

# Welcome to SURE 2023

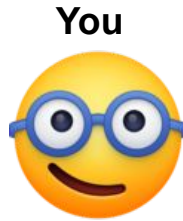
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Meg Ellingwood, Shamindra Shrotriya + SURE team

# Welcome to SURE 2023!

What is **SURE**?  
Optum, CMSAC, huh...?

Who are the SURE  
**team**?  
instructors, TAs,  
administrators



Little nervous?  
Little tired?  
...  
**Excited!**

What is a typical  
SURE 2023 **day** like?  
e.g., schedule, activities,  
lectures

What are the  
expected  
**deliverables**?  
e.g., grading,  
assessments etc.

**Takeaway:** we'll answer all of these questions and then some today!

# What we'll cover in this intro session

**SURE 2023 'birds-eye view':** background, structure, goals, benefits

**Planning team intro:** us + TAs + student support + executives

Break (10min)

**SURE 2023 in detail:** deliverables, scheduling, activities, odds and ends

**Student support in detail:** logistics, financial administration, academic advising

**Wrap-up and today's plan**

# SURE 2023: At a glance

**SURE** = **S**ummer **U**ndergraduate **R**esearch **E**xperience

**Dates:** June 5th to July 28th (with breaks)

*Explore **cutting-edge statistics** and **data science** methodology  
with applications in **healthcare** and **sports analytics***

SURE is a healthcare + sports data science program

Healthcare

Optum (UHG)  
15 students



**Bridges to Healthcare Technology**

Carnegie Mellon University  
Statistics & Data Science

UNITEDHEALTH GROUP

Optum

UnitedHealthcare

The AUC Data Science INITIATIVE

The banner features a light blue background with a faint grid pattern. The title 'Bridges to Healthcare Technology' is in large, bold, blue and black font. Below it, logos for Carnegie Mellon University, UnitedHealth Group, Optum, and UnitedHealthcare are displayed in a row, separated by vertical lines. On the right side, there is a colorful logo for 'The AUC Data Science INITIATIVE' consisting of several overlapping circles in red, yellow, green, and blue.

Sports

CMSAC  
16 students



**Carnegie Mellon University**  
Statistics & Data Science

The banner has a white background with a thin black border. The text 'Carnegie Mellon University' is written in a large, red, serif font, and 'Statistics & Data Science' is written below it in a smaller, black, sans-serif font.

**Takeaway:** health/sports domain split means that the research focus is different

# Healthcare + sports *share* statistical techniques!

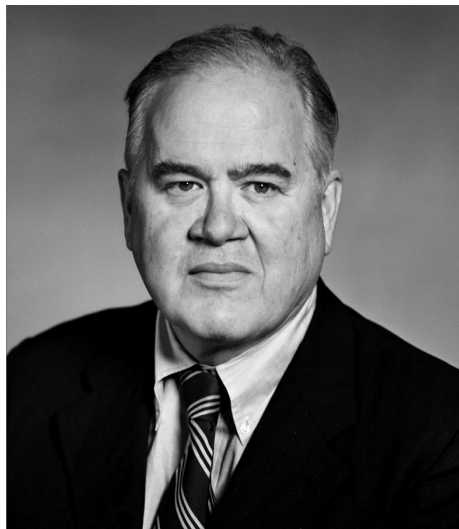


Image: [source](#)

*“The best thing about being a statistician...is that you get to play in everyone’s backyard.”*

– **John W. Tukey** (1915-2000)

Famous for: **multiple testing, FFT, boxplots, ...**

**Takeaway:** your research domains will vary, but we still gain by learning together!

# What is SURE 2023 is (and what it ain't)

## **SURE 2023 is NOT**

A traditional “summer school” course

Graded, i.e., no HWs, tests etc (yay!)

