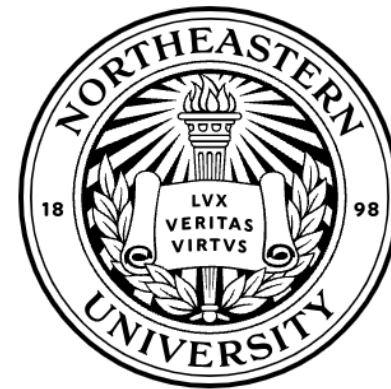
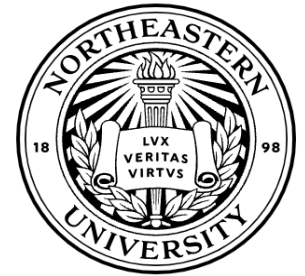


Partnering with  
industry to prepare  
Northeastern biology  
students for the data-  
rich world



# University challenges

- Stiff competition in recruiting from declining pool of students
- Increasing skepticism regarding ROI on high tuition
- Disengaged students in context of AI



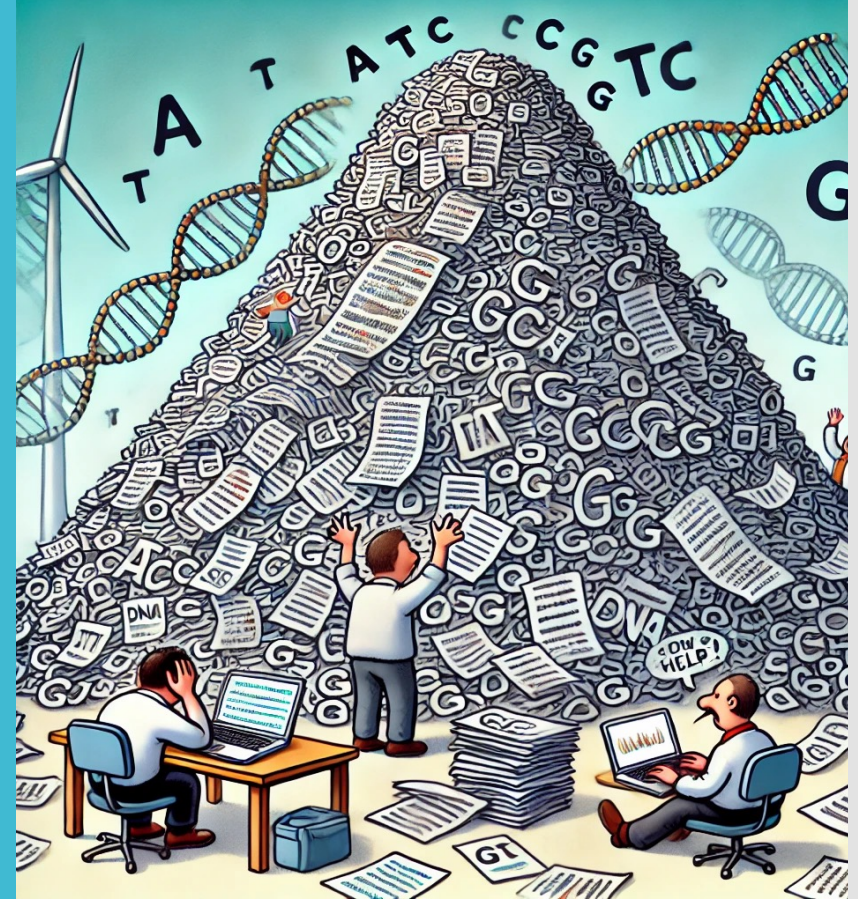
# Global challenge: A growing computational skills gap

Life sciences have become data-rich

- sequencing technology
- machine learning applications

More data than skilled analysts

Employment landscape changing rapidly due to AI – many applications in life sciences



