

The GSAS Bulletin



HARVARD UNIVERSITY
The Graduate School of Arts and Sciences

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Your Guide to Commencement

▶ IMPORTANT DEADLINES

Last day to apply for the May 2016 degree: March 24, 2017

Order your tickets: April 1–21, 2017

Regalia orders (master's candidates): April 5, 2017

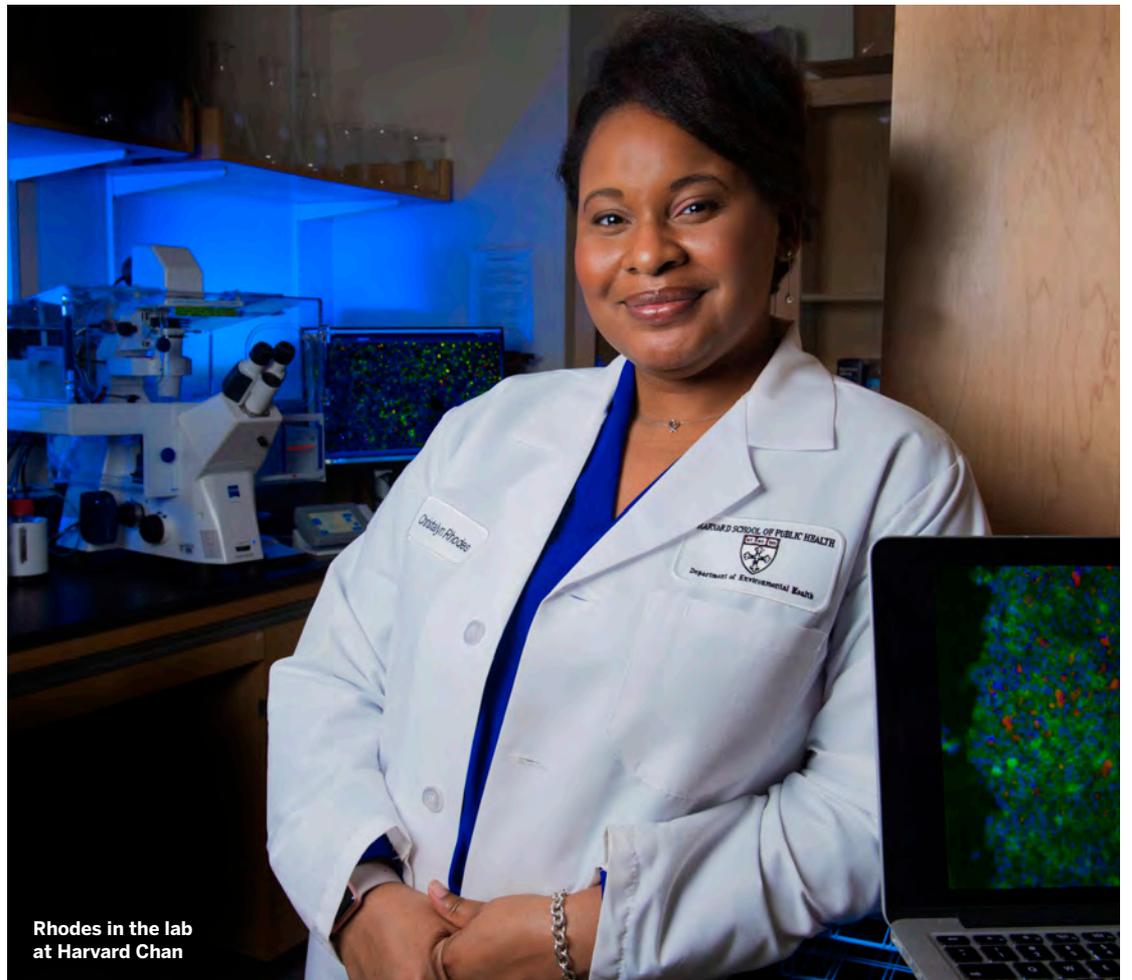
Regalia orders (PhD candidates): April 21, 2017

Pick up your tickets: May 19, 21–24, 2017

continued on page 2

▶ SPEAK AT MORNING EXERCISES

The Commencement Oration Competition gives students the chance to speak at Commencement. Winners also receive a \$1,000 prize. Deadline is noon March 31, 2017. Visit commencement.harvard.edu/orations-competition to learn more.



