

Statistics REU Schedule

Updated: July 12, 2022

May 23 – July 29, 2022

All activities – Online via Zoom

All times are EST

Please note: The 2022 program was virtual and hence all meetings took place via zoom. We expect the 2023 program to be live

Zoom IDs for Common Meetings:

Join Zoom Meeting

<https://uncg.zoom.us/j/98790126976>

Meeting ID: 987 9012 6976

Individual Research Teams will set up their own zoom meetings!

Important Notes:

- It will be a fairly intense program and students are required to attend all events.
- Students should not pick other jobs or classes during the entire duration of the program
- Missing program related events without permission can lead to dismissal from the program
- Most of the afternoons will be free to work on research projects independently, or as arranged with your mentors, except for invited lectures whose date/time will be on the schedule.
- There will be some common working lunches or dinners (about once a week) as described in the program details. Such meetings will include interactions with an invited speaker or discussion on some professional development related issues such as graduate school admission, seeking letters of reference, preparing a good presentation, working in the industry as opposed to the academy etc.
- Attending these working meals will be mandatory. We will buy our lunches/dinners individually, connect via zoom, and eat at our respective places. At least one of the mentors will join the students. Send receipts to Carri or Dafne (Department support staff). **As per UNCG policy, meal costs are limited to \$11.80 for lunches and \$20.50 for dinners. Alcoholic beverages are not allowed.**
- There will be some common meetings every week and some separate meetings involving the research teams and mentors
- We will have about 4-5 teams of 1-2 students in each team. Teams will be finalized early in Week 2.
- All of the mentors will give two research talks during Week 1. Students should discuss their interests with mentors towards the end of Week 1 and email Dr. Gupta their top three project choices by May 30. Research teams will be announced latest by May 31.

Program Schedule (will be updated regularly)

Week 1:

May 23, Monday

- 10:00–10:30: Welcome by the Program PI & Department Head Sat Gupta, and Dr. Chuck Bolton, Associate Dean, College of Arts and Sciences
- 10:30-11:00: Comments by Carri Richter and Dafne Sanchez Aguirre
- 11:00-12:00: Introductions and brief comments by all the mentors
- 12:30 – 1:30: **Working Lunch – Significance of Undergraduate Research**
- 2:30 – 3:30: Mixed Paired and Two-Sample Designs; Classification - Dr. Scott Richter, Professor of Statistics & Director Statistical Consulting Center, UNC Greensboro

May 24, Tuesday

- 10:00 -11:00: Machine Learning/Deep Learning for Complex Big Data Analysis– Dr. Xiaoli Gao – Professor of Statistics, UNC Greensboro
- 11:30 – 12:30: Composite Likelihood and Its Application in Long Sequence DNA Data- Jianping Sun, Assistant Professor of Statistics, UNC Greensboro
- 12:30 – 1:30 Research Directions in Mixed Two-Sample Designs and Zooarchaeology Classification - Dr. Scott Richter, Professor of Statistics & Director Statistical Consulting Center, UNC Greensboro
- 1:30 -3:30 **Sarangan’s PhD Defense, Petty 150**
- 3:30 – 4:30 Introduction to Randomized Response Models – Dr. Sat Gupta, Professor of Statistics and Head, Math Stats at UNC Greensboro

May 25, Wednesday

- 10:00-11:00: An application of Markov Chain Composite Likelihood in Recombination Model, Jianping Sun – Assistant Professor of Statistics, UNC Greensboro

11:30 -12:30: Introduction to Subdata Selection – Dr. Rakhi Singh, Postdoc in Informatics and Analytics, UNC Greensboro

1:30 – 3:30 R-Workshop 1: Dr. Scott Richter, Professor of Statistics & Director Statistical Consulting Center, UNC Greensboro

May 26, Thursday

10:00-12:00 R-Workshop – 2: Dr. Scott Richter, Professor of Statistics & Director Statistical Consulting Center, UNC Greensboro

1:00 – 2:00 The Shape of Data: Thomas Weighill, Assistant Professor of Mathematics, UNC Greensboro

2:30 -3:30 Robustifying ML/DL with Application in Financial Data Analysis – Dr. Xiaoli Gao, Professor of Statistics, UNC Greensboro