# Universities slow to respond



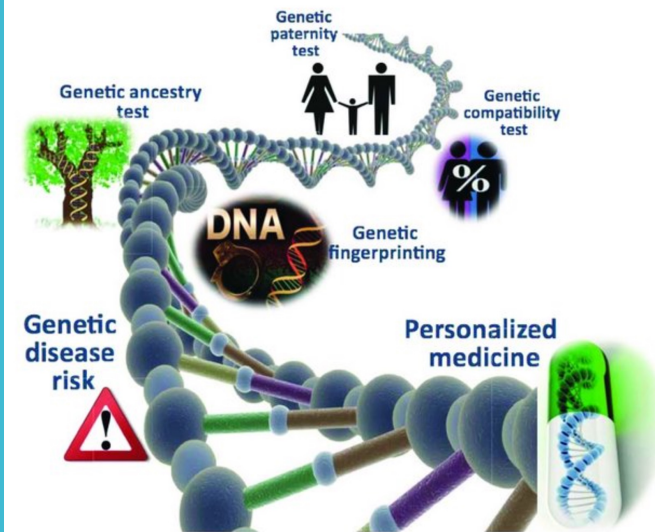
Northeastern offers  
an M.S. degree

No UG degree

# Universities slow to respond

Missed career opportunities for students

Missed research discoveries



A solution at Northeastern:



Leverage Northeastern's success with experiential learning to build an undergraduate

## Bioinformatics and Computational Biology program

*uniquely responsive  
to industry needs*

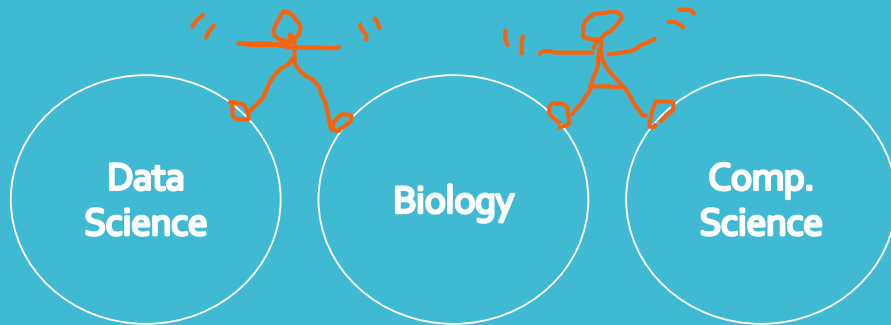


AGCATGGAC	CATTACGTA
ACATTACCA	GGACTGCA
AGCTAGTAA	ATTGATGCA
GCTTAGTCA	ATTGGGAGC
ATGCATTAC	ATGGACACA
GTAGGACT	TTAGGAGGC
GCAATTCAT	TAGTAGCT
GCAATTGCG	TAGCAATG

# Primary stakeholders: NU students

Many unaware of bioinformatics as a career path

Others choose sub-optimal dual major or minor

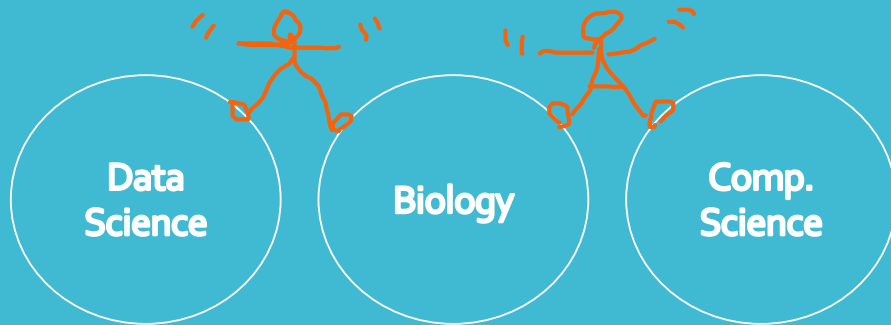




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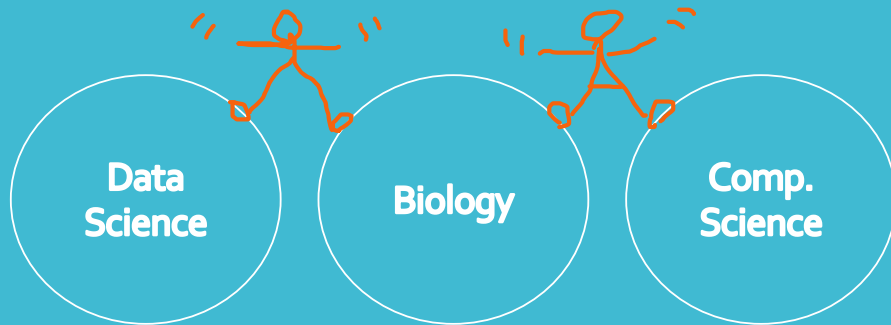


"Until I took Prof. Henzy's new course, I wasn't sure what 'bioinformatics' was. Now I'm working on a bioinfo project on Lyme disease in an NU lab, and I just completed my first co-op working at a biotech doing analysis of single-cell data."

