

Molecular Biology and Biochemistry

Focus on the molecular bases of human disease





Our Goals:

- To train students for the broad range of careers in biomedical science.
- To have graduates develop essential skills: identify important research problems, design and perform rigorous experiments, think critically, and communicate their research effectively.

Current MBB graduate class:

Ph.D. students (15):

- 7th year: Sam Mahdi (Korzhnev)
- 6th year: Darien Levi Craft (Schuyler & Gryk)
- 5th year: Angela Power (Mok)
Travis LaGree (Mok)
Emilie Korchak (Bezsonova)
- 4th year: Jonathan Batchelder (Mok)
Dane Geddes-Buehre (Korzhnev)
Daniel Fairchild (Bezsonova)
Tvesha Parikh (Page)
Alexander Radecki (Vargas)
Ruoyu Yang (Oh)
- 3rd year: Bethlehem Abebe (Chou)
Rachael Godek (Page)
- 2nd year: Wen Liu (Chou)
Byron Dillon Vannest (Caimano)

Current MBB graduate class:

Combined degree students (4):

- 5th year: Patricia Hare (DMD/PhD; Mok)
Elizabeth Szabo (MD/PhD; Heinen)
- 4rd year: Caroline Guild (MD/PhD; Heinen)
Mian Horvath (MD/PhD; Oh)

MBB Journal Club: MEDS 6497 (F40)

MBB Rep:

Schuyler:

1. Levi Craft (Schuyler lab)
2. Emilie Korchak (Bezsonova Lab)
3. Daniel Fairchild (Bezsonova Lab)
4. Dane Geddes-Buehre (Korzhnev Lab)
5. Tvesha Parikh (Page Lab)
6. Liz Szabo (Heinen Lab)
7. Wen Liu (Chou Lab)
8. Dillon Vannest (Caimano Lab)

Mok:

9. Travis LaGree (Mok Lab)
10. Trish Hare (Mok Lab)
11. Angie Power (Mok Lab)
12. Jonathan Batchelder (Mok Lab)
13. Sam Mahdi (Korzhnev Lab)
14. Caroline Guild (Heinen Lab)
15. Mian Horvath (Oh Lab)
16. Ruoyu Yang (Oh Lab)
17. Alex Radecki (Vargas-Rodriguez Lab)
18. Betty Abebe (Chou Lab)
19. Rachel Godek (Page Lab)

1. Key milestones
2. Annual self-evaluation
3. Student support
4. Coursework & scholarly activities
5. Journal Club/WIP Class
6. Mentorship activities

Milestones required by the graduate school

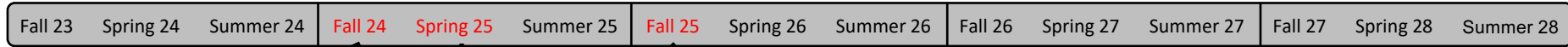
Year 1

Year 2

Year 3

Year 4

Year 5



Submit Plan of Study
to Graduate School

Form graduate
committee

Prelim/General Exam
(by May 31st)

Submit Dissertation
Proposal to Storrs
Registrar (if you haven't
done so already)

Private & public
thesis defenses

[What forms??](#)

Milestones: 1st-Year Rotation Students

- Students will enroll in MEDS 6503 (1st Year Experience)
- Students will rotate in three labs in the first year after 7-week AoC exploration period

- MBB's week: **THIS WEEK!!!**
- Volunteers for:
 - lab tours
 - Student round-table (refreshments provided)
 - Departmental networking (food provided)

Milestones: 2nd-Year Students

Fall This Year

1st Journal Club
Form Committee
(major advisor + 3 faculty)
Submit Plan of Study Form
If eligible: NSF GRFP



Spring Next Year

By March 28th: 1st WIP
Submit Specific Aims

By April 15th: approve Aims
4-week clock starts for written exam
(by May 15th)

By May 31st: oral exam
2 weeks after proposal submission
Thesis committee + one MBB director

Summer/Fall Next Year

Submit thesis prospectus
If eligible: apply for federal and foundational
fellowship
NIH F30/F31
AHA



Changes to Prelim Proposal

Format for the Written Research Proposal and Other Details

The General Exam will consist of a research proposal based on the student's work in their major advisor's lab. The proposal should be prepared using the NIH grant format (Arial, 11 point). The proposal will be limited to a total of **8** pages and consists of (1) Project Summary (limited to 30 lines of text and should be able to stand on its own), (2) a **1**-page Specific Aims, and (3) a **6**-page Research Proposal.

