

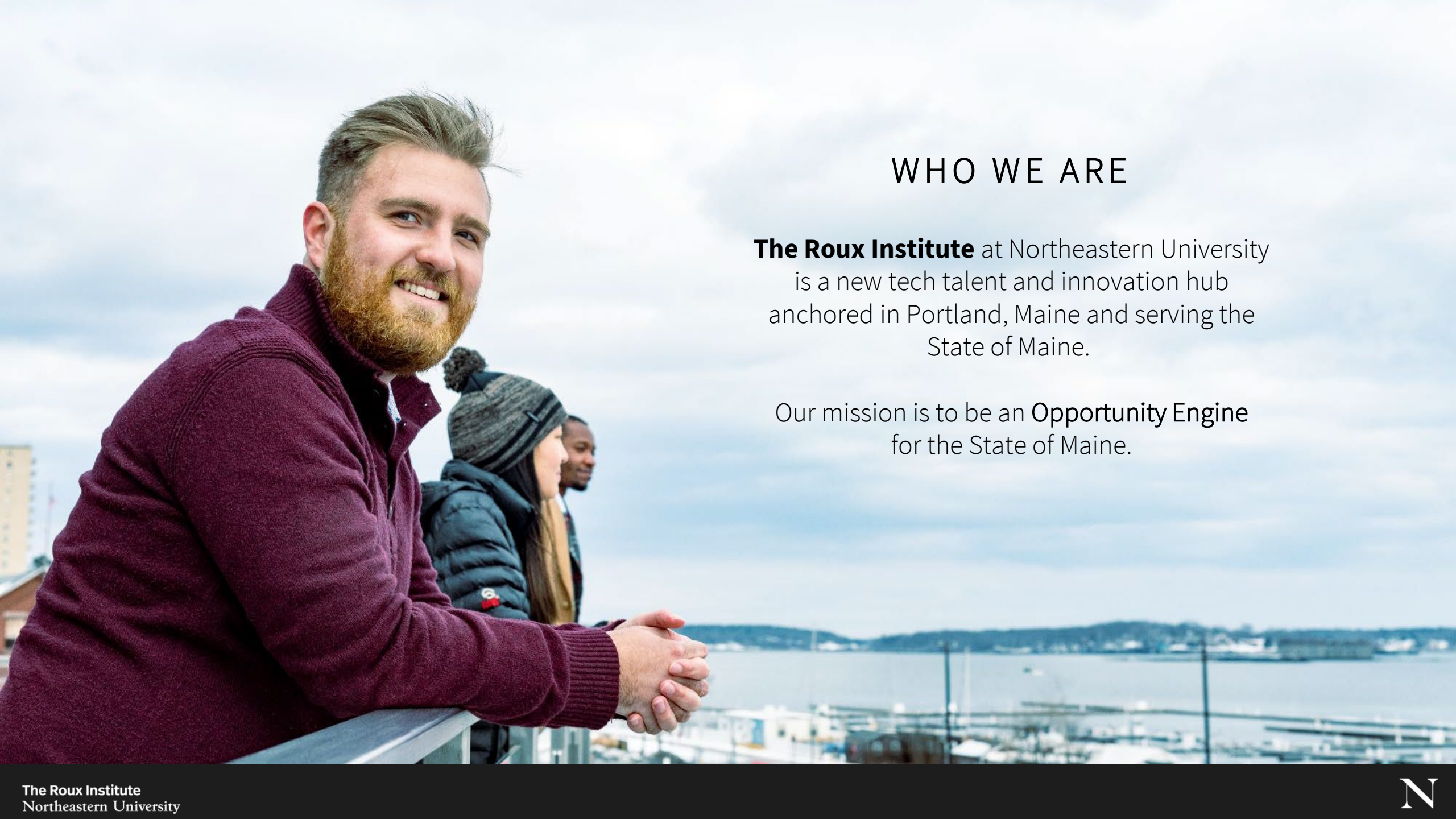
4/17/2024

Customer Discovery re Our Research Community's Data Analytics Needs



The Northeastern **Global Network**





WHO WE ARE

The Roux Institute at Northeastern University is a new tech talent and innovation hub anchored in Portland, Maine and serving the State of Maine.

Our mission is to be an **Opportunity Engine** for the State of Maine.



At The Roux Institute, We **create value** by:



Creating a **talent** pipeline via tech-forward, flexible education opportunities



