

# Teaching (and more) at a Liberal Arts College

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## My trajectory

- BS (1999) Math from the University of MN Duluth
- PhD (2004) Statistics from the University of MN
- Colby College 2004-2007
  - Assistant Professor
- Carleton College 2007-
  - Associate Professor of Statistics
  - Department of Mathematics and Statistics
  - Chair (since July 1!)





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## Carleton College

- Northfield, MN
  - 45 minutes south of MSP
- Liberal arts college
- 2,000 undergrads from around the US and abroad
  - very few (if any) students outside the 18-22 age range
- student-to-faculty ratio of 9:1
- in Stats: class sizes between 20-35



## Department of Mathematics and Statistics

- Faculty:
  - 4 statisticians
  - 9 mathematicians
  - 1 continuing faculty and 3-4 visitors/year
- Two majors:
  - Statistics: 40 juniors/seniors
  - Mathematics: 90 juniors/seniors
- One minor:
  - Mathematics: 13



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## Teaching at a liberal arts college

- High quality **undergrad** teaching is expected
  - At Carleton, we get strong support from the Administration
- Strong students
  - often have broad academic interests
  - but math/stat background can vary



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## Teaching at a liberal arts college

- Building a math/stat community is important
  - faculty are accessible to students outside of class
  - help with internship/career/grad school advice, letters of recommendation
  - engage in social events



Stat vs. Math tug of war



## Who we teach at Carleton

- Our statistics majors
- Students seeking
  - a distribution requirement (a "quantitative reasoning" course)
  - a prerequisite for a methods class (e.g. econ, poli sci)
- Non-majors wanting to enhance their stats/data science knowledge
- These groups are not mutually exclusive



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## What we teach at Carleton

- Intro Stats: Lock^5-level
- Core Major Courses: Probability and Intro to Inference (Math/Stat)
- "Second" Course: Applied Regression, Data Science
- Electives: usually every other year
  - Intro to Sampling
  - Time Series
  - Advanced Modeling
  - Bayesian Stats
- Statistical Consulting



## Teaching load at Carleton

- 5 courses/year
  - Our academic year has three 9.5-week terms (fall, winter, spring)
  - *usually* balanced between Intro and non-Intro courses
  - *usually* elective every other year
  - *usually* have a homework grader but not TAs

## Research with students at Carleton

- Most years I run a "senior comprehensive" project (capstone course)
  - group of 4-6 senior stat majors, 2 terms
- Carleton also provides summer funding for **students** doing research with faculty



Me, Nick Fredrickson, Emily Kaegi, Alana Danieu, Clara Livingston



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## Research expectations (for tenure)

- Need to demonstrate a commitment to scholarship and intellectual growth
  - no quota on production
  - may also include pedagogy and student research, consulting, package development
  - make sure mathematicians understand what statistics scholarship looks like



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## Service on Campus

- Departmental:
  - weekly meeting
  - hiring committees
  - "chores"
- College-wide:
  - faculty meetings
  - committee meetings
  - student advising: 10-16 advisees
- "Consulting":
  - advice for students doing comps
  - advice for faculty research ("free")
  - supporting campus-wide interest in stats/DS/R

# Promotion

- Tenure-track candidates are evaluated on
  - teaching: most important!
  - scholarship/research
  - service: on campus and the broader statistics/data science community
- Timeline at Carleton
  - Third-year review
  - Tenure review (~6-7 years)
  - Full professor

## Support for teaching

- Get teaching support and advice from your wider campus community
  - at Carleton: the Learning and Teaching Center
- Use mentors inside and outside your department
- Engage with any "junior" faculty groups on campus
  - at Carleton: Junior Faculty Affairs Committee
- Get involved with the SSDSE community



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## What would hiring for your job look like today?

- Timing:
  - late fall - mid winter
  - some informal meetings/announcements at JSM
- Application
  - Cover
  - CV
  - Teaching Statement
  - Research Statement (for tenure-track)
  - Diversity Statement (formal statement is optional)



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## Strong applications...

- avoid a generic cover
  - why you want to be at a liberal arts school?
  - highlight knowledge of Carleton



## Strong applications...

- have a thoughtful teaching statement
  - how will you engage *all* students?
  - create a welcoming/inclusive environment?
  - how will you help increase diversity in our department/majors?
  - talk both about your experience and potential for growth



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## Strong applications...

- have research statements that addresses both current and future scholarship plans
  - how will you stay active if you are an "isolated" statistician?
  - is your research accessible to undergrads?
    - do you have ideas for UG projects?

## Rewards

What are the rewarding aspects of your job?

- Students
  - Overenrolled courses (everyone wants stats/data science!)
  - mentoring curious students with great attitudes (mostly!)
- Colleagues
  - working with people who value and *support* teaching
  - helping guide curriculum and program development



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## Challenges

What are the challenges of your job?

- Overenrolled courses (everyone wants stats/data science!)
- Being one of a few statisticians in a department
- Everyone wants to fit statistical models and analyze data
  - but should they?



## Rewarding Challenges

What are the rewarding challenges of your job?

- data science.
- how to have productive classroom discussions of ethics in statistics/data science
- how to increase diversity in both faculty and students



# Thanks for listening!

- [kstclair@carleton.edu](mailto:kstclair@carleton.edu)
- slides: [https://kstclair.github.io/JSM\\_2020/slides.pdf](https://kstclair.github.io/JSM_2020/slides.pdf)
- <https://www.carleton.edu/math/>