STU ROSNER

Rhodes in the lab at Harvard Chan

When Someone Says Yes

How Christalyn Rhodes is transforming her important research into a story worth sharing By Fernanda Ferreira

Not many people can say that their scientific journey began with crying babies. Christalyn Rhodes, however, can. As an undergraduate, Rhodes, now a PhD candidate at GSAS in the Biological Sciences in Public Health (BPH) program based at the Harvard T. H. Chan School of Public Health, studied primary ciliary dyskinesia in young children, a rare genetic disorder that affects the function of cilia in the respiratory tract. “Babies with ciliary dyskinesia have recurrent cold infections and we do not understand why,” Rhodes explains.

Waiting outside operating rooms at the Children’s Medical Center of Dallas, Rhodes would watch young children undergo bronchial brushing, a procedure that allows doctors to collect a swab of cells from a child’s airways. The pathologist would hand the cells to Rhodes,

who would rush to the hospital’s histology lab to look at them under a microscope, measuring the motility of their cilia, the tiny hair-like protrusions found on certain cell types. Cilia presenting low motility are an indicator that a child suffers from primary ciliary dyskinesia and will face chronic, recurring colds.

Searing Memories

Bronchial brushing is not an enjoyable experience, especially for a two-year-old. “The pain and the crying are burned in my brain,” Rhodes says. “I wanted to understand these types of cells and why these kids get sick.” The scenes in the operating room became the impetus that drove Rhodes to Harvard and into the labs of Jeffrey Fredberg and Jin-Ah Park, both profes-

continued on page 3

TONY RINALDO



PROFESSIONAL DEVELOPMENT

Symposium



Harvard Horizons is on April 12
P. 3

DON'T MISS

Spring Swing



Get your tickets now
P. 5

FELLOWSHIPS

Teamwork



Help with the dissertation
P. 6

CAREERS

Leveraging Your PhD

Explore your career options
P. 7





Commencement Schedule of Events

The Day Before

Wednesday, May 24, 2017

4:00 p.m. to 6:00 p.m.

Dudley House Faculty Deans' Reception, Main Dining Room, Dudley House
Light refreshments and cake

On the Day

Thursday, May 25, 2017

6:30 a.m. GSAS Breakfast with the Deans, the Lawns at Richards Hall, 33-35 Oxford Street, for all degree candidates and their guests.

7:15 a.m. GSAS Procession begins from 35 Oxford Street to Sever Quadrangle.

9:45 a.m. Morning Exercises begin in Harvard Yard.

11:30 a.m. The GSAS Diploma Awarding Ceremony in Sanders Theatre begins immediately following the Morning Exercises.

12:00 noon Champagne Reception and Luncheon begins on the Lawns at Richards Hall, 33-35 Oxford Street, and continues until approximately 3:00 p.m. for all degree recipients and their guests.

2:15 p.m. Afternoon Program begins in Harvard Yard.

4:00 p.m. PhD Hooding Ceremony for Harvard John A. Paulson School of Engineering and Applied Sciences

5:15 p.m. Graduate Hooding Ceremony for Division of Medical Sciences graduates



More information at
gsas.harvard.edu/commencement



NOTES FROM THE DUDLEY UNDERGROUND

Lifting Spirits: Therapy Dogs at Harvard University Health Services

BY JACKIE YUN, ROOM B-2 IN DUDLEY HOUSE — COME VISIT!

At 5:00 p.m., students shuffle towards the fourth floor of the Smith Campus Center to Harvard University Health Services (HUHS). In a room with cozy couches for lounging, soothing light music for listening, video playlists of dogs, and treats for those who want a snack, Thomas and Tulip trot into the room, their entrance marked with oohs and ahhs of adoration.

To be clear, Tulip and Thomas are not rock stars, they are dogs and HUHS staff members. Each Tuesday, students can drop-in to visit with Tulip and Thomas as part of the "Take a Paws" program, an initiative that allows students an opportunity to visit with Animal Assisted Therapy Teams. The dogs walk around the room and students take turns playing with and petting the animals.

Tulip is a six-year-old whippet and according to her bio, was born the runt of the litter but now is a resilient leader. She is black and grey-spotted and looks similar to a miniature greyhound. She is gentle, playful, and intuitive, which makes her an excellent

co-therapist. Tulip loves peanut butter and sunbathing. Upon hearing "I love you," Tulip can reciprocate with a sigh.