Section of Application	Page Limits *
Project Summary/Abstract	30 lines of text
Project Narrative	Three sentences
Introduction to Resubmission or Revision Application (when applicable)	1
Applicant's Background and Goals for Fellowship Training	6
Specific Aims	1
Research Strategy	6

NIH F grants 

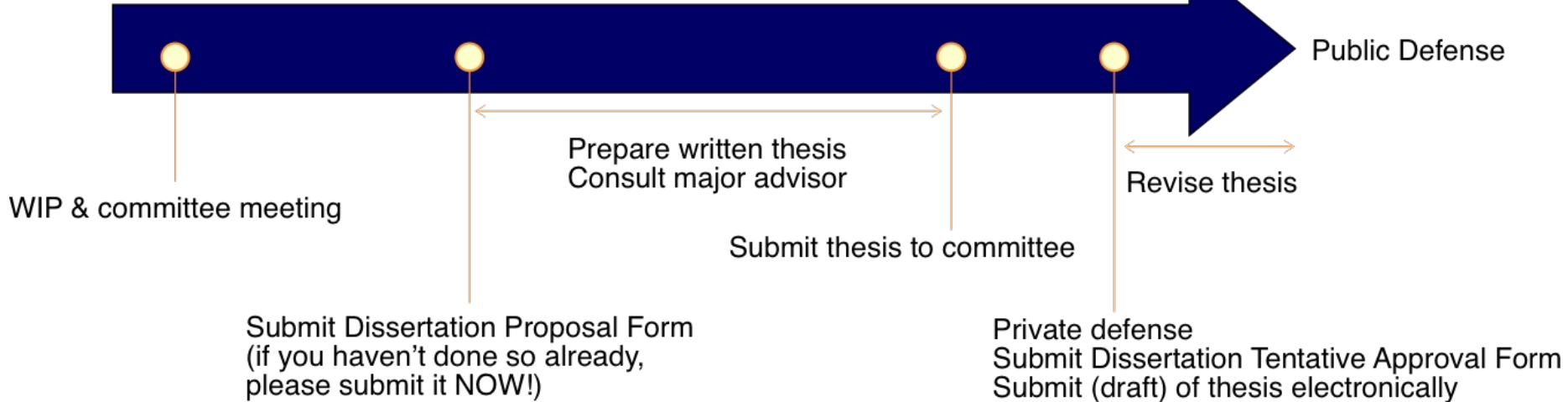
Milestones: The Final Year

Fall before defense

-6 months

~1 month

~2 weeks



Forms!

<https://registrar.uconn.edu/graduation/doctoral-degrees/>

<https://health.uconn.edu/graduate-school/current/>

Don't forget to submit your Plan of Study, Report on General Exam, etc... to

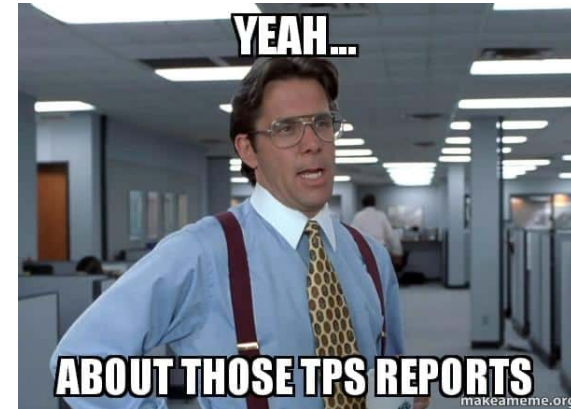
Jenn Horan at the Registrar's Office

registrar@uconn.edu

Jenn.horan@uconn.edu

(860)486-6214

Check the status on your transcripts



Check your transcripts!