Providing **research** expertise applied to today's business needs

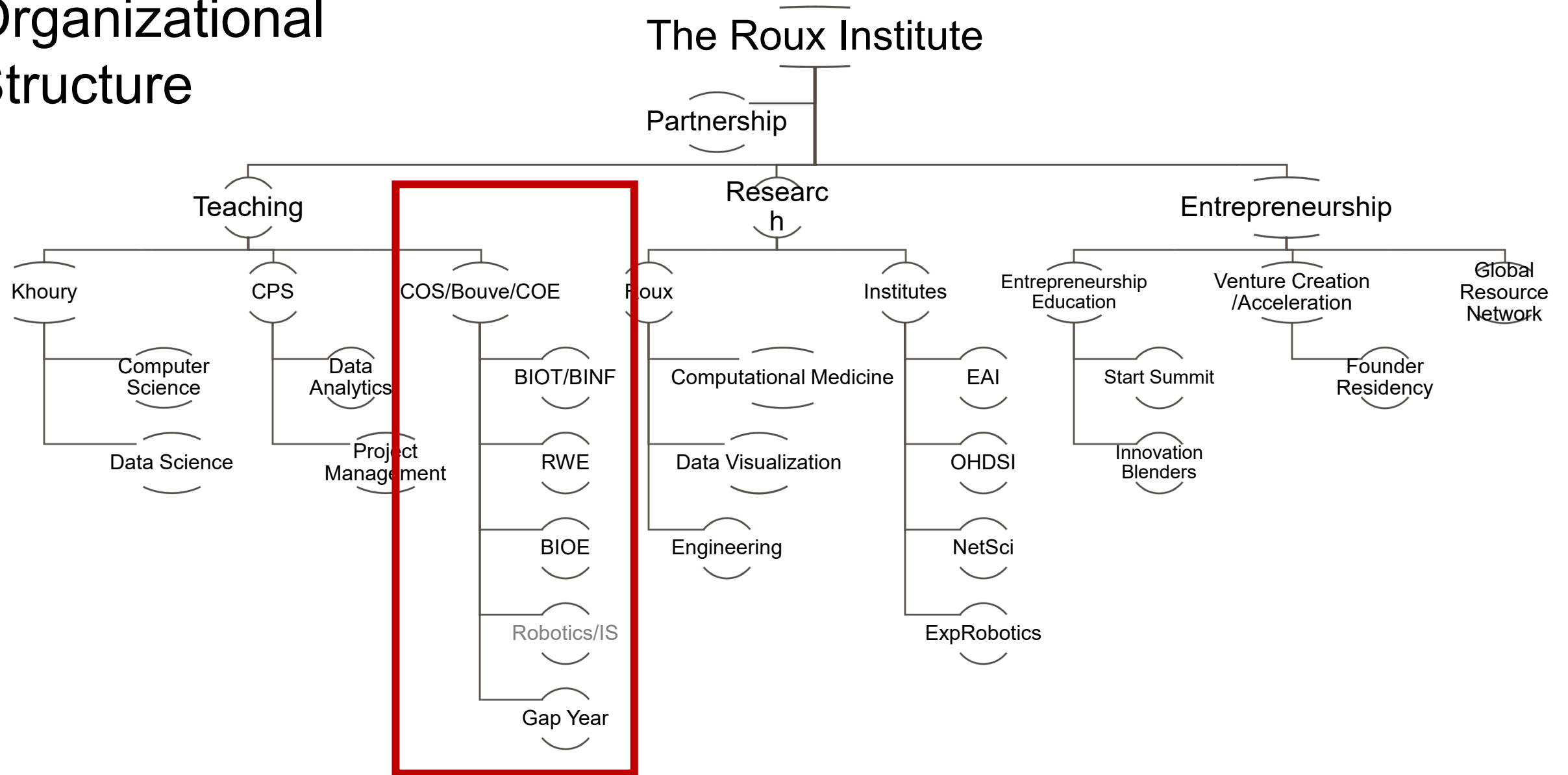


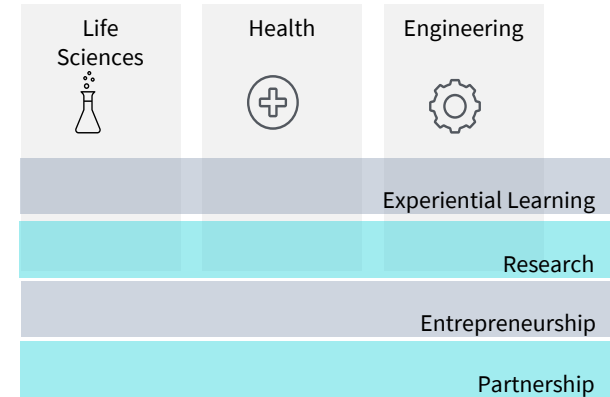
Accelerating the creation of high-growth **new ventures**



Building purpose-driven **partnerships**

The Roux Organizational Structure





Life Sciences, Health & Engineering (LSHE)

To create educational programs to support human capital development for economic growth in the areas of life sciences, health, and engineering.

**The Problem
We Have Heard**

Maine researchers want more training in data analytics, informatics, and machine learning to facilitate their research.



