The Huang Fellows Program
Syllabus for Summer 2022

The goal of the Huang Fellows program is to identify exceedingly talented science students early in their academic careers and infuse in them the understanding that their future research, discoveries and career contributions should be undertaken in the context of society and for the benefit of society. The program is designed to highlight the importance of collaboration, open-mindedness, service, creativity and community. The summer curriculum is the centerpiece of the Huang Fellows experience.

A very important element of the Huang Fellows is the strong community bond that develops among the Fellows over the course of the summer and thereafter. The shared living experience and the constant intellectual and social interactions of the summer are a key component in establishing these bonds. The faculty and staff will facilitate these efforts, but it will be the Huang Fellows who will drive this summer’s effort, primarily those in the new cohort, but with the support of earlier cohorts.

There are three structured components of the summer program: the lab placements, the seminar series and the professional development activities. The program is intended to fully occupy the Fellows’ summer and, as a consequence, taking other summer courses or jobs is not permitted.

Lab Placements

Each Huang Fellow is placed in a lab for the summer. Some of the placements are in “wet labs” and some in policy research. The intention of the placements is to give each Fellow an intensive experience in the hierarchical structures in which science is done and science policy formulated. The expectation is that the Fellows will spend essential full-time on their lab placements (30+ hours per week.) While not a requirement nor an expectation, these summer lab placements often result in continued associations throughout the Fellows’ careers at Duke.

During this summer, we expect that you will have regular engagement with the PI and research team and that your work will be an important element in the lab’s collective efforts - understanding that you will be the most junior members of the team.
At the end of the summer, each Fellow will make a presentation of their research. This will be done through both a traditional poster presentation and a TedTalk. This year, your final presentations will be your TedTalks. You will also receive training on how to construct and design an effective poster and how to give the talk. Learning how to communicate your science through a variety of media and to a range of audiences underlies all of the Huang Fellows’ programming.

Your PIs are aware that you will be required to attend all of the Huang Fellows programming in addition to working in their labs. Please remind the PIs of this requirement at the beginning of the summer. A copy of the summer calendar will be provided to your PIs, so they will know in advance when you will be out of the lab.

**Seminar Series**

The purpose of the Seminar Series is to help Fellows understand the social context in which science serves and to teach concepts and skills that help them understand and engage with the ethical and policy debates arising in the field of science and technology. Ultimately, the seminar series aims to train Fellows for impactful careers in the sciences, technology, health and science policy professions.

The series will cover topics that include: the responsible conduct of research; ethics of research; science communication; bioethics; science policy analysis; distributive justice; the history of medicine, disease and popular culture; health inequality; and government regulation of science.

The 2022 Huang Fellows seminars will typically be on Thursdays from 12:00 to 1:30pm (some dates and times are different, refer to the schedule). Lunch will be provided. Fellows are required to attend all sessions and complete all the seminar assignments. The seminar structure includes lectures provided by guest speakers from throughout the university, case studies, role-playing exercises and break-out group discussions which will create an active learning environment that gives Fellows the opportunity to become problem solvers, develop critical thinking and use the knowledge gained in the pre-assigned readings and lectures. We hope that the seminars will spawn on-going discussions among the Fellows.

**Professional Development Activities**

Throughout the summer, the Huang Fellows will engage in a series of professional activities to develop their skill sets and to expand their perspectives. These will include improving verbal skills through TedTalks and podcasts, preparing science posters, creating and developing science kits for elementary students, engaging with the Carolina Tiger Rescue center, exploring the research done through the Lemur Center and the Division of Fossil Primates and discovering how an art museum uses high-technology to restore and understand historic works of art.
These activities will usually be held on Thursdays 12:00 am -1:30 pm (some dates and times may differ, refer to the schedule.)

We will also hold a weekly Career Talk with the leaders of the Duke scientific community to discuss their life and career paths. Dr. Sally Kornbluth (Provost); Dr. Robert Lefkowitz (Nobel Laureate); Chancellor Eugene Washington (Chancellor of Duke Health); Dr. Mark McClellan (Director of Margolis Center for Health Policy) ; Dr. Jennifer Lodge (Interim Vice President for Research and Innovation); Dr. Emily Bernhardt (Chair, Biology); Christopher C. Beyrer (Director, Duke Global Health Institute); and Dr. Ebony Boulware (Vice Dean of the Medical School for Translational Sciences) will participate this summer. These talks will usually be held remotely on Thursdays from 4:00-5:00pm. (some dates and times are different, refer to the schedule.)

