

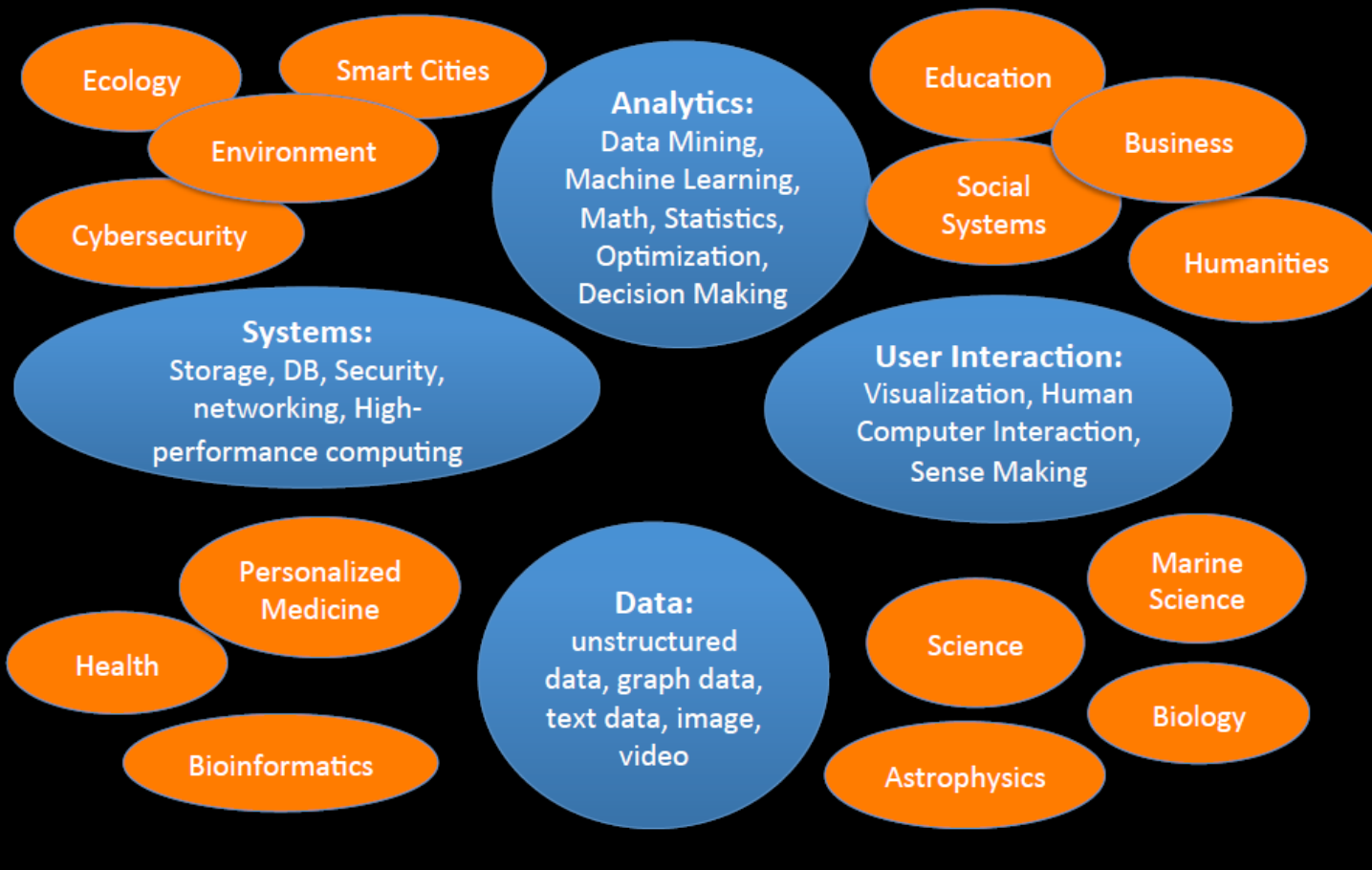
A New Major:
BS in Data Science
A CS-STAT joint program

Definition we used ...

The new Data Science degree centers on computer science and statistics

- using computational methods and statistical techniques, modeling, data management, and domain expertise
- to make use of the growing wealth of data for data-driven discovery, extraction of knowledge, and informed decision making.

Data Science is Interdisciplinary



Data Science degree programs/majors ...