Unofficial Transcript

Name: [REDACTED]
Student ID: [REDACTED]

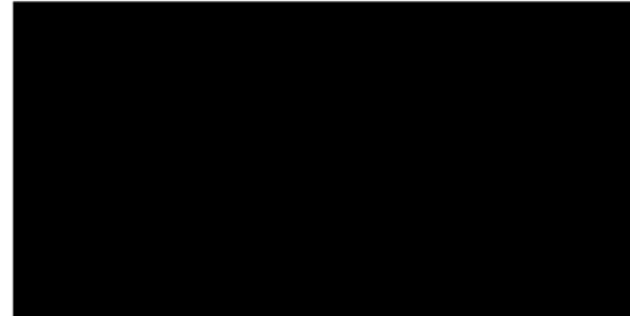
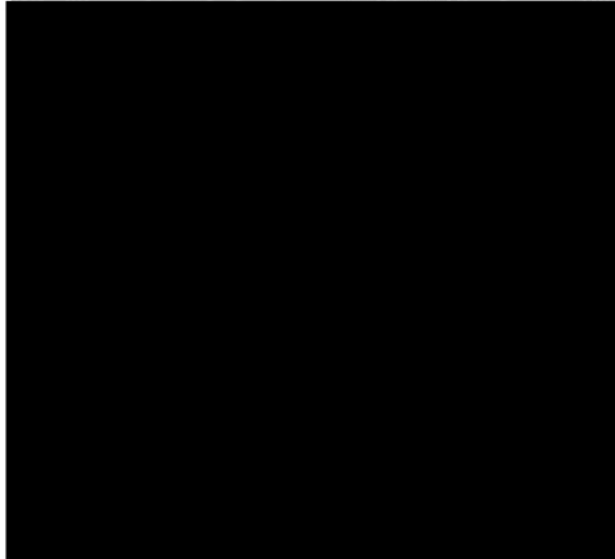
Print Date: 08/01/2022

Beginning of Graduate Record

Fall 2020 (2020-08-31 - 2020-12-20)

Program: Graduate School
Plan: Biomedical Science PhD Field of Study

Course	Description	Attempted Credits	Earned Credits	Grade	Grade Points
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Non-Course Milestones

Plan of Study Received
Status: Completed
Program: Graduate School
Date Completed: 09/08/2021
Date Attempted: 09/08/2021 Completed

Doctoral General Exam
Status: Completed
Program: Graduate School
Date Completed: 12/15/2021
Milestone Level: Completed
Date Attempted: 12/15/2021 Completed
Exam Taken

Dissertation Proposal
Status: Completed
Program: Graduate School
Date Completed: 04/13/2022
Milestone Level: Approved
Milestone Title: [REDACTED]
Date Attempted: 04/13/2022 Completed
Submitted Work

Annual Self-Evaluation

- Meet with graduate advisor regularly
- Meet with graduate advisory committee at least once a year post-WIP
- Student should meet with advisor and committee for JC feedback post-JC
- **New(ish):** one-week prior to your annual WIP meeting, please submit the MBB Ph.D. Supervisory Committee Meeting Annual Report

Dear {NAME},

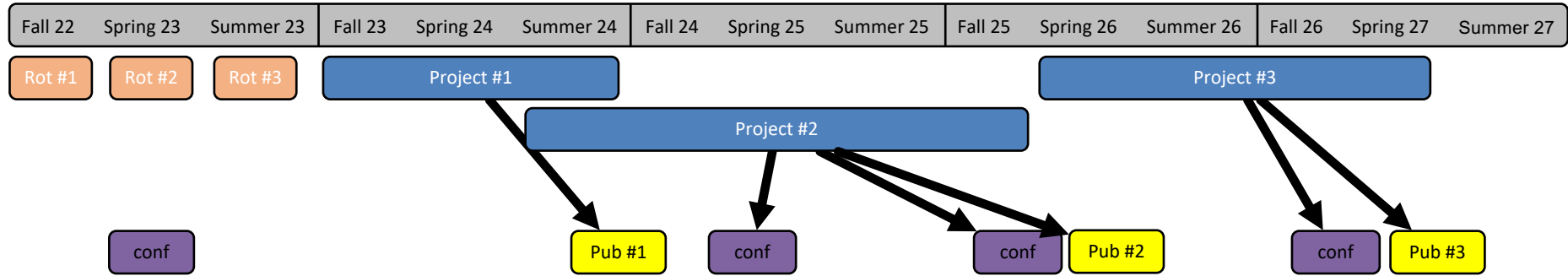
Your MBB WIP is scheduled soon. Please read the following instructions from Wendy and Adam...