**Huang Fellows Perspectives: Reflecting on your summer experience and the impacts of science**
Each Fellow will write at least one blog-post style essay (each piece will not exceed 5,000 characters in length including spaces) inspired by a seminar topic and/or an enrichment activity respectively. These essays will be published on the Science & Society website. The purpose of this assignment is to build science writing skills while providing Fellows with the opportunity to reflect on their summer experience, frame their own take-away message and share their personal perspectives with the rest of the group and the wider Duke and non-Duke student communities.

**Huang Fellows Social Night**
Every Wednesday night throughout the summer, the Fellows will gather. The content and format of these weekly evening encounters will be structured by the Huang Fellows.

### Weekly Agenda

**May 24th @ 10:30am EST – Orientation – Duke Bull Pen (215 Morris St., 3rd Floor)**
The opening session will review the program and begin the process of building a community.
*Orientation: Ron Grunwald, Buz Waitzkin, & Esko Brummel
Lab Culture: Beth Sullivan(?)*

**May 24th @ 12pm EST – Ethical Challenges in Neuroscience Research – Seminar – Duke Bull Pen (215 Morris St., 3rd Floor)**
*Seminar leader: Nita Farahany, JD, PhD – Director, Duke Initiative for Science & Society*

**May 26th @ 11 am EST – Storytelling – the Power of Narrative – Duke Gardens**
*Guest: Jeff Polish, PhD – Director of the Monti***

Revised: 07/05/2022
This visit will focus on exploring the craft of verbal storytelling to attract and engage your audience, Jeff Polish, formerly of Duke’s Health Humanities Lab and the current founder and Executive Director of the Monti, will share how to best structure the flow of your story to highlight key points and provide your audience with their own authentic understanding.

**May 31 @ 12 EST - Podcast Production – Duke Bull Pen (215 Morris St., 3rd Floor)**

*Instructor:* Ben Shepard, MA – Assistant Director, Marketing & Communications, Duke Initiative for Science & Society

The Fellows will work in teams to produce a podcast telling the story about how science impacts people’s lives. This activity offers an opportunity to practice and develop leadership, creativity, science communication, team collaboration, and articulating the impact science.

**June 2 @ 12 pm EST – Responsible Conduct of Research Training – Duke Bull Pen (215 Morris St., 3rd Floor)**

*Lecturer:* Ron Grunwald, PhD – Senior Lecturer, Department of Biology

**June 3rd @ 1:00 pm EST – Social Event – Ropes Course – Go Ape Zipline and Adventure Park (3200 Pleasant Union Church Rd. Raleigh, NC 27614)**

**June 7th @ 11:30am EST – Social Event - Duke Lemur Center and the Division of Fossil Primates – Duke Lemur Center (3705 Erwin Rd, Durham NC 27705)**

We will have a discussion with some of the staff of the Duke Lemur Center and the Division of Fossil Primates about the research they are conducting. We will also participate in a guided, private tour offering an overview of the Duke Lemur Center, its three-fold mission, and its residents—and allows guests to see approximately 17 of the amazing lemurs that call the DLC home.

**June 9th @ 12:00pm EST – Seminar - History of Medicine Collection – Rubenstein Rare Book & Manuscript Library (Perkins Library)**

*Lecturer:* Jeff Baker, MD, PhD – Director, Duke Trent Center for Bioethics, Humanities & History of Medicine; Director, Program in the History of Medicine; Professor of Pediatrics and History

**June 9th @ 4:00pm EST – Career Talk - Remote**

*Guest:* Charmaine Royal, PhD, Director, Duke Center on Genomics, Race, Identity, Difference and the Duke Center for Truth, Racial Healing & Transformation

**June 14th @ 11:00am – Professional Development – Ted Talk Presentations - Duke Bull Pen (215 Morris St., 3rd Floor)**
The Huang Fellows will each deliver a 6-minute presentation which synthesizes their work during the summer, what they have learned, how they overcame the challenges encountered during their research experience and how they will continue their work. Presentations will occur over the span of the two days.

**Thursday, June 16 @ 12 pm EST – Seminar - Balancing Big Data: The Push and Pull of Competing Ethical Values - Duke Bull Pen (215 Morris St., 3rd Floor)**

*Guest Speaker:* Jeff Ward, JD – Associate Dean for Technology and Innovation; Associate Clinical Professor of Law; Director, Duke Center on Law & Technology

In an era where machine learning can know more about us than we know ourselves, how do we govern data and balance its competing ethical implications? Together we’ll explore the fundamental data challenge at the heart of the information age, consider creative solutions to achieve both protected data and productive data, and explore how COVID 19 has elevated our awareness of competing data values.

