Data Science Education @ UW

Magdalena Balazinska

Professor and Director
Paul G. Allen School of Computer Science & Engineering
University of Washington
“Data Science for ALL and by ALL”

From the beginning

• No unit should own data science
• All units can contribute to data science education
• Used data science institute, eScience, to bring all together
Formal Data Science Education Programs

- PhD
  - Advanced Data Science Option
  - Data Science Option

- Undergraduate
  - Data Science Option
  - Data Science Minor

- Professional
  - Data Science Master’s
  - Professional Certificates

Together with Many Departments/Schools/Colleges

Launched

- Track: 2013
- Option: 2015
  - 2016
  - 2017

- 2016
- 2020
- 2016
Ugrad/Grad Data Science Options

- Option: specialization within existing major
- Student first admitted to participating department or school
- Student elects to pursue the option
- **Single framework** under eScience umbrella
- Central steering committee
  - One representative from each department/school
- But otherwise managed by individual departments
Participating Departments
(new ones continue to join)

- ACMS
- Applied Math
- Astronomy
- Atmospheric Sciences
- BIME
- Bioeng.
- Biology
- Chemical Eng.
- Civil & Environ. Eng.
- Chemistry
- Computer Sci & Eng
- Genome Sciences
- Geography
- HCDE
- iSchool
- Math
- Molec. & Cell. Biology
- Molec. Eng. & Sciences
- Oceanography
- Psychology
- Statistics
Data Science Minor

- Complements a major; must have a major first
- Student elects to pursue the minor
- Centrally managed by Undergrad Academic Advising
- Aimed at non-STEM students (STEM should do options)
- But more generally popular

Already third most popular minor
How is the Minor structured?

Anthropology, Geography, History, International Studies, Sociology, Gender studies, etc. (9)

Maths, Computer Science, Statistics, Economics, Informatics, Biology, Engineering, etc. (36)

Data studies

Data skills

Cross-cutting courses:

on-ramp (6) & synthesis (20)

One class from each primary set, then additional classes from primary or cross-cutting sets up to 25 cr
(typical UG degree is 180 cr)
Majors of Participating Students

From over 60 different majors including mathematics, economics, biology, public health, psychology, applied math, communication, biochemistry, environmental studies, sociology, geography, electrical engineering, political science, business administration, real estate, comp fin & risk mgmt, oceanography, microbiology, linguistics, human centered design & engineering, and many others.
Options vs Minor

**Data Science Options**

- Great for buy-in, department change, and department PR
- Easily customizable to different programs
- A ton of work to create a joint framework
- Painful to roll out because requires changing N programs

**Data Science Minor**

- Easy to create and roll out
- Easy to add classes and contributing departments / schools
- Any student can take it
Some Additional Lessons Learned

**• Bringing units together works**
    – Data science for all and by all (all units contribute)
    – Helps feeling of inclusion and avoids conflicts
    – Evolves thinking: broadens scope and perspective

**• Key challenges**
    – Course capacities
      • Need better budget models so courses can pay for themselves
    – Coordination across all participating units and new units
What Next?

Join the Discovering AI@UW Event

For conversations with AI experts from across the UW campus
May 23rd, 8:00 a.m. to 5:30 p.m.
HUB Lyceum Room, University of Washington
Free admission, registration required

REGISTER NOW