3:30 – 4:30 Non-parametric Subdata Selection – Dr. Rakhi Singh, Informatics & Analytics, UNC Greensboro

May 27, Friday

10:00-11:00 How to do statistics with topological data analysis: Thomas Weighill, Assistant Professor of Mathematics, UNC Greensboro

11:30 – 12:30: RRT Work by Recent REU Students - Dr. Sat Gupta, Professor of Statistics and Head, Math Stats at UNC Greensboro

Students set up individual meetings with mentors rest of the day to discuss project selection. Email Dr Gupta your top 3 project choices by 6:00 pm

4:00 -5:00 **Each Friday**, students meet as a group without mentors and discuss a topic of common interest. Set up your own zoom id. You can bring up the topic with the mentors during virtual meals or by email.

Other tasks for Week 1:

- **Complete CITI Training (Students and Mentors) and Self-Evaluation Pre-Surveys (Students).** Surveys will be emailed to the students closer to the start of the program. Return completed surveys via email to Dr. Gupta by May 27, 5:00 pm

- Complete CITI Training on Responsible Conduct of Research. Register first and then choose RCR for Social and Behavioral Sciences (or something similar). See the link <https://www.citiprogram.org>

Mentors also need to complete this training. Once done, please email Dr Gupta a copy of the completion certificate latest by May 27, 5:00 pm

Please see the options offered by UNCG office of integrity:

<https://integrity.uncg.edu/rcr-training-resources/>.

If you try to log in from your campus, you may be asked to pay for the course. In that case, wait until you get a UNCG id and use that to complete this training.

Week 2:

May 30, Monday

Memorial Day

No REU Activities

May 31, Tuesday

10:00 – 10:30:

Mentors meet to finalize teams.

10:30-11:00

Students and Mentors all meet as one group to announce research teams

11:30-12:30

Mentors meet with their teams using their own Zoom IDs

1:30 – 2:30

Quantitative Research in Nursing – Amita Mittal, School of Nursing, UNCG Greensboro

2:30 – 3:30

How relevant is the evidence to the truth of a statement? – Dr. David Bickel, Associate Professor in Informatics and Analytics, UNC Greensboro

June 1, Wednesday

10:00-11:00

Workshop on LaTeX – Dr. Dan Yasaki, Department of Math Stats, UNC Greensboro

11:30-12:30

Invited Lecture – Mark Daniel Ward, Professor of Statistics, Purdue University

12:30 – 1:30

Working Lunch with Dr. Ward. Dr. Ward will share experiences from The Data Mine at Purdue, working with 40 Corporate Partners, across all sectors of industry, also including the national

labs. Dr. Ward is interested in discussing students' plans and their professional development aspirations. **Only students attend this virtual lunch.**

2:00-3:30

Workshop on Python – Dr. Dan Yasaki, Department of Math Stats, UNC Greensboro

June 2, Thursday

10:00 – 12:00 & 2:00-4:00

Sat Gupta starts the meeting.
Day-long Machine Learning Workshop by Dr. David Banks, Professor of Statistics, Duke University

June 3, Friday

10:00 – 12:00

Learning and its Facilitation for Decision-Making in a Complex World: A Journey to Excellence – Dr. Vidyaranya Gargeya, Professor & Head, Department of Information Systems and Supply Chain management, UNC Greensboro

2:30-3:30

Experiences of previous REU Students –

Grace Rhodes – Mount Holyoke College (2021 REU)
Going to Duke for PhD

Joia Zhang – University of Washington, Seattle (2021 REU).
Doing Summer Research at Yale

4:00 -5:00

Each Friday, students meet as a group without mentors and discuss a topic of common interest.

From here on, students will set up their meetings with mentors. There will also be some common programs each week which everyone will attend

Week 3:

June 6, Monday

10:00-11:30 4 of the students (Pranay Pherwani, Eli Sun, Rhys O'Higgins, Samuel Byers, in that order) make 15-minute PPT presentations on a topic of their choice. Mentors will provide feedback on students' presentations. **Mentors, please attend**

11:30 -12:30 3 of the students (Thomas Yacovone, Jana Turner, Jailyn Tineo, in that order) make 15-minute PT presentations on a topic of their choice. Mentors will provide feedback on students' presentations. Mentors, please attend