The other dog, Thomas or "Tom," is a yellow Labrador retriever. He has fluffy yellow fur, soft ears, big brown eyes, and a dapper vest which makes him look older and wiser than his five years. When told to "shake," Tom performs an exceptional shimmy. According to his bio, Tom is described as a "gentle soul." He had some health issues as a pup, but he has been thriving ever since having surgery at age two. He loves to play fetch, eat, receive belly rubs, and sit on people's feet.

Spending time with these dogs can benefit students in many ways. Becca Voelcker, a GSAS student, observed that "Graduate students work very intensely

'inside' their heads, so it can be important to unwind and interact with others (including animals!) in a non-work related environment." According to Julie Aresco, a therapist in Counseling and Mental Health Services (CAMHS), "It's an opportunity to engage in self-care each week."

As humans we thrive through relationships, our



emotional, physical, and spiritual being requires connection with others. Domesticated mammals, such as dogs, cats, and horses also value connection and relationships, therefore the partnership is a perfect way for both parties to benefit. As Voelcker stated, "Animals need care and kindness, and give a lot of affection in return, and this can be just what a graduate student needs at the end of a hard day in the library or laboratory." Aresco shares

that students' "spirits appear lifted after allowing themselves the opportunity to take a break and enjoy the company of the dogs."

Incorporating Animal Assisted Therapy at CAMHS also helps to make mental health services more accessible for those who have concerns about accessing support. "Most students who attend often share a common love for animals and dogs," said Aresco. "We've found this organically creates a low-pressure social atmosphere in which to connect with peers as well." As Voelcker quipped, "I went with a friend after a full day of seminars, and it was a fun way to unwind and take our minds off of work. We left very smiley and relaxed!"

If you feel like time with these pups might lighten your day, stop by and meet Tulip and Tom.



"Take a Paws"

**Tuesdays at 5:00 p.m.,
January 24, 2017 through
May 9, 2017**

Harvard University Health Services
Richard A. and Susan F. Smith
Campus Center, Room 4308

**Schedule an appointment with
a therapy dog and counselor by
calling 617-495-2042**

continued from page 1

sors in the Department of Environmental Health at Harvard Chan.

Fredberg and Park are interested in the intersection of physics and biology in asthma, primarily the role of collective cell migration, the concerted movement of a group of cells, in the disease. They had previously shown that when airway epithelial cells are grown in a lab culture, they become jammed or still. Cells from asthmatic donors, however, are unjammed, moving across the culture plate in a hypnotic, wave-like manner.

Armed with epidemiological data showing an association between recurring cold infections and increased odds of a child developing asthma, Rhodes approached Fredberg with what, at the time, seemed like a crazy idea. “I told Jeff, I want to push normal airway epithelial cells to behave like asthmatic cells using only the cold virus,” Rhodes explains.

“I was prepared for him to say no, absolutely not,” Rhodes confesses. Instead Fredberg told her to go for it. “What do you do when someone says yes?” Rhodes muses. For Rhodes it meant figuring out every aspect of the investigation, from the experimental design to the exact cold virus to use, as well as months of disappointment and cells that continued to stay jammed. After another round of tweaking, Rhodes checked the virally infected cells under the microscope, but this time, instead of a layer of boxy, motionless cells, they were elongated and moving around the entire culture plate.

Communicating

“I love my data,” Rhodes sighs, watching a video of airway epithelial cells pulsing together after infection with a cold virus. Before Rhodes’ experiments, collective cell migration was thought to occur only in cancer invasion, wound healing, and development. Her results represent another cause of collective migration: viral infection.

As Rhodes collected additional data supporting her discovery, the need to tell the world about this potentially paradigm-shifting finding increased. “We are so used to experimental failures in graduate school, that when I found something that worked and that no one knew about, I just wanted to tell everyone,” Rhodes explains.

“We are so used to **experimental failures** in graduate school, that when I found something that worked and that no one knew about, I just wanted to tell everyone,” Rhodes explains.

Around the same time that Rhodes’ cells began moving, she saw an advertisement for Harvard Horizons, a program that recognizes eight scholars doing innovative work in the GSAS community. Harvard Horizons scholars give five-minute, TED-talk style presentations of their research, and Rhodes had watched a number of these talks. “The Horizons talks are simply fascinating and I thought, if I ever do anything that is worth telling people, that would be a great avenue for it,” Rhodes says.

