian & Thomas A. Louis, *Science*, 06 Apr 2012, Vol. **336**, Issue 6077, pp. 12 DOI: 10.1126/science.1218685. <http://science.sciencemag.org/content/336/6077/12>

d. optimization

4. For “27.0601 Applied Statistics (General)”, we suggest replacing "standard deviation" with "descriptive statistics", a more general term that includes standard deviation and many similar concepts.

We have seen the comment that data science and data analytics be unified under the same (presumably four-digit) CIP Code and agree there is merit in considering this because of their close relationship. As written, the relationship of data analytics to data science is similar to both the following relationships:

- 27.03 Applied Mathematics to 27.01 Mathematics
- 27.06 Applied Statistics to 27.05 Statistics

These subjects are related to one another by falling under the two-digit CIP Code, 27 MATHEMATICS AND STATISTICS. However, it is difficult in the proposed four-digit code for data science and data analytics to establish a unique connection to their two-digit CIP Code, 30 MULTI/INTERDISCIPLINARY STUDIES, because of how broad that category is.

Perhaps the strong relationship of data science and data analytics could be remedied by modifying 30.70 to be called “Data Science and Analytics” and modifying the numbering for 30.7001, 30.7099, 30.7101, and 30.7199 accordingly.

We appreciate the opportunity to provide these comments and hope you find them of value.

Questions on this document can be directed to the ASA Director of Science Policy Steve Pierson, [pierson@amstat.org](mailto:pierson@amstat.org).