Is it time for a Ph.D. in Data Science?

One University’s Solution to the Talent Gap
SESSION 3340
About the presenter

Jennifer Lewis Priestley is a Professor of Statistics and Data Science at Kennesaw State University. She oversees the Ph.D. program in Analytics and Data Science and is the Director for the Center for Statistics and Analytical Services.

Dr. Priestley has a BS from Georgia Tech, an MBA from Penn State and a Ph.D. in Decision Sciences from Georgia State University.
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REASON 1: Closing the gap.

Demand for deep analytical talent in the United States could be 50 to 60 percent greater than its projected supply by 2018.

Supply and demand of deep analytical talent by 2018 (thousand people):

- 2008 employment: 150
- Graduates with deep analytical talent: 180
- Others: 30
- 2018 supply: 300
- Talent gap: 140–190
- 2018 projected demand: 440–490

50–60% gap relative to 2018 supply.

1 Other supply drivers include attrition (-), immigration (+), and reemploying previously unemployed deep analytical talent (+).

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WEST COAST
23% of POPULATION
43% of Data Scientists

MOUNTAIN
12% of POPULATION
10% of Data Scientists

MIDWEST
21% of POPULATION
14% of Data Scientists

NORTHEAST
17.5% of POPULATION
25% of Data Scientists

SOUTH
27% of POPULATION
8% of Data Scientists
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REASON 2: MS degrees…then what?

Source: Institute for Advanced Analytics at NC State
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REASON 3: Who can teach all of these students?

US Educational Attainment

- 46% Bachelor or Associate
- 31% Some College
- 12% High School Diploma
- 8% Masters
- 3% Ph.D.

Source: US Census
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A brief tangent… what is data science?
Is it time for a Ph.D. in Data Science?

This does not make sense.
Is it time for a Ph.D. in Data Science?

But this Ph.D. has to be different…
Is it time for a Ph.D. in Data Science?

Computer Science/Information Systems

Interdisciplinary

Business School
Is it time for a Ph.D. in Data Science?
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MATH CORE:
✓ THEORY OF LINEAR MODELS
✓ DISCRETE MATHEMATICS
✓ GRAPH THEORY
✓ MATHEMATICS FOR BIG DATA

STAT CORE:
✓ DATA MINING I
✓ DATA MINING II
✓ ADV PROGRAMMING IN SAS
✓ BINARY CLASSIFICATION
✓ SEGMENTATION MODELING
✓ 3 STAT ELECTIVES

CS CORE:
✓ DISTRIBUTED COMPUTING
✓ HPC INFRASTRUCTURE
✓ ALGORITHM DESIGN FOR BIG DATA
✓ MACHINE LEARNING
✓ TWO CS ELECTIVES

OTHER:
✓ APPLICATION ELECTIVE
✓ CONSULTING CENTER
✓ ETHICS
✓ DISSERTATION
✓ PROJECT/PRACTICUM (Tell the story!)
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Edwin Baidoo – MS Computational Finance
Sergiu Busciumas – MS Computer Science
Bogdan Gadidov – MS Industrial Engineering
Linh Le – MS Information Technology
Jie Hao – MS Applied Mathematics
Bob Vanderheyden – MS Mechanical Engineering (not pictured)