(Professional) MS degrees

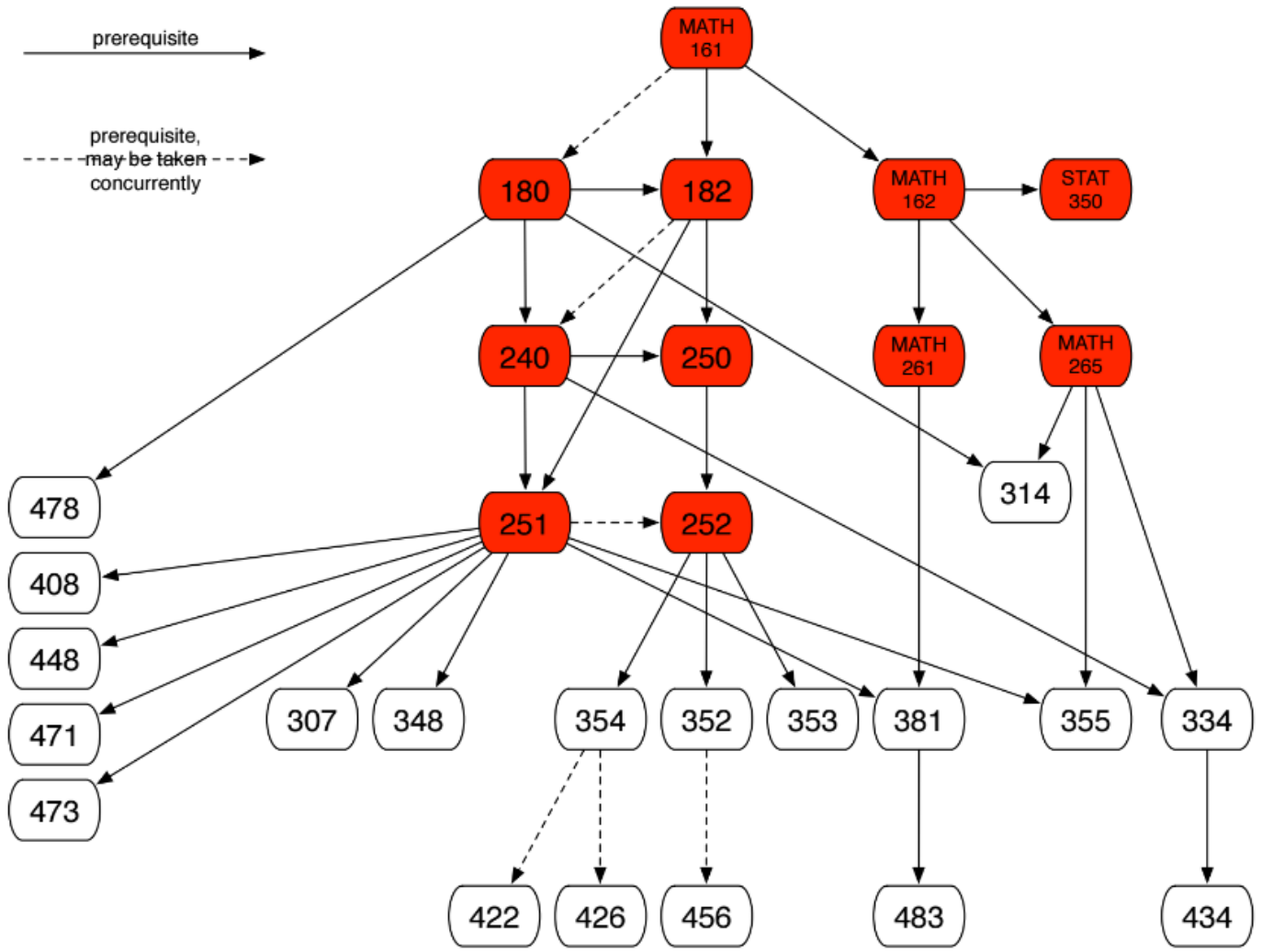
- Many
- http://analytics.ncsu.edu/?page_id=4184

