What is a Data Science/Analytics Degree?

Panel

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ABSTRACT

Data science, and the related field of analytics, is an emerging discipline that integrates concepts across a range of domains, including computer science, information systems, software engineering and statistics. While the number of data science / analytics programs continues to increase, there has been little discussion on how we should define this emerging educational field. This panel will foster a debate with respect to what are the key learning objectives within these programs and should there be different types of data science related programs (such as an applied data science program or a business analytics program in addition to data science programs). Via a debate, this panel, along with the audience, will explore the field of data science and these emerging questions regarding data science and analytics education.

Keywords (Required)

Data Science Education, Big Data, Data Analytics.

OBJECTIVES

Due to the increasing demand for data scientists and a data-literate workforce, there is a growing number of data science courses and programs that are being developed and offered at Colleges and Universities (O’Neil, 2014).

However, while there has been some work reported on designing a data science curriculum (Ramamurthy, 2016; Asomoah, Doran & Schiller, 2016; Anderson et al., 2014), as well as EU’s EDISON project (Manieri et al, 2015), which is an EU funded effort to increase in the number of competent and qualified Data Scientists across Europe and beyond by defining a Data Science Competence Framework.

However, none of these efforts have explored the difference between a data science degree, an applied data science degree and an analytics degree, nor has there been any effort to take a holistic look about what should or should not be included in any of these programs.

In fact, it has been noted that there is no uniformity in the course offering of these types of degrees across universities (Jafar, Babb & Abdullat, 2016). While there has also been some exploration in the overall design of an introductory data science course (Gil, 2014; Brunner and Kim, 2016; Saltz and Heckman, 2016), these efforts also did not address the key questions about the breadth and depth of data science.

Hence, the goal of this panel is to foster a debate with respect to the emerging field of data science / analytics education. Specifically, what are the key learning objectives and should there be different types of data science programs. The panel will focus on these open issues and address questions such as:

1. Should there be “different flavors” of data science/analytics education leading to different degrees?
2. Should there be a “common core” for data science/analytics programs?
3. Should there be one or more data science courses for the broader student population?
APPROACH
These questions will be discussed via a debate, where the panelists will debate each of the questions, with the audience also invited to participate in the discussion.

The debate will be divided into roughly three equal segments, with each segment focusing on one of the key questions noted in the objectives. Within each of the segments, specific questions will be asked of the panelists and the audience (such as ‘should there be specialized programs for different data science roles – such as data engineer vs data scientist). While the panelists will typically provide some initial points of view, members in the audience will be encouraged to join the discussion as equal participants.

The panel will not have any formal presentations, but a laptop will be used to highlight key areas of agreement (or disagreement), that will be used as a start to an article summarizing the thoughts that emerge from this panel debate / discussion.

IMPORTANCE OF PANEL
AMCIS is the premier conference of informational systems researchers and educators in the Americas. The theme of this year’s conference is innovation, and the emerging field of data science is certainly a field that fosters innovation and innovative thinking. As such, many of the attendees will be interested in better understanding data science/analytics, and the educational programs being assembled in support of these new domains.

The target audience for this panel are information system educators who will benefit from this panel by gaining a better understanding of current trends in data science / analytics education. Others, who are interested in data science or learning what is data science, will also find this panel of interest in that attendees of this panel will be able to better appreciate how the trends in data science/analytics might impact the broader field of information systems and management education.

PANELISTS
Jeffrey S. Saltz
Associate Professor
Faculty lead for the Applied Data Science Master of Science Program
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Jeff Saltz is an Associate Professor at the School of Information Studies, Syracuse University and directs their Applied Data Science graduate program. He teaches data science to both graduate and undergraduate students and is the coauthor of An Introduction to Data Science (Sage Publications), which is a new data science textbook. Jeff led the development of the university’s Applied Data Science graduate degree and has also been part of the team that defined their Data Science graduate program as well as a different team that defined their Business Analytics graduate degree. His current research focuses on the socio-technical challenges of data science projects, such as how to coordinate and manage data science teams. Prior to joining Syracuse University in 2014, Jeff spent 20+ years in industry leveraging emerging technologies and data analytics to deliver innovative business solutions.

Frank Armour
Assistant Professor
Program director for the MS in Analytics degree program
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Dr Armour is an assistant professor of information technology at the Kogod School of Business, American University and is the faculty program director for the MS in Analytics degree program. He received his PhD from the Volgenau School of Engineering at George Mason University. He is also an independent senior IT consultant and has over 25 years of extensive experience in both the practical and academic aspects applying advanced information technology. He has led initiatives on, and performed research in: Business analytics, Big Data, Enterprise architectures, business and requirements analysis, Agile System Development Cycle Development (SDLC) and object-oriented development. He is the coauthor of the books, Advanced Use Case Modeling (Addison Wesley) and Obtaining Value from Big Data for Service Delivery (Business Expert Press). He is the author or coauthor of over 30 papers in the Information Technology discipline. He is a co-chair of a big data
analytics mintrack at the HICSS Conference and he is primary co-chair for the enterprise architecture minitracks at both the HICSS and AMCIS conferences.

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Dr. Ramesh Sharda is the Vice Dean for Research and Graduate Programs, Watson/Conoco-Phillips Chair and a Regents Professor of Management Science and Information Systems in the Spears School of Business at Oklahoma State University. He has coauthored two textbooks (Business Intelligence and Analytics: Systems for Decision Support, 10th edition, Prentice Hall and Business Intelligence: A Managerial Perspective on Analytics, 3rd Edition, Prentice Hall). His research has been published in major journals in management science and information systems including Management Science, Operations Research, Information Systems Research, Decision Support Systems, Decision Science Journal, EJIS, JMIS, Interfaces, INFORMS Journal on Computing, and many others. He is a member of the editorial boards of journals such as the Decision Support Systems, Decision Sciences, and Information Systems Frontiers. He is currently serving as the Executive Director of Teradata University Network and received the 2013 INFORMS HG Computing Society Lifetime Service Award.

REFERENCES