# Primary stakeholders: NU students

Many unaware of bioinformatics as a career path

Others choose sub-optimal dual major or minor



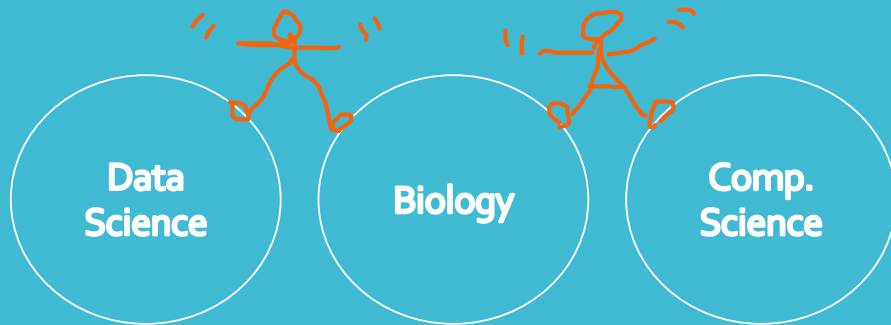
"Even though I was a data science minor, most of the skills I use for bioinformatics I had to get from online tutorials."

# Primary stakeholders: NU students

Many unaware of bioinformatics as a career path

Others choose sub-optimal dual major or minor

Turn to online courses to learn relevant skills



"I've had to learn many skills through online courses."



"... most of the skills I use for bioinformatics I had to get from online tutorials."

# We can serve our students better!



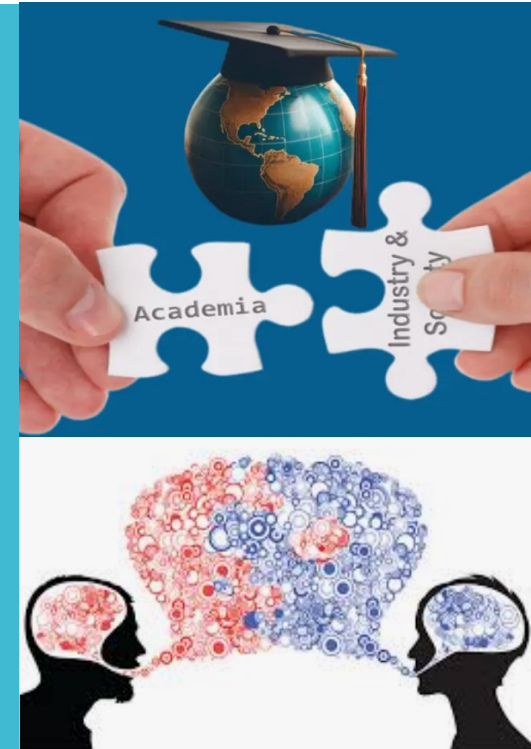
Industry-informed BCB major would:

- Offer skills credentialed by NU, not online courses
- Engage students by offering skills valued by industry
- Integrate these skills into the UG biology curriculum
- Attract students, and faculty who use these methods
- Attract more industry partners to develop talent pipeline

