Quantitative Methods for HIV/AIDS Research
Summer Internship 2023

Orientation: May 8, 2023
Cliburn Chan
About the program

• NIAID-sponsored research education program
  • *To support educational activities that complement and/or enhance the training of a workforce to meet the nation’s biomedical, behavioral and clinical research needs.*

• Components
  • Courses for skills development
  • Research experience
  • Mentoring activities
What we want to happen

• You will learn a lot, have fun, and make friends
• You will make a meaningful contribution to HIV/AIDS research
• Some of you will write present at conferences, publish papers
• Some of you will continue in careers partially or wholly related to HIV/AIDS
HIV

1. Fusion of HIV to the host cell surface.
2. HIV RNA, reverse transcriptase, integrase, and other viral proteins enter the host cell.
3. Preintegration complex.
4. Viral DNA is formed by reverse transcription.
5. Viral DNA is transported across the nucleus and integrates into the host DNA.
6. New viral RNA and proteins move to the cell surface, and a new, immature HIV forms.
7. Virus is released. Viral protease cleaves new polyproteins to create mature infectious virus.

Host Cell

Mature Virion

New viral RNA is used as genomic RNA and to make viral proteins.
People
What to say (we’ll do this at tend of this session so you have some time to think)

• Your name
• Home institution, department, and program of study
• What you’re interested in (work-related)
• What you're interested in (non-work related)
• 1 or more fun facts about yourself
Kelly has somehow managed to exist at Duke all these years without a mug shot on the web.
Tim Durning
Grants & Contracts Manager

This must be an off-day. Tim usually looks much better.

Michelle Evans
Associate Director,
Strategy and Operation

Darla Wherry
Faculty HR Coordinator
Special effects

Jim Thomas
Multimedia and User Services Specialist

Matthew Franco
Program Coordinator, Learning Technology
Stack overflow

Tyler

Frances

Angel
Quantitative mentors

Cliburn  Richard  Tina  Josh  Jason
Pixu  Pan  Anru  Janice  Lynn
HIV/AIDS mentors are part of the Duke CFAR

The Duke Center for AIDS Research (CFAR) is part of a network of NIH-funded CFARs across the nation. The principal mission of the Duke CFAR is to provide scientific leadership as well as establish, enrich, and provide continued infrastructure support to an academic research environment that will effectively promote collaboration and coordination among the community of HIV/AIDS investigators at Duke.
About the program
About the program

• [https://cfar.duke.edu/cores/quantitative-sciences-core/r25/internships](https://cfar.duke.edu/cores/quantitative-sciences-core/r25/internships)

• 2022 interns talk about their experience
  • [https://cfar.duke.edu/front-page/r25-profiles](https://cfar.duke.edu/front-page/r25-profiles)
Accomplishments of previous interns

• Multiple best posters at CFAR retreat
• Presented posters at national and international conferences
• Gave oral presentations at national and international conferences
• Published papers in academic journals
• Wrote part or all of Masters/PhD thesis on HIV/AIDS research
• Found work in HIV/AIDS-related fields
Logistics and administration
Hours

- Per Duke guidelines, you may only work UP TO 39.9 hours/week during the summer/school breaks and UP TO 19.9 hours/week total while classes are in session
- Only report hours actually worked on your time card
- Do not exceed the number of hours approved by your supervisor
Vaccination Requirements

- The “employee” vaccination system does not link with the Student Health system, so documentation of these vaccines will be need to be uploaded to the VaxTrax System at:
  - [https://duke.qualtrics.com/jfe/form/SV_6JzaQdVSMiDQPf](https://duke.qualtrics.com/jfe/form/SV_6JzaQdVSMiDQPf)
  - Upload this documentation ASAP if you have not already done so
  - You may also receive an email from B&B HR about this with similar instructions
Accessing Your Time Card

• Go to Duke@work (https://work.duke.edu/)
• Login with netID and password
• Click “MyInfo” → “MyTime” → “Enter Time”
• Enter hours for May 8th and click “Save”
  • Enter total hours worked for each day in 0.5 hour increments
  • Submit by Friday of pay period if possible, Sunday at the very latest
  • This pay period begins on May 8th and ends on May 21st.
  • You need to have all of your time entered by 10:00am on Monday, May 22nd
  • The pay date for the first two weeks will occur on June 2nd.
  • Please ensure that you have set up Direct Deposit!
NIAID is funding research on 4 types of long-acting HIV prevention.