2:00 – 3:00 3 of the students (Jesse Dimino, William McCance, Sam Griffin, in that order) make 15-minute PPT presentations on a topic of their choice. Mentors will provide feedback on students' presentations. Mentors, please attend

June 7, Tuesday

10:00-11:00 Statistical Consulting – Some Real Case Studies – Dr. Sat Gupta

11:30-12:30 Potential Mentor/Mentee Conflicts – Dr. Scott Richter, UNC Greensboro

1:30 – 2:30 Preparing for a Successful Career- Dr. John Stufken, Director of the Informatics and Analytics program at UNC Greensboro

June 8, Wednesday

11:30-12:30 Invited talk “Value of Undergraduate Research in Active Learning, Career Decisions, and Graduate Education” by Dr. Kumer Pial Das, Professor and AVP for Research, Innovation and Economic Development and Assistant Provost, University of Louisiana at Lafayette

12:30 – 1:30 Working Lunch – with Dr Kumer Pial Das

June 9, Thursday

10:00-11:00 Publishing Journal Articles – Dr. Sat Gupta

11:30 – 12:30 The German Tank Problem: Math/Stats At War! , Dr. Steven Miller, Professor of Mathematics, Williams College

12:30 – 1:30 Working Lunch with Dr Miller

June 10, Friday

10:00 – 11:00 Numerical Analysis and Computing – Dr. Tom Lewis, Associate Professor, Math Stats, UNC Greensboro

2:30-3:30 **Experiences of previous REU Students –**
Maxwell Lovig – University of Louisiana at Lafayette (2020 REU)
Going to Yale for PhD

Victoria Belotti – Illinois Institute of Technology (2020 REU).
Works for Capital One.

4:00 -5:00 **Each Friday, students meet as a group without mentors and discuss a topic of common interest.**

Week 4:

June 13, Monday

10:00 -11:00: Interdisciplinary Collaborations and Careers for Mathematicians/Statisticians in Healthcare - Susan Letvak, Eloise R. Lewis Excellence Professor, UNC Greensboro School of Nursing

11:30 -12:30 Diversity and Equity in Academia: Finding Your Way and Working with a Team – Dr. Gabriela Livas Stein, Professor of Psychology, UNC Greensboro

June 14, Tuesday

11:30 -12:30 Computer Experiments - Design Theory and Applications - Abhyuday Mandal, Professor of Statistics, University of Georgia

June 15, Wednesday

June 16, Thursday

10:30 – 11:30

A Gambler's Journey via Monte Carlo Methods - Dr. Sujit Ghosh,
Professor of Statistics, NC State University

June 17, Friday

4:00 -5:00

Each Friday, students meet as a group without mentors and
discuss a topic of common interest.

Week 5

June 20, Monday

11:30-12:30

Who is a Data Analyst, and what do they do? Dr. Chris
Vanlangenberg, Chief Data Scientist, Beacon, CT

2:00-3:00

Spectral Theory of Complex Laplacian on Spherical Manifolds –
Dr. Yunus Zeytuncu, Interim Associate Dean, Professor of
Mathematics; University of Michigan-Dearborn

June 21, Tuesday

10:30-11:30

Probabilistic Recurrence Relations – Dr. Haimeng Zhang,
Graduate Programs Director, Math Stats, UNC Greensboro

June 22, Wednesday

10:00-11:00

A glimpse into behavioral epidemiology: How dynamic human
behavior affects the COVID-19 pandemic – Dr. Igor Erovenko,
Associate Head, Math Stats, UNC Greensboro

11:30 -12:30

Getting the most out of your REU – Dr. Lee Phillips,
Director- Undergraduate Research, Scholarship and Creativity
Office, UNC Greensboro

12:30-1:30

Virtual lunch with Dr. Phillips

June 23, Thursday

10:00-11:00

An Introduction to Reproducibility of Statistical Tests, Frank Coolen, Professor of Statistics, Durham University, UK

June 24, Friday

11:00 – 3:00:

Mid-Program 20- minute Presentations by Research Teams to the entire group. It will be enough to share with the group in some specificity the project you are working on and the progress you have made.