Virus-driven collective migration and its posited role in asthma was, in Rhodes’ opinion, something worth telling people about and a discovery the Harvard community would be interested in. The first step was making a 1-minute video. “If I can make this video, I’ll apply,” Rhodes says, explaining her thought process last year. Wearing her lab coat and with an image of her cells on the computer screen behind her, Rhodes condensed four years of graduate research into a 1-minute video, hoping to convince the Harvard Horizons committee of the importance of her work.

Telling a Story

They were convinced. In December 2016, Rhodes was named a 2017 Harvard Horizons Scholar and she will present her research on April 12, 2017, in Sanders Theatre. Every Friday leading up to the Horizons symposium, Rhodes and the other members of the 2017

Horizons cohort are mentored by faculty and the Derek Bok Center for Teaching and Learning who are helping them hone their presentation skills and talks. For Rhodes, these Friday sessions will provide her with a valuable skill set for communicating her research.

“Some of what we learned are such basic concepts, and yet we’ve never considered them,” Rhodes says. One of the first sessions explored how to use the elements of storytelling, such as a dramatic arc, to efficiently explain your research in an engaging way. “How many times have we sat in an audience and listened to someone rattle on about their data and wondered what’s the point,” Rhodes asks. When it comes to her Horizons talk, Rhodes wants to transform her research into a story with a purpose and one the audience wants to listen to.

And Rhodes is not satisfied telling only the Harvard community her story about viruses, asthma, and collective cell migration. There are many disparate communities beyond Harvard for which Rhodes’ results are interesting—collective cell migration scientists, virologists, clinicians—and Rhodes has made it her mission to make sure all of them are aware of her findings. “I went on a wild spree one week and applied to a handful of conferences,” Rhodes explains. “I truly believe that if everyone knows about this discovery, then the science of viruses and collective cell migration can really move forward.”

HARVARD HORIZONS SYMPOSIUM

Save the date for the Harvard Horizons Symposium on April 12, 2017, at 4:30 p.m. in Sanders Theatre.

The 2017 Horizons Scholars and their project titles

Robin Gong, Statistics

Rethinking Low-Resolution Statistical Inference with Random Sets

John Harpham, Government

The Intellectual Origins of American Slavery

Nancy Khalil, Anthropology

Without a Profession: The Politics of Being and Becoming an Imam in the US

Shay Neufeld, Medical Sciences

To Explore or to Exploit? Investigating How the Brain Decides Whether to Try Something New, or Stick with What It Knows

Evander Price, American Studies

The Future Monument

Frederick Reece, Music

Ringling False: Music Analysis, Forgery, and the Technologies of Truth

Christalyn Rhodes, Biological Sciences in Public Health

Cold Migration: The Role of Viral-Induced Epithelial Cell Migration in Asthmatic Exacerbations

Xiawei Wang, Astronomy

Quasar Outflows: Unravelling the Mysteries of the High Energy Universe



TONY RINALDO

Charrise Barron speaks about her research on gospel music at the 2016 Harvard Horizons Symposium.



Bureau of Student Counsel

The Bureau of Student Counsel (BSC) supports Harvard students in their academic life and learning through academic counseling, workshops and discussions, and peer tutoring.

For more information and updates on new offerings at the BSC, visit in person at 5 Linden Street or online at www.bsc.harvard.edu, or like us on Facebook at www.facebook.com/HarvardBSC.

Dissertation Writing Workshop Wednesday, March 1, 2017, 4:00 p.m. to 5:30 p.m.

For graduate students. Consider how to orient to the nature and scope of your inquiry; how to write when feeling overwhelmed, lost, daunted, or discouraged; and how to manage time, anxiety, energy, and tasks. Register online at bsc.harvard.edu.

Keeping Ourselves Accountable Weekly meetings beginning Tuesday, March 7, 2017, 5:00 p.m. to 7:00 p.m.

Get started or work through difficult aspects of your academic work. Get to know fellow students and their experiences with accountability. Share, learn and try strategies, and discover what supports or hinders your accountability.

To register, e-mail Peter Kozel at pkoz@bsc.harvard.edu.



Procrastination Wednesday, March 8, 2017, 3:00 p.m. to 4:30 p.m.

