

UNIVERSITY *of* WASHINGTON

eScience Institute

ADVANCING DATA-INTENSIVE DISCOVERY IN ALL FIELDS

# Undergraduate Data Science Education

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## eScience Education Initiatives

### “Data Science for ALL”

Formal  
Programs

Informal  
Courses,  
Workshops, &  
Seminars

eScience Education Working Group

# eScience Education Working Group

- Inter-disciplinary working group
- Members from large variety of schools and departments
  - Anyone interested in data science education is welcome!
- Monthly meetings
- Defined common framework for data science specializations:
  - What does data science mean?
  - What are minimal core components of a data science specializations?
  - What courses are missing and who should teach them?

# Educational objectives

## Goal 1: Educate ALL UW students in data science

- Many need to learn how to **use** data science tools
- Some need to learn how to **build** data science tools

## Goal 2: Create a community of data science students

- Inter-disciplinary community of students
- Tied to eScience Institute community

## Formal Data Science Education Programs

PhD

Advanced Data Science Option

Data Science Option

Undergraduate

Data Science Option

Professional

Data Science Master's

Professional Certificates

Together with Many Departments/Schools/Colleges

# Data Science for Undergraduate Students

## Data Science Option (Transcriptable)

- Common framework with specialized instantiations

Majors

Required

At least two

Prog.

Machine  
Learning

Societal  
Implications

Data  
Mgmt

Data  
Viz

Stats

Dept  
Spec.

Pre-majors  
(Freshmen/Sophomores)

Data Prog  
1 & 2

Offered by: CSE

Intro Data  
Science

Stats/INFO/CSE

Data &  
Society

Sociology

# Career Building

## Data Science Career Fair



The 2017 UW Data Science Career Fair will be held on Monday, October 23 from noon to 5 p.m. in the HUB Ballroom.

Multiple UW departments and programs are working together to create this opportunity for undergraduates, graduate students, and postdocs working in data science to connect with companies and research labs looking for permanent employees and summer interns in data science positions.

## UW Data Science Summit

April 3 & 4 in the HUB

**Join us** for the inaugural **2018 UW Data Science Summit!** This event will be held **Tuesday, Apr. 3** and **Wednesday, Apr. 4** in the **Husky Union Building (HUB)**. A unique educational opportunity for students, faculty, staff and community members, the Summit will feature:

- Prominent experts discussing data science
- Tutorials, break-out sessions, working groups, a poster session, and lightning and industry talks
- An instructional on how a department can make its own data science option
- Prizes for best-of posters and talks
- Networking opportunities and celebratory receptions

**Preregistration is required** and space is limited! Register now on EventBrite: <https://www.eventbrite.com/e/uw-data-science-summit-tickets-43217951055>! The cost is \$50 for general admission tickets and \$10 for UW students.



900 students  
45 companies

Capped at 250  
people but  
interest much  
broader

# Undergraduate Departments w/ Data Science Option

- **Applied and Computational Mathematical Sciences**
- **Computer Science & Engineering**
- **Human Centered Design & Engineering**
- **iSchool**
- **Statistics**
- **Bioengineering**
- Atmospheric Sciences
- America Ethnic Studies
- Geography
- Anthropology
- Economics
- All engineering departments
- ...



# Trade-Offs

- **Advantages**

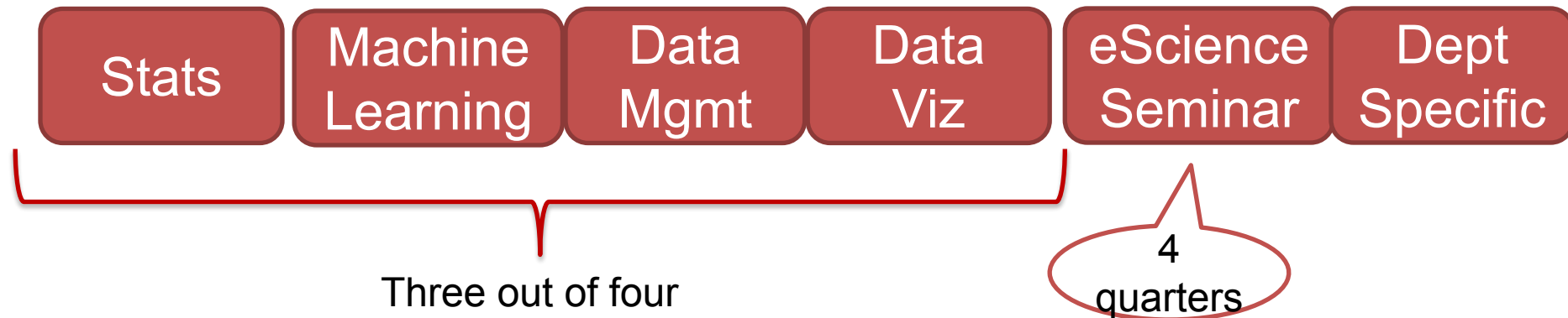
- Anyone can learn data science
- Scalable
- Flexible yet based on a common core
- Helps to change, evolve departments
- All departments can contribute to program
- Departments can use data science for recruiting students and faculty

- **Drawbacks**

- Painfully slow to roll out: Many people involved in approval for each new dept

# Data Science for PhD Students

- **Advanced Data Science Option (Transcriptable)**
  - Bootstrapped with an NSF IGERT grant
  - Designed for tool builders
  - Based on graduate courses in CSE & Stats + eScience Seminar + Specialized



<http://escience.washington.edu/education/phd/data-science-graduate-option/>

# Data Science for PhD Students

- Data Science Option (Transcriptable)

- Common framework with specialized instantiations
- Designed for tool users
  - Courses with limited pre-requisites, designed for everyone
  - Courses offered by CSE, iSchool, HCDE, Stats, ChemE, and individual departments