- Your talk is scheduled for {DATE}.
- Send your talk title to Rosalie at least {X} weeks prior to your scheduled date.
- It is expected that you will hold your annual committee meeting immediately following your WIP. If that is not the case, make sure you communicate this clearly to your committee and MBB rep.
- Send your committee members and your MBB rep a meeting reminder. A calendar invite is a good idea, especially for committee members outside of MBB, who may not receive our department notices.
- Complete Section A ("Student Progress") and Section B ("Student Goals") on your annual report.
- Complete your timeline.
- Send your annual report and your timeline to your committee members and your MBB rep at least 1 week prior to your talk.
- Your PI is responsible for completing Section C ("Committee's Report") on the annual report based on the post-WIP committee meeting and sending a copy of the form to the committee. It is highly suggested that the student's PI bring a laptop and complete the form during the committee discussion.

Contact your MBB rep (either Wendy or Adam, CCed) if you have any questions.

Thanks!

Student Name (PI)



Rotation 1: PI / project

Rotation 2: PI / project

Rotation 3: PI / project

Project 1: short title

Project 2: short title

Project 3: short title

Publication 1: DOI / URL

Publication 2: DOI / URL

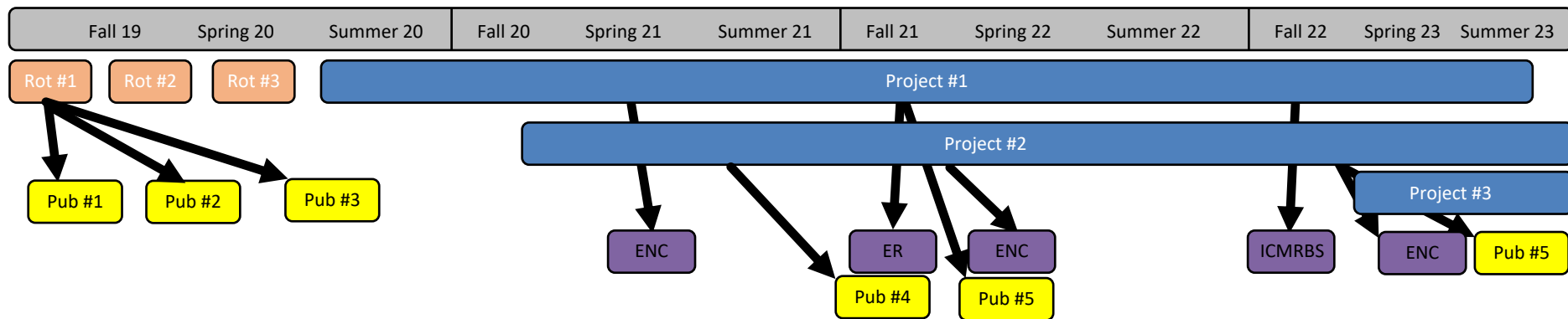
Publication 3: DOI / URL

What did you do?