Explore factors that might lead us to procrastinate, including the wisdom that motivates meaningful digressions. Consider practical and attitudinal approaches we might try when we find ourselves resisting or avoiding our academic work. Register online at bsc.harvard.edu.

Let's Talk About the Dissertation: It Takes a Team

By Cynthia Verba

You may still be at an early stage thinking about finding a topic, or perhaps you have found a topic but are not sure it will work, or maybe you are so far along that you cannot imagine seeking a fresh perspective. Regardless of the stage, there are many good reasons for engaging in discussion about your dissertation, not just with your formal advisers, but with a mixed constellation of knowledgeable people—administrative advisors, faculty both within and outside the department, scholars outside of Harvard, and peers.

The conceptualization of team feedback occurred to me while I was a speaker in a panel discussion organized by a department to advise students on getting dissertation funding. In addition to my presence as director of fellowships, one speaker was a graduate student who had successfully written winning dissertation proposals, and two speakers were department faculty members. We were all discussing the same topic, had considerable agreement about the main points, AND YET, each came to the topic with a different perspective, a different set of experiences.

One faculty member who had hired graduate students to assist with his project, noted that through this participation graduate students gained access to research tools and data that they could use for their own dissertation work. This is not quite a fellowship, but it is a form of support with financial value. The other faculty member, who works on health-related issues, shared his experience in seeking funding from companies interested in his type of research; his main message was the need, when looking outside of normal channels, to pay special attention to assuring

the independence of your own research and to the company's reputation. Then there was the graduate student who had success in fellowship competitions; he provided encouragement for students to apply for fellowships and served as proof that with an effective approach applicants can prevail.

In my own presentation, I provided a broader and more general view of the process, giving tips that apply to students from a wide range of fields. The discussion was then topped off with questions from students in the audience. I came away from the event impressed with how, without any team practice, we in fact had operated as a team, enhancing the quality of the whole while retaining the individual perspective as well.

Students at all stages of the dissertation can create an equivalent team: it's mainly a matter of engaging with a range of people in discussion, sharing your thoughts and questions and asking them about theirs. In the next installment for this column I will share thoughts on the graduate advising process and mentoring.



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gsas.harvard.edu/fellowships

Upcoming Events at the Office of Career Services

The Office of Career Services (OCS) provides a wide range of services and resources tailored specifically to the needs of master's and PhD students. Advisors work confidentially with GSAS students on a wide range of career-related issues, from broad self-assessment and decision-making to specific advice on resume, CV, and cover letter preparation for academic and nonacademic job searches. OCS also offers monthly events designed to help graduate students with their professional development.



Life Sciences & Healthcare Career Expo

Wednesday, March 1, 2017, 4:00 p.m. to 6:00 p.m.

Harvard T. H. Chan School of Public Health, Kresge Café, 677 Huntington Avenue, Boston

The 2017 Harvard Life Sciences & Healthcare Career Expo is a great opportunity to meet and network with organizations and companies with full-time and internship opportunities in life sciences, healthcare, and biotech fields.

Don't miss the career panel featuring representatives from select Expo employers on February 28, the night before the career fair! Open to all Harvard FAS students and alumni and to Harvard postdocs. Learn more at ocs.fas.harvard.edu/LSHC-expo.

Mindfulness-based Approaches to Your Job Search

Thursday, March 9, 2017, 3:30 p.m. to 5:00 p.m., Harvard Office of Career Services, 54 Dunster Street, Cambridge

From the cover of *Time* magazine to the blogosphere, everywhere you turn, someone is talking about mindfulness. Why is mindfulness attracting so much attention? Studies show that mindfulness practices can be helpful in many ways from better health and decreased stress to greater productivity and happiness.

Join us for an interactive workshop where we'll discuss how mindfulness can positively impact your job search. In this

Leveraging Your PhD: Why Employers Value Your Skills

Wednesday, March 15, 2017, 4:00 p.m. to 7:30 p.m., Dudley House Common Room

Explore career options beyond academia and learn how to leverage your PhD.

4:00 p.m. to 5:00 p.m., Nuts and Bolts: Landing a Job in this Economy

Curious how recent PhD graduates found their jobs? Hear from recent GSAS graduates who have successfully landed a job.

5:00 p.m. to 6:30 p.m., Alumni Panel on Leveraging the PhD
Alumni will discuss their own career decision making, how they adapted to jobs outside academe, and how the skills and knowledge they developed during their graduate programs influenced their success.