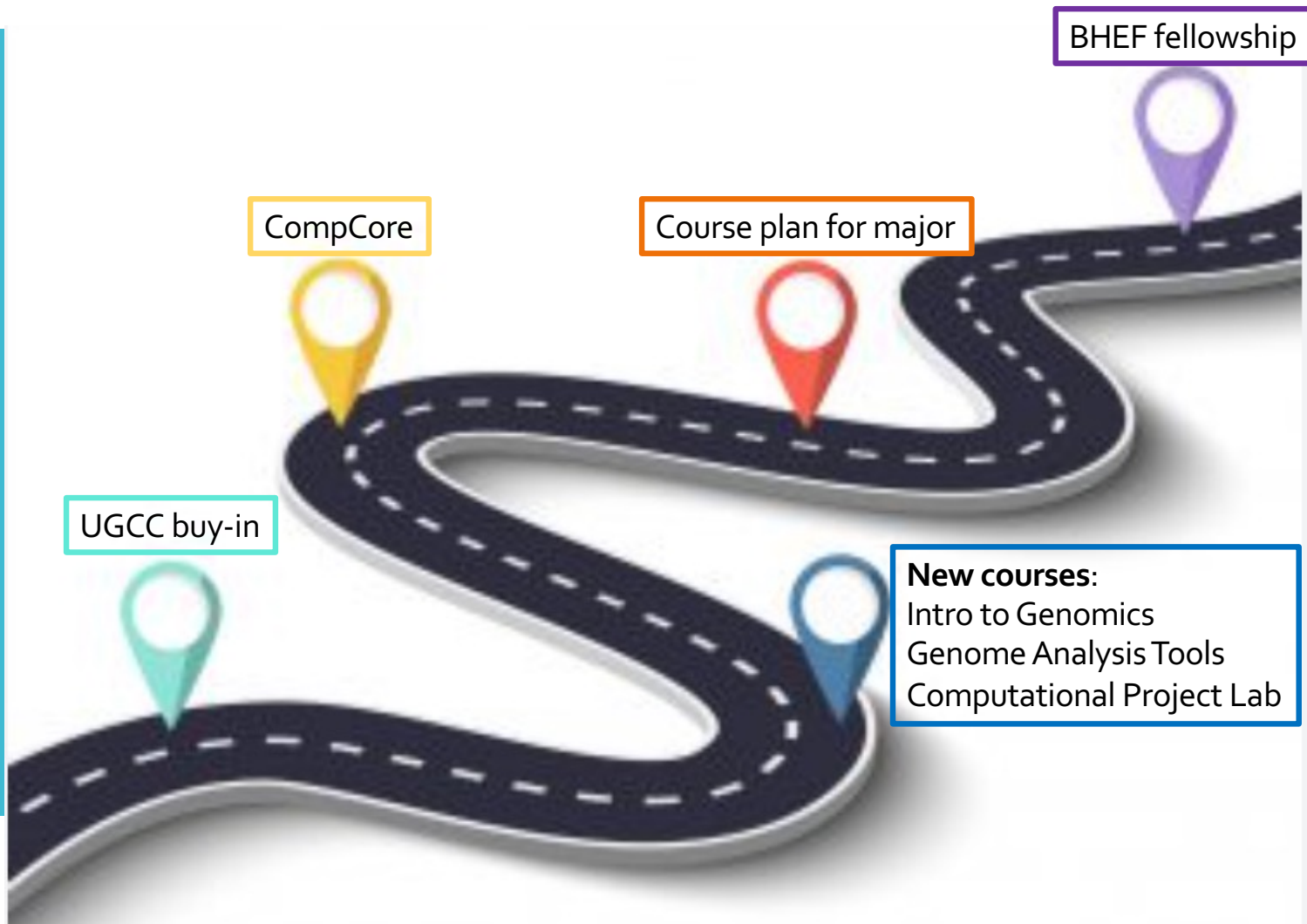


## What would an industry-informed curriculum look like?

- Dialogue with industry to identify highly-desired skill sets
- Develop courses offering these skills
- Structure courses to be adaptable (modular)
- Invite industry researchers to participate in teaching modules

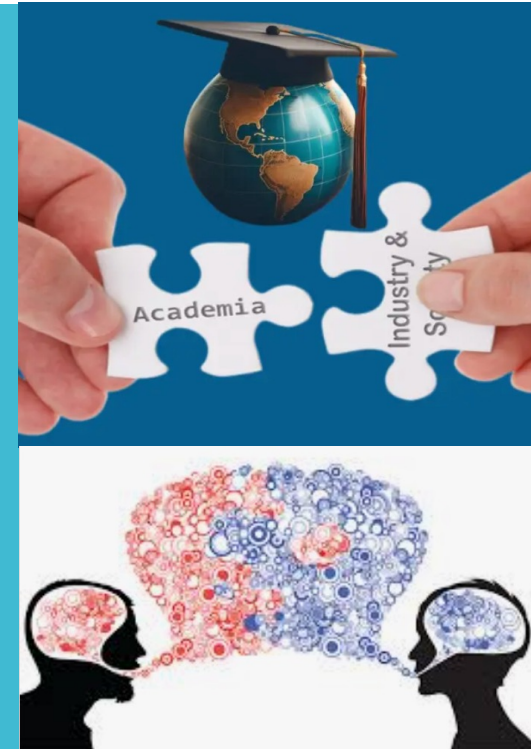


# Progress to date



## Support needed for project

- Help identify co-op and university partners
- Express support for project to strengthen my position in presenting to potential partners or external funders
- Provide small budget for publicizing to students and faculty, and inviting instructors



## A win-win-win situation!

- UGs learn highly relevant skills
- Industry helps grow its talent pipeline
- NU enhances reputation for experiential learning

Thank you!

Can we schedule a follow-up discussion on ensuring this project's success?