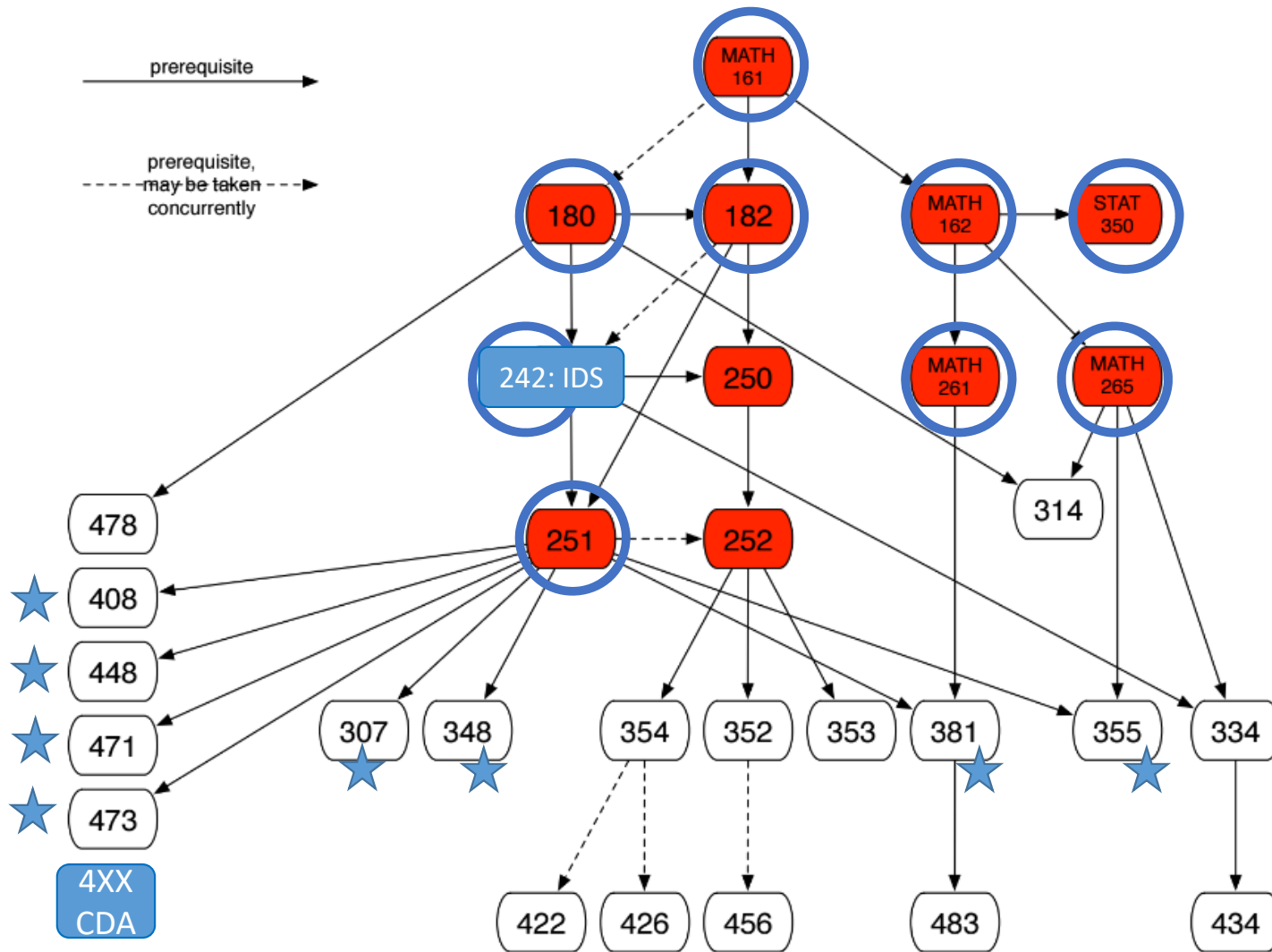
Undergraduate degrees

- Penn State, UC Berkeley, U of Michigan, UC Irvine, U of Rochester, Ohio State, ...
- many under development

CS-STAT Joint BS in Data Science Major

- CS and Stat have the same [Math and Science requirements](#)
- New courses
 - CS/STAT 242: Introduction to Data Science
 - CS 4XX: Large Scale Data Analytics
 - Data Security and Privacy (panned)
- Required courses
 - Stat : 355, 416, 417
 - CS: 180, 182, 1-cr Python, 242, 251, 373, 4XX
 - Electives: CS (2), STAT (1)
- Capstone requirement





Data Science Faculty (CS and Stat)

- Chris Clifton
- Petros Drineas
- Jennifer Neville
- Bruno Ribeiro

- Elias Barenboim
- David Gleich
- Dan Goldwasser
- Jean Honorio
- Walid Aref

- Mark Ward
- Vinayak Rao

- Bill Cleveland

Plus future hires

Questions we asked ourselves?

- Why not make data science just a new track?
 - Could not allow for STAT courses
 - Role of the systems courses in DS was discussed extensively
- Besides CS and STAT students, who will pursue the DS major?
 - There was no in-coming class yet
 - Student interest has so far come from Science, Engineering, Technology
 - CS&DS double major will be attractive to CS students
 - Unclear if students leaving CS will pursue DS
- Are we giving students the right preparation for a career in a data science field?
 - Needs more assessment
 - Major was modeled after related courses/programs at UC Berkeley, Harvard, UW
- Should the major explicitly connect to a domain?
 - Science requirements could be tailored towards a domain

Questions we asked ourselves?

- Are we preparing students for graduate study?
 - Yes, but probably not for traditional CS graduate programs
- What education/experiences does industry expect from a BS in DS graduate? Now? In five years?
 - Needs ongoing discussion and input
- How to balance junior faculty building their research career with the need of involving them in developing new courses?
 - Tricky in a time of high enrollments
 - Faculty Hiring is a challenge: Fewer than 30% of all new Ph.D.s in CS (about 1950 in 2016) pursue an academic position **and** the majority of departments have open faculty positions in data science related areas

QUESTIONS?