**INTRAVAGINAL RING (IVR)**
Polymer ring inserted into the vagina releases antiretroviral drug over time.

**IMPLANT**
Device implanted in the body releases antiretroviral drug over time.

**INJECTABLE**
Long-acting antiretroviral drug is injected into the body.

**ANTIBODY**
Antibody is infused or injected into the body.

NIH National Institute of Allergy and Infectious Diseases

www.niaid.nih.gov

facebook.com/niaid.nih

@NIAIDNews
Schedule
## Orientation week

**Hock Plaza Room 10089**

<table>
<thead>
<tr>
<th>Time</th>
<th>MONDAY, May 8</th>
<th>TUESDAY, May 9</th>
<th>WEDNESDAY, May 10</th>
<th>THURSDAY, May 11</th>
<th>FRIDAY, May 12</th>
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</thead>
<tbody>
<tr>
<td>9:00</td>
<td><strong>Introduction slides</strong> (60 min) Cliburn</td>
<td><strong>HIV/AIDS Primer</strong> (75 min) Cliburn</td>
<td><strong>Git and GitLab</strong> (90 min) Josh</td>
<td><strong>Data wrangling primer - Python version</strong> (60 min) Tyler</td>
<td><strong>How to Survive a Plague</strong> (120 min) Joined by Kent Weinhold</td>
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<td>9:15</td>
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<tr>
<td>10:00</td>
<td><strong>Intern introductions (15 min)</strong></td>
<td><strong>Break</strong></td>
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<td>10:15</td>
<td><strong>Break</strong></td>
<td><strong>Break</strong></td>
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<td><strong>Break</strong></td>
<td><strong>Intern presentations - 5 min each</strong></td>
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<tr>
<td>10:30</td>
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<td><strong>OOD@DCC intro</strong> (30 min) Janice</td>
<td><strong>Data wrangling primer - R version</strong> (60 min) Frances</td>
<td><strong>1. Describe your project so that everyone can understand it.</strong></td>
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<td>10:45</td>
<td></td>
<td><strong>Meet and Greet with quantitative mentors</strong> (90 min)</td>
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<td><strong>2. What are your objectives for the internship?</strong></td>
<td><strong>Group Discussion</strong> (60 min)</td>
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<tr>
<td>11:00</td>
<td><strong>Meet and Greet with quantitative mentors</strong> (90 min)</td>
<td><strong>Practices for reproducible analysis</strong> (60 min) Josh</td>
<td><strong>Data wrangling primer - R version</strong> (60 min) Frances</td>
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<td>12:00</td>
<td><strong>Lunch - Kelly</strong></td>
<td><strong>Lunch - Richard</strong></td>
<td><strong>Lunch - Angel/Richard</strong></td>
<td><strong>Lunch - Tyler</strong></td>
<td><strong>Lunch - Kelly</strong></td>
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<td>13:00</td>
<td><strong>Trip to Card Office for non-Duke interns</strong></td>
<td><strong>Meet with program staff</strong></td>
<td><strong>Work time</strong></td>
<td><strong>Former Intern Q&amp;A (60 min) Grace Kovic</strong></td>
<td><strong>Social Event TBD</strong></td>
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**Notes:**
- **Mr. Smith** will be providing the introductory slides.
- **Ms. Johnson** will be leading the intern introductions.
- **Dr. Brown** will be introducing the HIV/AIDS Primer.
- **Mr. Anderson** will present on Git and GitLab.
- **Dr. Davis** will guide the data wrangling primer.
- **Professor Williams** will conduct the intern presentations.
- **Mr. Green** will facilitate the group discussion.

**Additional Information:**
- **Lunches:**
  - Monday: **Kelly**
  - Tuesday: **Richard**
  - Wednesday: **Angel/Richard**
  - Thursday: **Tyler**
  - Friday: **Kelly**
- **Social Event:** TBD
Other weeks

• Group meetings on Wednesdays
  • Seminars
  • Work-in-progress presentations by interns
  • Social activities: Frances- and intern-organized

• Other days
  • Check with lab PI to attend lab meetings
  • Option to do lab work if interested
  • Work on 10th floor lounge in small groups
SILENCE = DEATH
Expectations
Expectations (requirements)

• Meet weekly with your Quantitative Mentor (QM)
  • Interns should work with their QM to determine when meetings should be scheduled for the entire summer and for which meetings the PIs (or other collaborators) also need to attend
• Complete the Weekly check-in form
• Attend weekly Wednesday meetings,
  • present your work to others and engage when others present
• Complete timesheets on time
• Communicate scheduling issues with QM
• Check in with Program Staff every other week
• Prepare a scientific poster for the CFAR Retreat in September
Weekly Progress Tracking

- The Progress Report is an informal document meant to help with planning.
- During your weekly meeting with your QM, write out goals for the next week.
- Send to your quantitative mentor within a day after the weekly meeting (the earlier the better while fresh in your mind).
- Make sure to CC the staff liaison for the project.
Weekly Intern Presentations

• Each week 4 interns will present their work to the group
• The presentation should be 10 minutes with 5 minutes for Q&A
• The tentative list for presenters is located on the Internship Website
  • https://cfar.duke.edu/cores/quantitative-sciences-core/interns-2023
• It is the intern’s responsibility to switch dates with another intern if they are not able to present
CFAR Fall Retreat Poster Session

• The 2023 CFAR Fall Scientific Retreat will be held on campus on Thursday, September 14\textsuperscript{th}.
  • A \textit{Call for Abstracts} will be sent to you in early August with details for the Poster Session.
  • The current format is still to be determined. Previous formats have included short video presentations, as well as standard poster presentations.
  • At least one intern will be chosen to give a presentation at the Retreat.
Expectations (norms)

• You are not expected to know everything
• There are no stupid questions — ask, ask, ask
• You will make mistakes — that’s how you learn
• Mentors will always look busy — ask for their time anyway — they are there to ensure you have a great learning experience
• Ask why if you don’t understand anything
• We value initiative — contribute your own ideas and directions!
• Make friends with your peers and do fun things together — also, ask them for help and offer to help
Self-introductions
What to say

• Your name
• Home institution, department, and program of study
• What you’re interested in (work-related)
• What you're interested in (non-work related)
• 1 or more fun facts about yourself
2023
Summer Internship
Introductions
Questions?
Summer Internship Contacts

Administrative Support  kelly.sune@duke.edu

The 2023 Summer Internship Webpage can be found at https://cfar.duke.edu/cores/quantitative-sciences-core/interns-2023