6:30 p.m. to 7:30 p.m., Networking Reception

Speak with alumni and Harvard affiliates about their specific jobs and career paths.

This event is co-sponsored by the FAS Office of Career Services and the GSAS Office of Alumni Relations. Please register through Crimson Careers.

workshop you will learn techniques to:

- Approach the job search feeling more calm and confident
- Tackle tough career decisions
- Manage job search and work-related stress
- Use visualization to enhance interview success

This session will be taught by career coach and LinkedIn trainer, Sabrina Woods, www.sabrina-woods.com. Please register through Crimson Careers.

Preparing for the Job Search: Resume and Cover Letters

Tuesday, March 21, 2017, 4:00 p.m. to 5:00 p.m., Office of Career Services, 54 Dunster Street, Cambridge

Are you a PhD student concerned about how to write an effective resume and cover letter for nonacademic careers? Learn tips on how to tighten and tailor your resume and cover letter to help you land an interview! *Please register through Crimson Careers.*

LinkedIn: Profile Building & Making Connections

Thursday, March 23, 2017, 3:00 p.m. to 5:00 p.m., Dudley House Common Room

LinkedIn has become an incredibly powerful tool for building and maintaining your professional network. Join us for this hands-on, interactive workshop where you will be guided step-by-step through the process of enhancing your profile and networking for job leads. We will discuss changing your headline, adding skills, enhancing your summary, and adding links and documents to show examples of your work. Additional topics will include: ways to reach out to alumni and other professionals, asking for in-person networking meetings (often called informational interviews) and how to join and benefit from participating in groups. With LinkedIn making changes quite frequently to its interface, you'll also have the chance to ask questions. Join us so you can take full advantage of LinkedIn, grow your professional connections, and open up to new opportunities. *This session will be taught by career coach and LinkedIn trainer, Sabrina Woods, www.sabrina-woods.com. Note: Please bring a laptop or tablet to this session and join one LinkedIn group. Please register through Crimson Careers.*

Preparing for the Academic Job Market: CVs and Cover Letters

Monday, March 27, 2017, 3:30 p.m. to 5:00 p.m., Office of Career Services, 54 Dunster Street, Cambridge

If you're planning to go on the academic job market this fall, begin preparing your documents now! Your CV and cover letter are the first documents that academic search committees see. Come to this workshop to learn how to create a dynamic, graphically pleasing CV and craft a compelling, tailored cover letter that will help propel you to the next step in this challenging market. *Please register through Crimson Careers.*

Polishing Your Professional Social Skills

Wednesday, March 29, 2017, 4:00 p.m. to 5:00 p.m., Office of Career Services, 54 Dunster Street, Cambridge

Unsure what to do during interviews and networking dinners? Do you often feel tongue-tied in these situations? People tend to equate a lack of etiquette and conversation skills with a lack of ability to be good at what you do. Join us for this workshop and learn tips on how to present yourself with the kind of polish that shows you can be taken seriously. *Please register through Crimson Careers.*

CONTACT

Office of Career Services

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ocs.fas.harvard.edu/gsas-advising



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Get Out

EXPLORATIONS AND ADVENTURES ON AND OFF CAMPUS

» Celtic Sojourn

Join Boston's public radio station WGBH for a Celtic Sojourn and celebrate St. Patrick's Day! Hear Irish music veterans Karan Casey and Liz Carroll, alongside emerging stars Jenna Moynihan and Mairi Chaimbeul, as they play a wide range of Irish music. Saturday, March 18, 2017 at Sanders Theatre. Tickets: \$25 (purchase at Dudley House Office, 3rd floor) Dudley House members may bring one guest. Concert details at wgbh.org/support/stpatricksojourn.cfm

Events in the Department of Music

Fromm Players: Talea Ensemble

Friday, March 3, and Saturday, March 4, 2017, at 8:00 p.m.,
John Knowles Paine Concert Hall



Friday program:

George Lewis *Mnemosis*;
Gerard Grisey *Talea*;
James Dillon *New York Triptych*

Saturday program:

Brian Ferneyhough *Incipits*;
Rand Steiger *A Menacing Plume*;
Liza Lim *Songs found in dream*;
Hans Tutschku *codification - memory (world premiere)*

Free and open to the public.
No tickets required; first come, first seated.