Things People Want

1. Survey of understanding of terms and tools
2. Skills to analyze data
3. Algorithm tool development in the life sciences

Data Viz and Machine Learning

Database Management

Jupyter

Basic R/Innovations in R

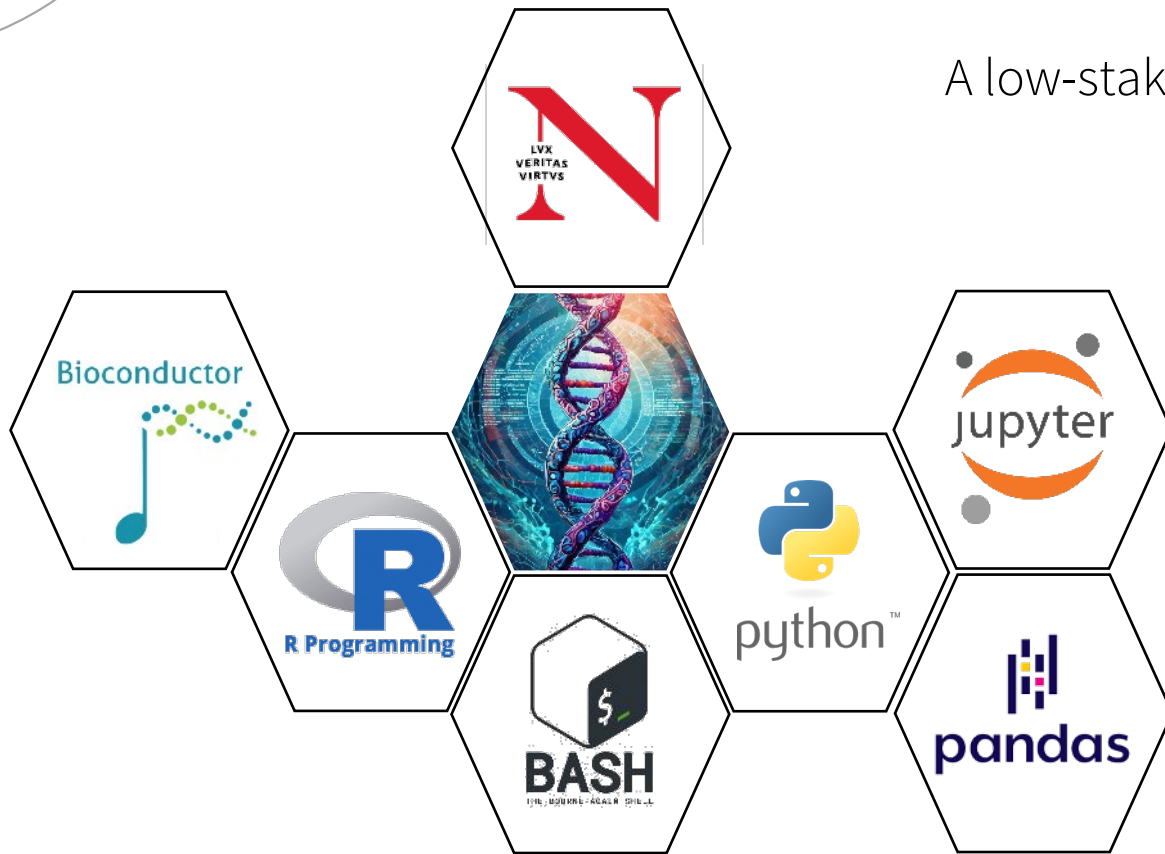
Basic Stats

Python

Grant Writing

Vision: Computational Life Sciences Training Program for Researchers

A low-stakes, low barrier, upskilling data analytics pathway.



Proposed Options: Feedback?

Course	Focus	Length of course
The shell and command line interfaces	Computational	1-2 days
RMarkdown and/or Jupyter in the Lab (depending on interest)	Computational	1 day
Intro to Python (or R)	Computational	5 days
Demystifying Machine Learning for Health & Life Sciences Research	Computational	1 day
Fundamentals in Experimental Design in Bioinformatics	Biological/Experimental	3 days
Exploratory Data Analysis [in Bioinformatics]	Data science	2 days
Basics of Data Visualization [in Bioinformatics]	Data science	1-3 days

Proposed Workshop: Feedback?

May 20, 2024, Monday

Demystifying Machine Learning for Health & Life Sciences Research

Description: Join us for a transformative one-day workshop designed to illuminate the intricate world of machine learning (ML) within the realm of health & life sciences research. This course offers a high-level overview of diverse AI algorithms and their applications in health and life sciences research.

- | | |
|----------|--|
| 9:00 AM | Introduction to Machine Learning and Bioinformatics |
| 10:00 AM | Supervised Learning: Linear Regression and KNN (Live Coding) |
| 11:00 AM | Coffee Break |
| 11:15 AM | Supervised Learning: SVM and Random Forest (Live Coding) |
| 12:15 PM | Lunch Break |
| 1:15 PM | Unsupervised Learning: Hierarchical and K-means Clustering (Live Coding) |
| 2:15 PM | Coffee Break |
| 2:30 PM | Neural Networks: Convolutional Neural Networks (Live Coding) |
| 3:30 PM | Q&A, Discussion on Ethical AI, and Course Wrap-Up |



Thank You!

Aileen Huang-Saad, PhD, MBA
Director of Life Sciences, Health, & Engineering
a.huang-saad@northeastern.edu

Marcus Sherman, PhD
Assistant Professor, Bioinformatics
m.Sherman@northeastern.edu

Moriah Folsom
LSHE Program Manager
mo.folsom@northeastern.edu



**LVX
VERITAS
VIRTUS**