## **SURE 2023 IS designed to be**

Research-focused

Interactive, intensive, invigorating

**Takeaway:** student-driven, research-focused skill building

# What will you gain from SURE 2023?

A **foundational toolkit** of **data science** and **machine learning methods**

An understanding of **how and when to apply** those methods

**Hands-on experience** working with **real data**, in a **research** or industry setting

**Takeaway:** fundamental **statistical research** skills + **great networking** opportunities



# Who are we, i.e., your SURE instructors?



CMU StatDS **2nd year PhD**

**Research:** Neuroscience, sports analytics, public health

Alumna of **CMSACamp '20**

**CMSAC**

Meg Ellingwood



CMU StatDS **PhD 2022'**

**Research:** Density estimation, isotonic regression, ranking.

**Worked** for 8 years in industry as actuary, and then as a data scientist and data engineer.

Presented at **CMSACConf 19'**

**Optum**

Shamindra Shrotriya

**Takeaway:** we are responsible for data science / engineering content + lectures

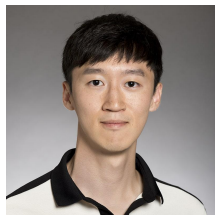
# Meet your fantastic TA Advisors



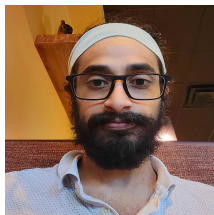
YJ Choe



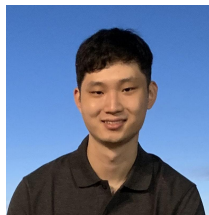
Alec McClean



Beomjo Park



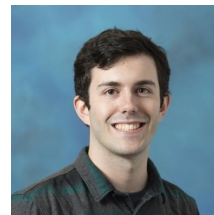
Akshay Prasad



Yuchen Chen



Quang Nguyen



Nick Kissel

**Optum**

**CMSAC**

**Takeaway:** TA advisors **run demo-labs**, and are your main **research mentors**

We also have a brilliant student support team



LeeAnn Chapman



Jess Paschke



Glenn Clune



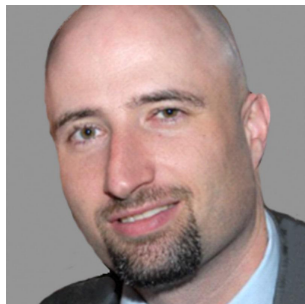
Teraya White

**Financial Admin + logistics**

**Academic Advising**

**Takeaway:** they are central to ensuring that you all have a safe, welcoming program

## Even more behind-the-scenes heroes, i.e., exec team



Jamie McGovern

**Director of CMU  
StatDS MSP program**



Peter Freeman

**Associate Teaching  
Prof. CMU StatDS  
Head of U/G program**



Rebecca Nugent

**Prof. and Head of the  
CMU StatDS  
Dept.**



Ron Yurko

**Assistant Teaching  
Prof. CMU StatDS**

**Takeaway:** exec team established **SURE** with **program partners** and then **scaled it**

Break time!

**10 mins**

# We'd love to hear more about you!

Your **preferred name**

Which **program (Optum/CMSAC)**

**Major and research interests?**

**Why SURE 2023?**

Fun fact

What is the **endgame** for *you* as SURE student?

# You have three key group-based research deliverables



report



poster



presentation

**Optum:** healthcare theme decided by Optum, group allocations this week

**CMSAC:** sports topics and groups chosen based on project pitches

Due final week + presented to **Optum executives** + sports **team managers!**

**Takeaway:** just **one** deliverable with three different expressions + **networking**



How will **we** help you get there?

There are four key activities to help build research exp.

**Lectures**

Industry **presentations**

**Demo-labs**

Research **project-labs**

# A typical week in the life of a SURE student...

MON 5	TUE 6	WED 7	THU 8	FRI 9
[SURE] Data Science Lecture (POS 151) 9:30 – 11am Posner Hall	[SURE] Data Science Lecture (POS 151) 9:30 – 11am Posner Hall	[SURE] Data Science Lecture (POS 151) 9:30 – 11am Posner Hall	[SURE] Data Science Lecture (POS 151) 9:30 – 11am Posner Hall	[SURE] Data Science Lecture (POS 151) 9:30 – 11am Posner Hall
[CMSAC] Pre [Optum] - Pr 12:30pm, Po 12:30pm, Po	[CMSAC] - Presentation 12:30pm, Porter Hall	[Optum] - Presentation (PO 11am, Posner Hall	[Optum] - Presentation 11am – 12:15pm Posner Hall	[Optum] - Tech Speake 12pm, Posner Hall
[SURE] Code of Conduct R [CMSAC] - D (PH A18A) 2:30 – 4pm Porter Hall	[SURE] Data Engineering Lecture (POS 151) 2 – 3:30pm Posner Hall	[CMSAC] - D 2 – 4pm	[Optum] - Demo Lab (POS 151) 2 – 4pm Posner Hall	[Optum] - Pr [CMSAC] - P 12:30 – 1:30
[Optum] - Demo Lab 2:30 – 4pm Posner Hall		[Optum] - Pr (POS 151) 2 – 4pm Posner Hall	CMSAC Project Lab 2 – 4pm	CMSAC Proj 2 – 4pm
				[Optum] - Pr [Optum] - Project Lab 2:30 – 4pm Posner Hall

**Lectures**

**Industry Presentations**

**demo/project labs**

**Takeaway:** subscribe and **check google calendar** throughout the day

We'll maintain a steady **lecture** routine this semester

**Data science (daily)**

e.g. **data wrangling**, **visualization**, and **supervised/unsupervised** learning

**Data engineering (Tuesdays)**

New this year!

e.g. **UNIX**, **SQL**, **tmux**, and more

**Takeaway:** broad survey of methods and technologies for statistical research and practice

# We have a rich and diverse set of **industry presentations**

## **Optum**

UHG-wide sessions

Industry skills and career tips

## **CMSAC**

Meet practicing sports analysts

Project pitches

**Takeaway: professional skills + networking** opportunities abound!

Weekly **demo-labs** are a hands-on way to reinforce material

Participate in **1-2 demo-labs** per week

Each lab approx **1.5-2 hours**

Common materials, but **split** into **sports** + **health** sections

We use **R** throughout, easy to learn - we'll teach you as we go!