Legend

- rotation
- research project
- conference
- publication

D. Levi Craft (Adam D. Schuyler & Michael R. Gryk)



Rotation 1: Peter Setlow / 5'-NAD Capping in Dormant Spores

Rotation 2: Adam Schuyler / Harmonic Tracts in NUS NMR

Rotation 3: Michael Gryk / Workflows & Chemical Shift Prediction

Project 1: Modeling NMR Data to Create Workflows

Project 2: Workflows & IROC to Quantitatively Analyze NUS Reconstructions

Project 3: Adaptive NUS Data Collection and Reconstruction

[Publication 1](#): [3] microbicidal activity of 222-nm UV radiation on spores. *Applied and Environmental Microbiology*

[Publication 2](#): [3=] killing of bacterial spores by dodecylamine. *J. of Applied Microbiology*

[Publication 3](#): [1] 5'-NAD capping of mRNAs in dormant spores. *FEMS Microbiology*

[Publication 4](#): [2] NUScon community-driven platform for nonuniform sampling in NMR. *Magnetic Resonance*

[Publication 5](#): [2] data-Centered Research. *Frontiers in Molecular Biosciences*

[Publication 6](#): [1] nus-tool software for nonuniform sampling in NMR. *J. Magnetic Resonance*

Legend



Services Available to Graduate Students

[Student Behavioral Health Service \(SBHS\)](#)

Confidential and free mental health support

[Office of Institutional Equity \(OIE\)](#)

Fostering an inclusive and equitable working and learning environment

[UConn Ombuds Office](#)

Confidential, neutral resource for staff, faculty, professionals, graduate students and trainees to express concerns, address workplace conflicts, and facilitate productive communication



Coursework

- At least **30 credits** of *content coursework* beyond the baccalaureate degree or at least 15 credits beyond the Master's degree in the same or a very similar field of study are required for the UConn doctoral degree.
- Content coursework includes any courses with the **MEDS** designation.
- In addition to content coursework, students must complete at least **15 credits of doctoral research (GRAD 6950)**.
- Full time enrollment in a PhD program requires at least **6 credits per semester for a Graduate Assistant** and at least **9 credits per semester for students supported on a federal fellowship (NIH F30/F31, NSF GRFP, etc...)**.
- Students are required to maintain a **B (3.00) grade point average** during their course of study.

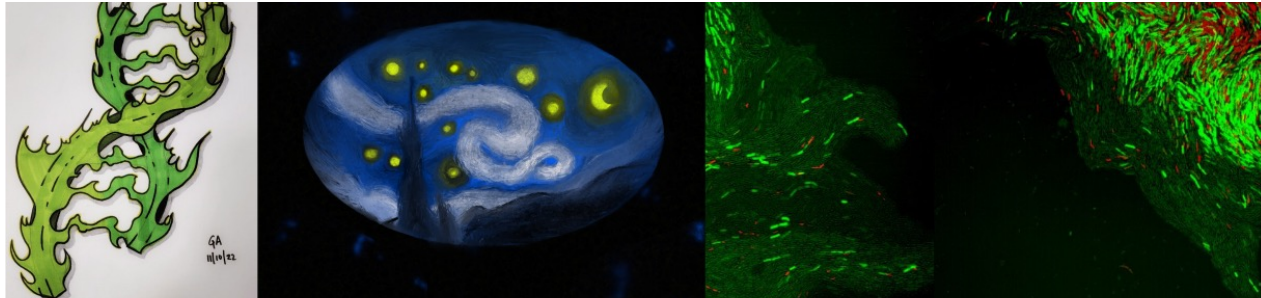
Some Recommended Courses

○ Fall:

- MEDS 6448 Foundations of Biomedical Science (4 credits)
- MEDS 5309 Molecular Basis of Disease (2 credits)
- MEDS 5351 Cool Techniques in Biochemistry (3 credits)

○ Spring:

- MEDS 6449 Foundations of Biomedical Science II (4 credits)
- MEDS 5420 Molecular Genomics Practicum (3 credits)
- MEDS 6444 Medical Microbiology (4 credits)

