



Life as a Liberal Arts Statistician: Joys and Challenges

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USCOTS 2025: Liberal Arts Statistics Symposium

SYLLABUS

01

MAXIMUM LIKELIHOOD

- Bayesian Statistics - Building a Prior
- Conditions

02

DEGREES OF FREEDOM

- Supervised Learning
- Unsupervised Learning
- Voluntary Response

03

CENTRAL LIMIT THEOREM

- Bootstrapping
- Adaptive Design
- Mixed Effects Models
- Negative & Positive Residuals

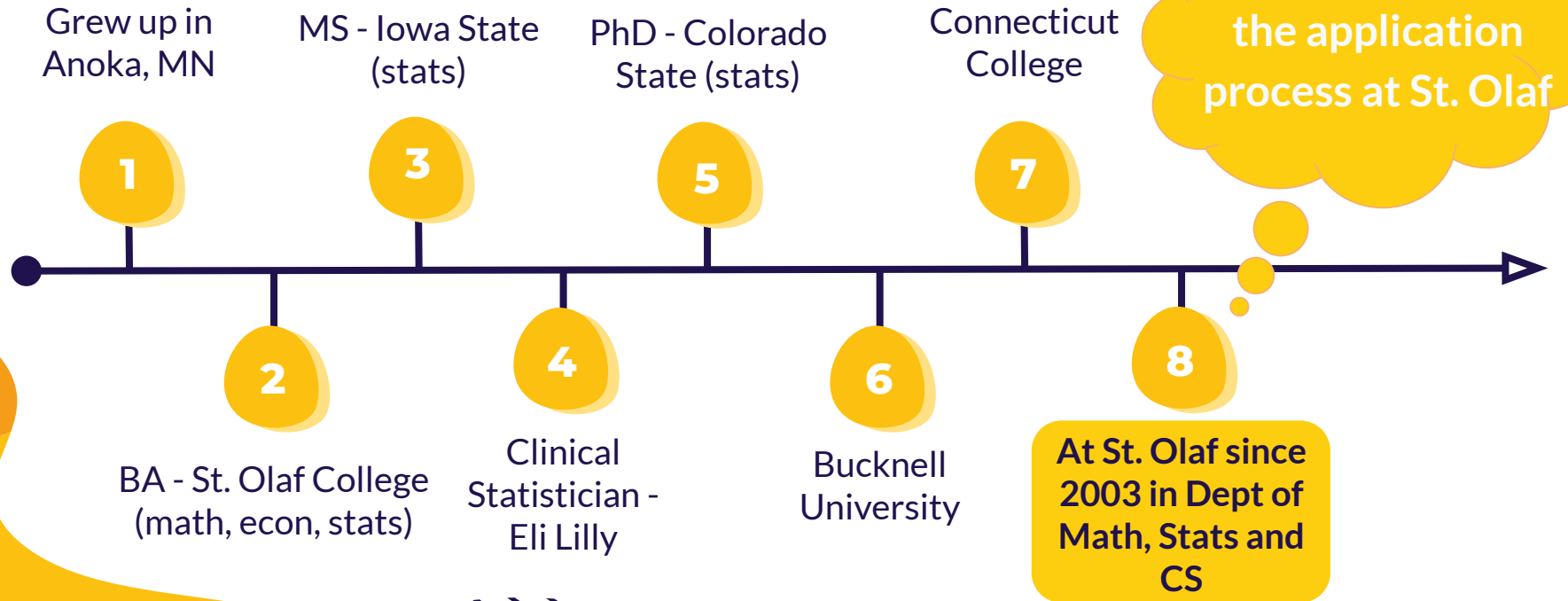


SECTION 01: MAXIMUM LIKELIHOOD

(FIND THE RIGHT POSITION)

BUILDING A BAYESIAN PRIOR

(A SHORT BIO)





SECTION 01: MAXIMUM LIKELIHOOD

CONDITIONS




(A FEW CRITERIA IN JOB SEARCHING)



SECTION 01: MAXIMUM LIKELIHOOD

CONDITIONS

(A FEW CRITERIA IN JOB SEARCHING)

-  **Supportive, student-centered department**
-  **Teaching load and variety**
-  **Alignment of professional activity expectations**
-  **Institutional stability and financial strength**



SECTION 02: DEGREES OF FREEDOM

(ACHIEVE EARLY CAREER SUCCESS)

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**SUPERVISED
LEARNING**

**“SUCCESS IN THE
CLASSROOM”**

**UNSUPERVISED
LEARNING**

**“BE ACTIVE
PROFESSIONALLY”**

**VOLUNTARY
RESPONSE**

“SERVE OTHERS”

SUPERVISED LEARNING

“SUCCESS IN THE CLASSROOM”

- Active learning
- Have a detailed plan each day
- Take notes after each class
- Survey the class periodically
- Learn from others
- Be yourself!!

