Curriculum Developers

2022-2025

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Instructional Lead
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2022-2023

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Find Out More!.

Click this link to view the curriculum:
Data Science, AI and You (DSAIY) in Healthcare Curriculum

Curriculum Developers

Beth Price

- Instructional Lead
- Retired Educator

I am a 30-year teaching veteran with experience in K-12 curricula. My bachelor's and master's degrees were earned through East Carolina University in North Carolina. I have been a classroom teacher, media specialist, literacy coach, curriculum coach, and IB program coordinator. I now work with Scoutlier as an instructional developer and support for educators. Learning from experts and scaffolding their knowledge for high school students with our great design team has been a truly wonderful experience. We have learned new concepts, skills, and strategies in data science, AI, and machine learning while creating the engaging DSAIY curriculum.

Sally Hamouda

I am a collegiate associate professor in the Department of Computer Science at Virginia Tech. My research interests include computer science education, data analytics, and text mining. I earned my doctorate in computer science at Virginia Tech in the US, and my master's and bachelor's in computer engineering at Cairo University in Egypt.

Indrani Mandal

I am a Machine Learning person interested in Deep Learning. I have experience in building machine-learning models from real-life data in Python and R. I am currently teaching Algorithms for Big Data. I have a solid understanding of dplyr in R, Hadoop, Tableau, numpy, scikit-learn, pandas in Python and Tensorflow. I am detail oriented, highly organized, multilingual professional with strong interpersonal and excellent communication skills.

Data Science, Artificial Intelligence, and You (DSAIY) in Healthcare

Healthcare is rapidly changing into a multidisciplinary field. Data science and artificial intelligence (AI) have become essential for record keeping and diagnosis in healthcare. Machine Learning (ML), a branch of AI, is critical for accurately developing predictive models that drive research, development, and healthcare practices. Unintentional bias within the datasets and computer programs used for ML creates healthcare outcomes that benefit some people more than others. This course will introduce a unique innovative learning community, as well as a wide variety of learning experiences, to provide students with an understanding of how data science and artificial intelligence create a need for diversity in healthcare.

Lesson	Title	Focus	RI Standard	RI Computer Science Standards
1 2-3 Hrs	Introduction	• Introduction to data science • Rationale for Diversity	3-RC-CU-1 3-DA-IM-2	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices. Discuss potential hidden biases that could be introduced while collecting a dataset, and how these biases could affect analysis conclusions.
2 1-2 Hrs	HIVE Ecosystem	• Understanding Hive Learning	3-RC-CU-3	Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.
3 1-2 Hrs	Machine Learning	• Introduction to machine learning • Example of machine learning (pulse ox)	3-RC-CU-1	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
4 1-2 Hrs	AI's community role in Careers and Future	• Introduction to artificial intelligence • Careers using AI	3-RC-SI-1	Use tools and methods for collaboration on a project to increase connectivity between people in different cultures and career fields.
5 2-3 Hrs	STEM posters	• Diversity in data science matters • "You can BE what You can SEE" poster	3-RC-SI-1	Use tools and methods for collaboration on a project to increase connectivity between people in different cultures and career fields.
6 2-3 Hrs	Why we need data and Where it comes from	• How is data collected? • Using Databots to obtain data	3-DA-CVT-1	Select appropriate data-collection tools and presentation techniques for different types of data.
7 1-2 Hrs	CODAP Experience	• How to use CODAP to create graphs	3-DA-CVT-1	Select appropriate data-collection tools and presentation techniques for different types of data.
8 1-2 Hrs	Organize and Visualize	• What is going on in this visualization? • How do we organize and visualize data? • Using data sets to create visualizations	3-DA- IM-1	Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.

Lesson	Title	Focus	RI Standard	RI Computer Science Standards
9 1-8 Hrs	Exploring Data to Find Meaning	• Asking questions about data visualizations • Creating box plots	3-DA- IM-1	Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.
10 1-2 Hrs	Exploring Data to Find Meaning (part 2)	• Create best-fit lines • What is linear regression?	3-DL-CU-1	Select appropriate data-collection tools and presentation techniques for different types of data.
11 2-3 Hrs	Intro to ML Technology	• Intro to Colab Notebook and Pandas	3-RC-CU-2	Design and analyze computational artifacts to reduce bias and equity deficits.
12 2-3 Hrs	What is Machine Learning?	• How machine learning works	3-RC-CU-2	Design and analyze computational artifacts to reduce bias and equity deficits.
13 2-3 Hrs	Supervised and Unsupervised Learning	• What is Supervised and Unsupervised Learning?	3-DA- IM-1	Create computational artifacts that use algorithms to solve computational problems by leveraging prior knowledge and personal interests.
14 3-4 Hrs	ML Models and Algorithms	• Manipulate data and algorithms for ML and AI.	3-DA- IM-1	Create computational artifacts that use algorithms to solve computational problems by leveraging prior knowledge and personal interests.
15 2-3 Hrs	Model Training and Evaluation	• Describe how machine learning algorithms are tested and improved. • Overfitting model issues	3-DA- IM-1	Create computational artifacts that use algorithms to solve computational problems by leveraging prior knowledge and personal interests.
16 1-2 Hrs	Cross-validation and Model Interpretability	• Compare and contrast different data and strategies used to train machines.	3-DA- IM-1	Create computational artifacts that use algorithms to solve computational problems by leveraging prior knowledge and personal interests.
17 1-2 Hrs	Data Diversity	• Biases in machine learning/training • Analyze how biases and assumptions affect how trained machines perform.	3-DL-CU-1	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
18 4-5 Hrs	Community Presentation	• Final presentations created and presented by students to community members.	3-DL-CU-1	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.