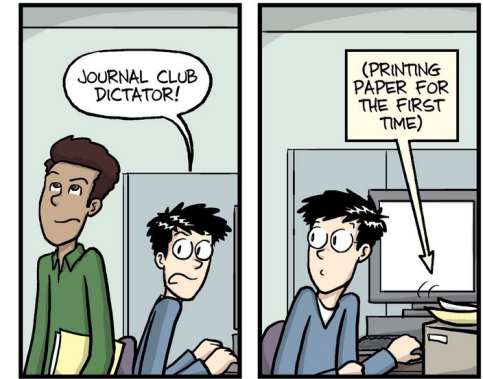


MBB JC—MEDS 6497

- Mondays and some Tuesdays at noon
- Some dates are outside of the academic calendar
- **Introductions**
- Expectations:
 - All students are required to attend and participate
 - Graded on participation
 - Please email Drs. Mok or Schuyler if you are going to be absent or late
 - Presenters should send title, PDF, and a short abstract of paper at least two weeks in advance to Rosalie (rpion@uchc.edu)
 - Select a cutting-edge paper published within the past 12 months
 - Ensure that your major advisor and thesis committee members are present

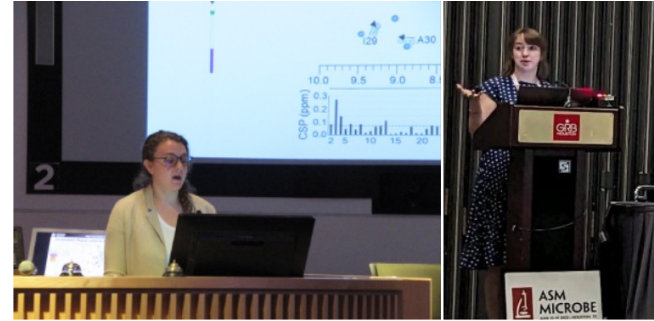
MBB JC—MEDS 6497

- Purpose:
 - Highlight and share new knowledge
 - Keep up with current experimental approaches
 - Critically appraise published works
- Choosing a paper:
 - Hypothesis-driven, mechanism-oriented
 - Can be a paper in your field or outside your area of expertise
 - Ensure that it is from a reputable journal
 - It doesn't have to be flawless
 - The purpose is to analyze the paper critically

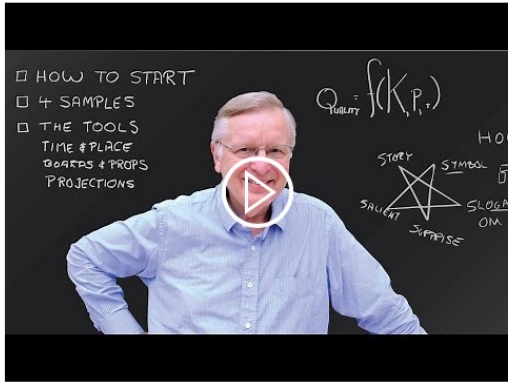


MBB JC—MEDS 6497

- Know your background information
 - What is the significance of this work?
 - What is the central hypothesis?
 - Breakdown complex concepts
- Know and explain the key approaches used
 - Are they appropriate?
 - What alternative approaches could the authors have used?
- Explain key findings
 - You do not have to present all of the data
 - Were the experiments rigorously designed?
- What are the main takeaways?
- Pause for questions from the audience periodically
- [TIPS](#)



How to Speak



How to Speak

MIT How to Speak, IAP 2018 Instructor: Patrick Winston View the complete course: https://ocw.mit.edu/how_to_speak Patrick Winston's How to Speak talk has been an MIT tradition for over 40 years. Offered every January, the talk is intended to improve your speaking ability in critical situations by teaching you a few heuristic rules. 00:16 ...