UNSUPERVISED LEARNING

“BE ACTIVE PROFESSIONALLY”

- Pre-tenure: strategic choices
- Post-tenure: focus on what nourishes you
- Collaborate with non-statistical colleagues
- Adapt research questions (and timeline) for undergraduates

VOLUNTARY RESPONSE

"SERVE OTHERS"

- Jump into service early – both internally and externally
- I never got good at saying No (but I'm happy with most of my Yeses)
- If need to say No, good to have proactive Yeses



SECTION 03: **CENTRAL LIMIT** **THEOREM**

(HAVE A LONG AND FULFILLING CAREER)

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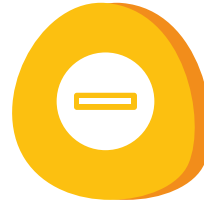
BOOTSTRAPPIN
(GROWING **G** PROGRAM)



**ADAPTIVE
DESIGN**
(NAVIGATING
CHANGING
LANDSCAPES)



**MIXED
EFFECTS
MODELS**
(WORK / LIFE
BALANCE)



**NEGATIVE
RESIDUALS**
(CHALLENGES TO FACE)



**POSITIVE
RESIDUALS**
(JOYS TO
CELEBRATE)



SECTION 03: CENTRAL LIMIT THEOREM

BOOTSTRAPPING

(GROWING A PROGRAM)

- Customizable concentration / minor
- Center for Interdisciplinary Research / create community
- Add modern courses to the curriculum
- Find projects everywhere!
- Initial sweat equity



SECTION 03: CENTRAL LIMIT THEOREM



ADAPTIVE DESIGN

(NAVIGATING CHANGING LANDSCAPES)



- Classroom dynamics and design
- Technology
- Rising popularity of SDS
- Relationship with math and CS
- Data ethics



SECTION 03: CENTRAL LIMIT THEOREM

MIXED EFFECTS MODELS

(WORK / LIFE BALANCE)

- Embrace the liberal arts environment
- Know how you recharge
- Finding time for family and friends
- Too much of a good thing? Be strategic!





NEGATIVE RESIDUALS

SECTION 03: CENTRAL LIMIT THEOREM

(CHALLENGES TO FACE)

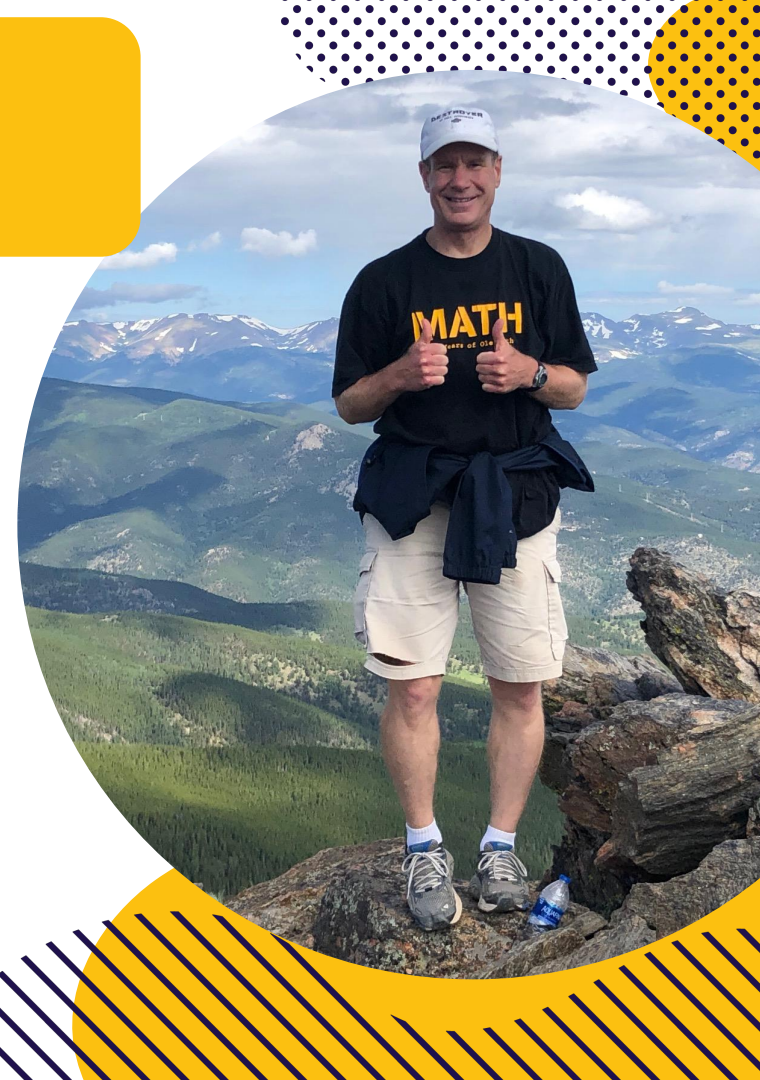
- Semesters are a sprint (energy / sleep)
- Salary
- Grading (Period)
- 5% of students
- Slow changes in academia
- Lifelong learning can be exhausting



POSITIVE RESIDUALS

(JOYS TO CELEBRATE)

- In no hurry to retire - rarely feels like work
- Awesome colleagues in a highly functioning dept
- Students earnestly want to make the world better
- Creating good lessons and learning environments
- Constant renewal
- Collaborate with experts in different fields
- Looking back on what we've built in SDS
- Being part of an institution that I can take pride in
- Connections with the greater SDS community
- Lifelong learning can be exhilarating



SECTION 03: CENTRAL LIMIT THEOREM



POSITIVE RESIDUALS

(JOYS TO CELEBRATE)

- Oh, and free indoor tennis :)



THANKS!

I'd love to hear feedback, answer questions,
or just generally chat about this
stuff at any time!

Email contact: Roback@stolaf.edu