Presentation Order:

11:00-12:30

Jana Turner & Sam Byers
Mentor: Dr. Thomas Weighill

Jailyn Tineo
Mentor: Dr. Jianping Sun

Pranay Pherwani & Jesse Dimino
Mentor: Dr. Xiaoli Gao

12:30-1:30

Virtual Lunch and Discussions

1:30-3:00

Eli Sun & Tom Yacovone
Mentor: Dr. Scott Richter

Rhys O'Higgins & Sam Griffin
Mentors: Dr. John Stufken & Dr. Rakhi Singh

Will McCance
Mentor: Dr. Sat Gupta and Dr. Sadia Khalil

Week 6-7: June 27 – July 8

Focus on your research project with mentors incorporating the feedback received during mid-program presentations.

Start working on writing your work in the form of a journal article. The final version may not be ready for submission until

months after the program ends but try to learn the nuances of writing a paper.

Create and share with your mentors a professionally typed version of your own research or reproduction of an existing paper.

We may have one or two invited talks during these two weeks

July 6, Wednesday

11:30-12:30

Applying to Graduate School – Greg Bell, Interim Dean of the Graduate School, UNC Greensboro

12:30 – 1:30

Working Lunch – Discussions with Dr. Bell

Each Friday, students meet as a group without mentors and discuss a topic of common interest.

Week 8

July 15, Friday

12:00-1:00

The students will provide an update on their research by responding to the following questions orally in 5-10 minutes **over a virtual lunch**. We will not have a formal written presentation.

- What has been the most challenging part of your project so far?
- What things did you learn that you are most excited about?
- What are you working on right now for the project (very briefly)?

Order of Presentation:

Jana Turner & Sam Byers

Jailyn Tineo

Will McCance

Pranay Pherwani & Jesse Dimino

Eli Sun & Tom Yacovone

Rhys O'Higgins & Sam Griffin

Each Friday, students meet as a group without mentors and discuss a topic of common interest.

Week 9: July 18 – 22

Dr. Xiaoli Gao will coordinate the program this week. I will be away with possibly no internet availability. I will be back in town on July 25 (Monday) morning

- Preliminary research presentations by students to their mentors. These are not full group presentations.
- Continue to refine your draft of the journal article

July 22

12:00-1:00

The students will provide an update on their research by responding to the following questions orally in 5-10 minutes **over a virtual lunch (coordinated by Dr. Thomas Weighill)**. We will not have a formal written presentation.

Each Friday, students meet as a group without mentors and discuss a topic of common interest.

Week 10: July 25 – 29

Rehearse your presentations with your mentors

July 27, Wednesday

12:30-1:30

- a. Discussion on various paperwork to be completed
- b. Questions about Final Presentations
- c. Any other questions

July 28, Thursday

10:00 – 12:00:

Final Presentations:

- 25- minute Presentations by Research Teams to the entire group. Math Stats Faculty and Graduate Students will be invited.
- Please feel free to invite your family and friends

Presentation Order:

Title:

Rhys O'Higgins (Macalester College, MN) & Sam Griffin (UNC Asheville)

Mentors: Dr. John Stufken & Dr. Rakhi Singh

Title:

Jailyn Tineo (NC A&T State University)

Mentor: Dr. Jianping Sun

Title:

Will McCance (UC Santa Barbara)

Mentor: Dr. Sat Gupta and Dr. Sadia Khalil

Title:

Eli Sun (University of Rochester) & Tom Yacovone (College of the Holy Cross, MA)

Mentor: Dr. Scott Richter

12:00-1:00

Virtual Lunch and discussions!

Pizza and Soda (provided by the Department) will be available in the Lobby for local Math Stats faculty and students who attend the presentations from campus. Carri will start a Google Sheet for you to sign so that we have a good head count.

1:00-2:30

Title:

Jana Turner (Rhodes College, Memphis) & Sam Byers (Florida State University)

Mentor: Dr. Thomas Weighill

Title:

Pranay Pherwani (Duke University)

Mentor: Dr. Xiaoli Gao

Title:

Jesse Dimino (CUNY College of Staten Island)

Mentor: Dr. Xiaoli Gao

July 29, Friday
5:00 – 6:30 pm

- Program ending Virtual Dinner (Limit \$20.50).
- Program-ending discussions among mentors and students

- Self-Evaluation Post-Survey by students (Send by email)
- Evaluation of the REU Program and of the Mentors by the students (Send by email)
- Program Completion Certificates will be sent by email