**Friday, June 17th @ 10:00am EST – Social Event - Science and the Arts: How Science is used to Preserve Art – NCMA (2110 Blue Ridge Rd, Raleigh, NC 27607)**

Visit the North Carolina Museum of Art. Fellows will meet with the staff of the North Carolina Museum of Art, Conservation Center and talk with the artist/scientists about their successes and challenges in using state of the art technology to restore historic works of art.

**Tuesday, June 21 – 12 pm EST – Professional Development – Discussion about Science Kits - Duke Bull Pen (215 Morris St., 3rd Floor)**

*Guest:* Amanda Bowers – Durham Public Schools K-5 Science Specialist

Put yourself back into your 10-year old mind. What would have been the best way to teach you to understand and appreciate science? We will have a discussion with Durham Public Schools K-5 Science Specialist, Amanda Bowers, about educational standards and what should go into the science kits you will develop for a fourth grade class.

**“Science Kits for Kids” Contest**

Divided into four/five teams, the Fellows will design and produce and assemble science kits for use by fourth graders in the local public schools. Team members will enhance their teamwork and leadership skills, as well as serve the community through creative applications of STEM. Each prototype of the science kits should be easy to replicate by the targeted student age group and affordable (up to $5/kits). The kits must support the established criteria established for public school science curriculum. The Science Kits will presented in a later professional development session.

http://www.dpi.state.nc.us/curriculum/science/scos/support-tools/#standards
Thursday, June 23rd @ 12:00am EST – Seminar – “Birdsong and Braininess: How Occam’s Razor is Sometimes Dulled” – Duke Bull Pen (215 Morris St., 3rd Floor)
    Seminar leader: Stephen Nowicki, PhD – Professor of Biology, Psychology & Neuroscience

Thursday, June 23rd @ 4:00pm EST – Career Talk – Remote
    Guest: Jennifer (Jenny) Lodge, PhD – Professor, Dept. of Molecular Genetics and Microbiology; Vice President for Research and Innovation

Wednesday, June 29th @ 4:00pm EST – Career Talk - Remote
    Guest: Sally Kornbluth, PhD – Duke University Provost

Thursday, June 30th @ 12:00pm EST – Seminar – "Paywalls, Predators, Preprints, and Pirates: Science Publishing in Flux - Duke Bull Pen (215 Morris St., 3rd Floor)
    Guest: Misha Angrist, PhD, MFA – Associate Professor of the Practice, Social Science Research Institute; Senior Fellow, Duke Initiative for Science & Society; Director, Science and the Public Certificate Program; Visiting Associate Professor of the Practice, Sanford School of Public Policy

Tuesday, July 5 @ 11:00am EST – Professional Development - How to make a Poster – Duke Bull Pen (215 Morris St., 3rd Floor)
    Lecturer: Ron Grunwald, PhD – Senior Lecturer, Department of Biology

Thursday, July 7th @ 12:00pm EST – Seminar – Genomics & Ethics - Duke Bull Pen (215 Morris St., 3rd Floor)
    Guest: Susanne Haga, PhD – Associate Professor in Medicine

Thursday, July 7th @ 4:00pm EST – Career Talk – Remote
    Guest: Mohamed Noor, PhD – Dean of Natural Sciences, Named Interim Dean of Trinity

Tuesday, July 12th @ 12:00pm EST – Professional Development – Podcast Presentations - Duke Bull Pen (215 Morris St., 3rd Floor)
    Instructor: Ben Shepard, MA – Duke Initiative for Science & Society

    The Fellows will present their podcasts and critique those prepared by other Fellows.

Wednesday, July 13th @ 3:30pm EST – Professional Development – Primer on Ted Talks – Remote
    Instructor: Nita Farahany, JD, PhD – Director, Duke Initiative for Science & Society

    The Fellows will have a priming lesson on developing a Ted Talk.
Thursday, July 14th @ 12:00pm – Social Event – North Carolina Tiger Rescue – Carolina Tiger Rescue (1940 Hanks Chapel Rd, Pittsboro, NC 27312)

We will visit with Katie Cannon, the educational director, about the mission and goal of the North Carolina Tiger Rescue, supported by Victoria Grant, Huang Fellow Class of 2020.