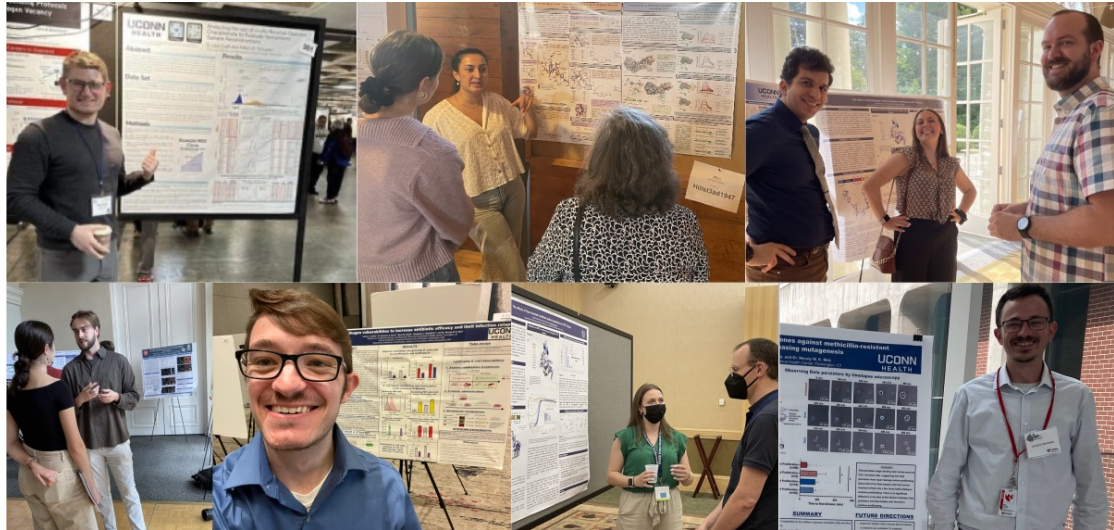
www.youtube.com

Scholarly Activities

- Progress you have made on your dissertation in the past year
- Publications
- Conference presentations
 - [HCRAC Travel Grants](#)
 - (\$700)
- Mentorship

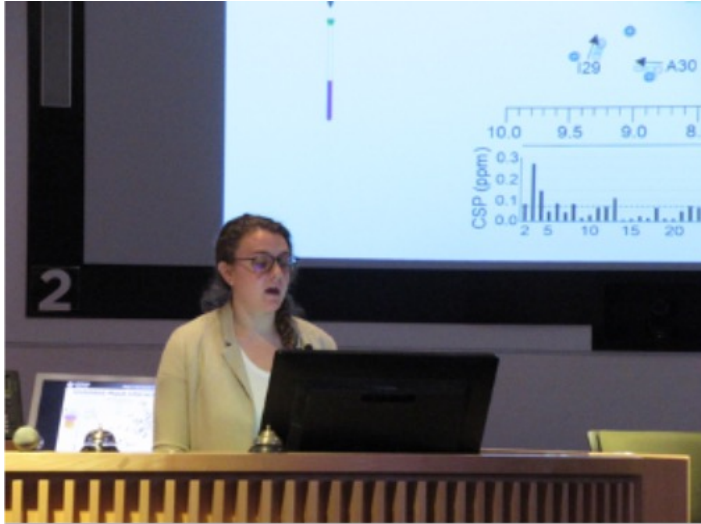


Gordon Research
Conferences
Frontiers of Science

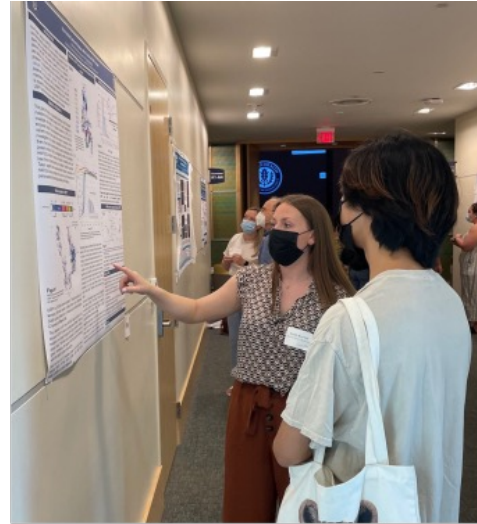


Graduate Student Research Day (GSRD)

- Held each summer



AOC talks



Poster presentations



Raffles 😊
and...