Labs run **separately** for **Optum (POS 151)** and **CMSAC (PH18A)**

**Takeaway:** no grading, just great practice for lecture material

**Project labs** are focused research sessions with TA Advisor

**Deliverables:** Project report + poster + 5 min presentation

**TA Advisor:** methodology guidance + coding help + editing

Typically have **2-3 project labs** a week (approx. 1.5-2 hours each)

Need to meet **weekly milestones**

**Instructors** will do a Friday **milestone 'check-in'**

**Takeaway:** ensure weekly milestones are met with your TA Advisors

We have three basic expectations of *you* in SURE



Attend in-person



Ask questions

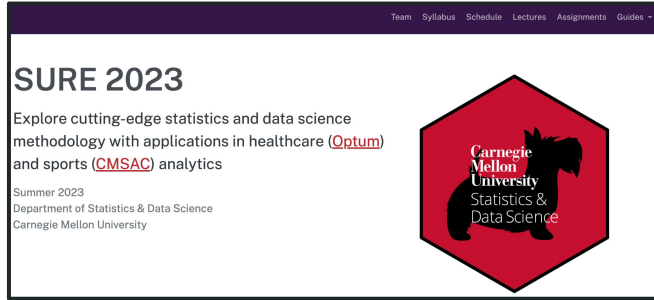


Be positive

**Takeaway:** we want SURE 2023 to be a **focused, empathetic, learning community**



# Use the right channels to get help during the program



Course website



Google calendar



Slack

**Takeaway: regularly** check these **daily** to stay up to date, also **ask us**

# Planned breaks - we all need some rest

**Juneteenth:** Monday 06/19

**Independence Day break:** Monday 07/03 to Wed 07/05 (incl.)

**Site visit Optum (only):** Monday 07/17 to Thu 07/20 (incl.)

**Takeaway:** remember to **account for these breaks** in your research deadlines

# Odds and Ends

It is our **collective responsibility** to **keep rooms clean**

Please **dispose off all rubbish**, food scraps in the bin

**POS151** and **PHA18A** **remain unlocked** during the day

Keeping your possessions safe is your **personal responsibility**

Take **good rest**, and **stay at home** if you are **sick**

# Meet: Jess Paschke

SURE 2023 Program Administrator

Contact Information:

- [jpaschke@andrew.cmu.edu](mailto:jpaschke@andrew.cmu.edu)
- Baker Hall 232D

I'm here to help with **housing**, general **logistics**, **communications**, **lunches**, etc.

If you don't know who to go to for something, ask me!

# Meet: Lee Ann Chapman

SURE 2023 Program Accounting Assistant

Contact Information:

- [leeannch@andrew.cmu.edu](mailto:leeannch@andrew.cmu.edu)
- Baker Hall 132A

I'm here to help with **Stipends**

If you don't know who to go to for something, ask me!

# Agenda

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- 1.** Welcome!
- 2.** Role of Academic Advisor
- 3.** Overview of Policies & Expectations
- 4.** Questions

# Welcome to Pittsburgh!

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- The “City of Bridges”
- Sights to see:
  - Pittsburgh Pirates
  - Phipps Conservatory
  - Kennywood Amusement Park
- Check the SURE website for more opportunities



Pictured: Scenic view from Duquesne Incline

# Department Welcome

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## Statistics & Data Science Department Information

Founded in 1966

Historically focused on:

- Computational Statistics
- Bayesian Statistics
- Cross-Disciplinary Statistical Research

More recent focus on:

- Sports Analytics
- Epidemiological Forecasting and Health Analytics



“If data science were a country, Pittsburgh would be the capital” -  
Rebecca Nugent,  
Department Head





# SURE Advisors and Role

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The designated SURE advisors will serve the following roles:

- Insure you're in the best position to be successful in our program
- Discuss any needs you might have that aren't currently being met
- Regular Check-Ins
- Exit Questions

You are expected to meet with a program advisor at least twice during your time in the program, but we do encourage you to meet more than that if needed for any reason.

Academic Advising Drop-In Hours:  
Advising hours will be offered periodically throughout your time here in the program to connect with an advisor and discuss how things are going.

Glenn will be offering a drop-in style, Zoom office hour that students can pop into when it's convenient for them.

Advising Drop-Ins are offered: 6/7, 6/9, 6/12, 6/16, 6/20, 6/21, 6/23, 6/27, 6/30, 7/13, 7/14, 7/18, 7/19, 7/21

Always offered 11:00AM-12:30PM



# Program Policies

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Students are expected to read, understand, and follow the SURE Code of Conduct. Topics include:

Participation in the program  
Professionalism & Mutual Respect  
Sexual Misconduct and Title IX

These topics will be further discussed in our afternoon presentation

# Questions?

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## Thank you - today's plan

**SURE:** Lunch announcement emailed shortly!

**Optum:** POS151 at 12:30 for UHG presentation

**CMSAC:** PHA18A at 12:30 for Ron's presentation

**SURE:** POS151 at 2:00 for **mandatory training**