Thursday, July 14th @ 4:00pm EST – Career Talk - Remote

Guest: Robert Lefkowitz, MD – Professor of Medicine; James B. Duke Distinguished Professor of Medicine; Professor of Biochemistry; Professor of Pathology; Professor of Chemistry; Member of the Duke Cancer Institute; Nobel Laureate

Tuesday, July 19th @ 12:00pm EST – Professional Development – Science Kits Presentation – Duke Bull Pen (215 Morris St., 3rd Floor)

Guest: Amanda Bowers – Durham Public Schools K-5 Science Specialist

The science kits will be reviewed and evaluated on their creativity, compliance with required standards and effectiveness as pedagogic tools for an elementary school audience prior to their official début in the following weeks.

Thursday, July 21st @ 12:00pm EST – Professional Development - Poster Review - Seminar

Seminar leader: Dr. Ron Grunwald

The Fellows will present their posters to one another and receive peer feedback. The Fellows will enter Zoom breakout rooms with 4 or 5 others where they will share their draft posters and critique each other. Dr. Grunwald will circulate between the breakout rooms to answer questions, and make suggestions. A formal poster presentation will be scheduled for the fall.

Thursday, July 21st @ 4:00pm EST – Career Talk - Remote

Guest: Mark McClellan, MD, PhD – Director of the Duke Margolis Center for Health Policy

Tuesday, July 26th @ 12:00pm EST – Professional Development – Ted Talks at the Bullpen (215 Morris St., 3rd Floor)

Thursday, July 28th @ 12:00pm EST – Seminar - Who Makes Science Policy?” - Seminar

Seminar leader: Michael “Buz” Waitzkin, JD – Deputy Director, Duke Initiative for Science & Society

How is science regulated and controlled? How do the states, the federal government and international agencies interact to set science policy? How is scientific research funded?
Thursday, July 28th @ 4:00pm EST – Career Talk - Remote
   Guest: Gene Washington, MD – Chancellor of Duke Health

Friday, July 29th 2 12:00pm – Program Conclusion: Joint Poster Session @ Mary Duke Biddle Trent Semans Center for Health Education - 6th Floor (8 Searle Center Dr, Durham, NC 27710)
   The Huang Fellows will each deliver a 10-minute presentation which synthesizes their work during the summer, what they have learned, how they overcame the challenges encountered during their research experience and how they will continue their work. Presentations will occur over the span of the two days. Additionally, students will synthesize their research experience in a poster. These posters will be displayed digitally, and potentially presented again in a more traditional forum at a later date.

School Year Activities

Huang Fellows, Principal Investigators, and Faculty Dinner
Huang Fellows will gather together, have dinner and meet with their lab mentors. The event will offer students the opportunity to network, think of their own path to success and to realize how passion, knowledge, education, personal skills, context and chance play a role in shaping someone’s career.

The Huang Fellows Book Club with the Authors
Fellows will meet several times each semester and discuss recent books or scientific articles, preferably written by Duke faculty. We plan on inviting book authors, journalists, faculty or researchers – either in person or by Zoom – to analyze the book topic and answer student questions.

Huang Fellows Film Club
Huang Fellows are invited to watch and analyze a film about ethics, science, and society. We plan on inviting a special guest, preferably a researcher whose area of research interferes with the film science topic.

Huang Fellows Professional Development Evening
Fellows will have the opportunity to meet a key Duke Staff or faculty member who would address professional development issues such as successful applications to the Med School; what is expected from an interview; how to read between the lines when choosing the right academic program; how to build emotional intelligence and leadership etc.

Huang Fellows Go Social
The Huang Fellows Social Events Committee will have a designated budget to plan one or two events per semester, which are relevant and open to all the Fellows. Attendance of minimum 50% of the Fellows is required to receive funding for an event.

**Huang Fellows Mentoring Program**
The mentoring program will offer opportunities for vertical integration of all classes of Fellows, through one-on-one pairing. Incoming Fellows will gain insights that will help them make the most of their Huang Fellowship year and expand their network at Duke. Older Fellows will have the opportunity to share their experience and knowledge gained during the Huang Fellows Immersive Summer and Sophomore year as well as build leadership, collaboration and mentoring skills that will benefit them during their future careers as scientists, doctors, and policy practitioners.

**The Huang Fellows Annual Symposium**
This vertically integrated project will give all four cohorts of the Huang Fellows the opportunity to work together on designing and implementing a Symposium. The topics of the symposium in past years was the 200th Anniversary of the Publication of Frankenstein and Artificial Intelligence. This year’s Huang Fellows’ Seminar, “The Struggle Between Fact & Fiction: Multidisciplinary Perspectives on COVID-19 Vaccine Misinformation” was held on April 16, 2021.

Summer 2022