UConn Health Graduate Student Awards

Lepow Award:

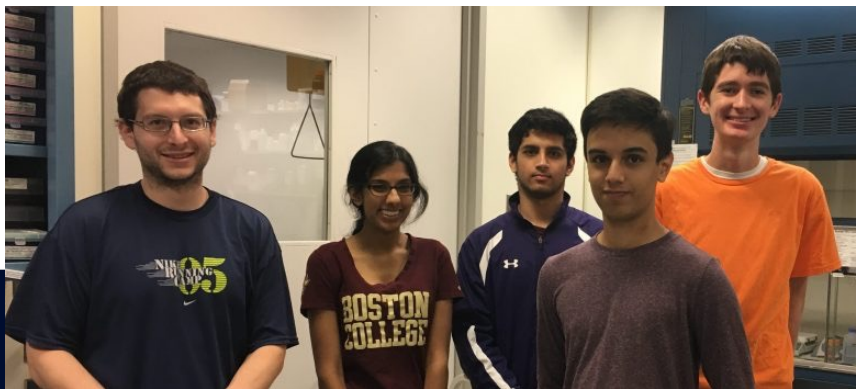
- Outstanding 4th-year Ph.D. student
- Voted by AoC leadership
- Candidates are self-nominated (with 2 letters of support)
- Award: \$750 fellowship supplement
- Oral presentation at GSRD



UConn Health Graduate Student Awards

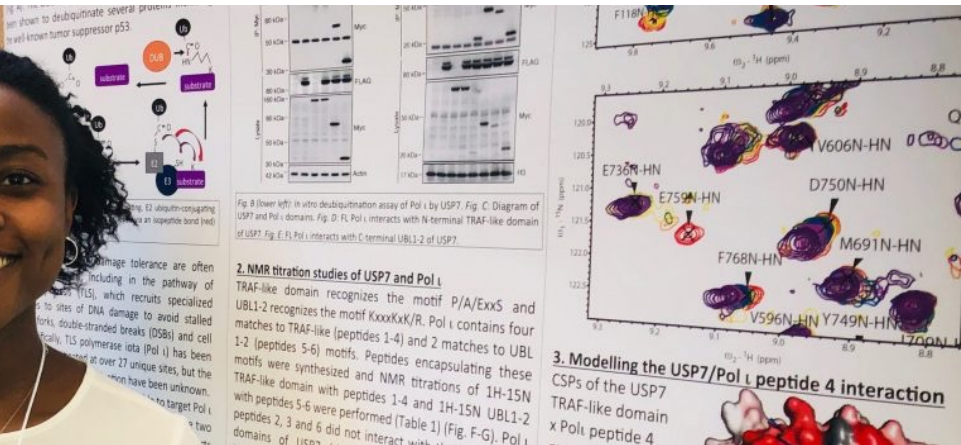
Henderson Memorial Prize:

- Outstanding Ph.D. thesis
- Nominated by AoC director and voted by AoC leadership
- Eligibility: complete degree from August through May of academic year degree
- Award: \$750 fellowship supplement
- Hosted by their AoC to present a seminar the following year



UConn Health Graduate Student Awards

- Biomedical Science Service Awards:
 - The Graduate Student Leadership Award
 - The Graduate Student Mentorship Award

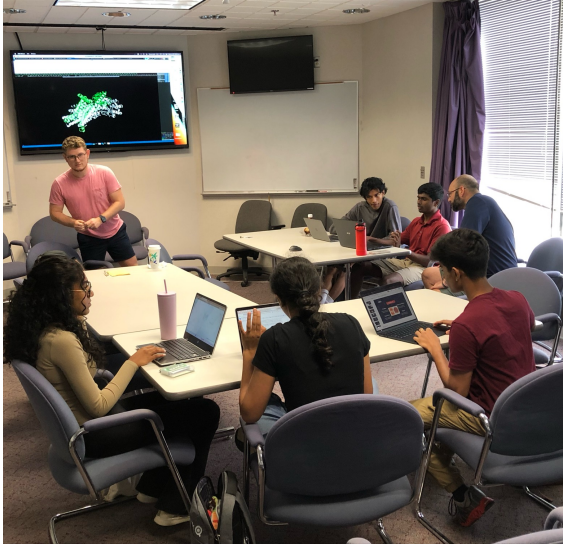


Young Explorers in Science (YES)



Cutting Edge

- Summer research program in collaboration with Farmington High
- Opportunity for students to gain mentorship and teaching experience





Questions?

Please send us your updates/achievements/photos!

Wendy (mok@uchc.edu), Adam (schuyler@uchc.edu)