



Pedestrians cross Mass. Ave. as the fall semester comes to a close.

NATHAN LIANG — THE TECH

HRS Spring housing placements delayed until late December

HRS received a 'high volume' of student spring housing applications

By Kerri Lu and Wenbo Wu

NEWS EDITORS

Undergraduate housing placements for the spring have been delayed until the “end of December,” Director of House Operations Rich Hilton wrote in an email to students Nov. 23. The placements were originally scheduled to be released Nov. 20 and were initially delayed to Nov. 24 before being further delayed to December.

Hilton wrote that because positive COVID-19 cases are rising throughout the U.S., MIT “must approach building placements and residential density extremely carefully” to “prevent the number of residents placed in each house from posing an increased risk of spreading the virus.”

Furthermore, Housing and Residential Services (HRS) received a “high volume” of spring housing

applications and expects that “students’ housing plans may change during the course of the coming weeks.” Students may cancel their on-campus housing through a form in MyHousing portal without penalty until Jan. 1.

Hilton wrote that students who no longer require spring on-campus housing should complete the cancellation form “as soon as possible” to provide HRS “a more accurate understanding” of housing needs and to “better accommodate” students “who have committed to on-campus housing.”

“By waiting a few more weeks to have a more complete handle on the true demand for MIT Housing, it’s our hope that we can make placements in mid-December and avoid reshuffling residents’ assignments in January to help bal-

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Spring grading also under A, B, C, D/NE, and F/NE system, including optional PE/NE class

Unlike the fall, Junior-Senior and Graduate P/D/F options will also become available for the Spring 2021 semester, Danheiser wrote in an email Nov. 30

By Kristina Chen

EDITOR IN CHIEF

Sophomores, juniors, seniors, and graduate students will receive A, B, C, D/NE, and F/NE grades in the spring, according to a Nov. 30 email from Rick Danheiser, faculty and Academic Policy and Regulations Team (APART) chair. NE grades appear on internal grade reports but not on external transcripts.

First year undergraduates will be graded under the usual A, B, C, D/NR, and F/NR system for the spring semester.

Similar to Fall 2020, all students may choose one subject to be grad-

ed PE/NE, and sophomores may designate one subject as Exploratory. Unlike the fall, Junior-Senior and Graduate P/D/F options will be available in the spring.

As in the fall, upper-level students who receive a D/NE grade may choose to accept a D grade “to fulfill a requirement for graduation” or “accept the default” for the class to not appear on their external transcript, Danheiser wrote. This option is not offered to first years who receive a D/NR or D/NE grade.

Danheiser announced in an email to the MIT community June 25 that a “Significant Disruption” would be in effect for Summer 2020

and the 2020–21 academic year.

Section 2.64 of the *Rules and Regulations of the Faculty* writes that PE indicates an A, B, or C level performance during a Significant Disruption; NE indicates a D or F level performance “for which no record will appear on the external transcript”; and IE indicates that a portion of the subject requirements are unfulfilled “due to a major disruption of the Institute’s academic activities.”

Danheiser wrote in the Nov. 30 email that the spring grading policy is “largely based” on MIT’s fall policy, which was developed after reviewing the Undergraduate Association (UA) report on Fall 2020

grading options and a report from the Academic Policy Solutions Group of the Graduate Student Council (GSC).

APART also met with students from the UA and GSC and deans of Student Support Services, and received survey feedback from 29 departments and academic programs for the fall grading policy.

Danheiser added that “a longer, detailed version” of the policy would be available online “within the next two weeks.”

Grading for Independent Activities Period, also using A, B, C, D/NE, and F/NE grades for upper-level students, was announced Nov. 16.

IN SHORT

Pre-registration for Spring and IAP is currently open. The deadline to initiate pre-registration for the spring and to complete pre-registration for IAP is 5 p.m. Jan. 4. Spring pre-registration closes 5 p.m. Jan. 29.

Dec. 4 is the last day an assignment may be due or a test may be given for classes with final exams.

The last day of classes is Dec. 9.

End-of-term subject evaluations may be completed until 9 a.m. Dec. 14.

The final exam period is Dec. 14–Dec. 18.

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MIT seniors Grey-Stewart, Alshalan named Rhodes Scholars

Total number of MIT Rhodes Scholarship recipients has reached 61 over the course of Institute’s history

By Nicole Chan

ASSOCIATE NEWS EDITOR

Danielle Grey-Stewart ’21 and Ghadah Alshalan ’21 have been named Rhodes Scholars for 2021.

The Rhodes Scholarship awards over 100 fully-funded scholarships for one to three years of graduate study at Oxford each year, including

32 scholarships for U.S. citizens. Sixty-one MIT students have received the scholarship since it was first awarded in 1904.

Grey-Stewart was named a U.S. Rhodes Scholar. Alshalan was awarded the Rhodes Scholarship for Saudi Arabia. Up to three Rhodes Scholarships for Saudi citizens are awarded annually.

Danielle Grey-Stewart:

Grey-Stewart is a senior majoring in Course 3. Grey-Stewart’s current research focuses on “functionalized nanothread synthesis” in the laboratory of Professor Julia Ortony in the materials science and engineering department, according to MIT News. In the past, she has also conducted research on photoini-

tiator nanoparticles in the department of chemistry and biodegradable architectural materials in the MIT Media Lab Mediated Matter Group.

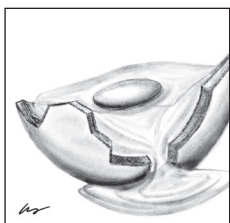
Outside of class, Grey-Stewart chairs the MIT Undergraduate Association Committee on COVID-19, writes articles on COVID-19’s impact on sustainability for the MIT

Environmental Solutions Initiative Rapid Response Group, and participates in the MIT Student Advisory Group for Engineering. She has also taught STEM classes to students in France through MIT Global Teaching Labs and worked with community health partners in the Navajo

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Ending the year the way it began. **CAMPUS LIFE**, p. 6

SWAGER GROUP

Researching a novel method for sensing pathogens. **SCIENCE**, p. 8

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Hilton: it ‘has become clear’ that MIT needs ‘more time’

Housing, from Page 1

ance the distribution of residents across the houses,” Hilton wrote.

Hilton wrote that it “has become clear” that MIT needs “more time to take [student]

preferences into account and to get a better sense of demand for campus housing” before determining building placements. He added that housing assignments should “prioritize” student “health and safety” while also “setting students up to have as

positive a residential experience as possible during this unprecedented time.”

The previous timeline for Spring housing included a building switch lottery period where students could request a different housing assignment. Hilton did

not indicate whether this lottery would be offered in the delayed timeline.

Students can visit the HRS Spring 2021 Housing Dashboard for updates or email questions to ughousingspring2021@mit.edu.



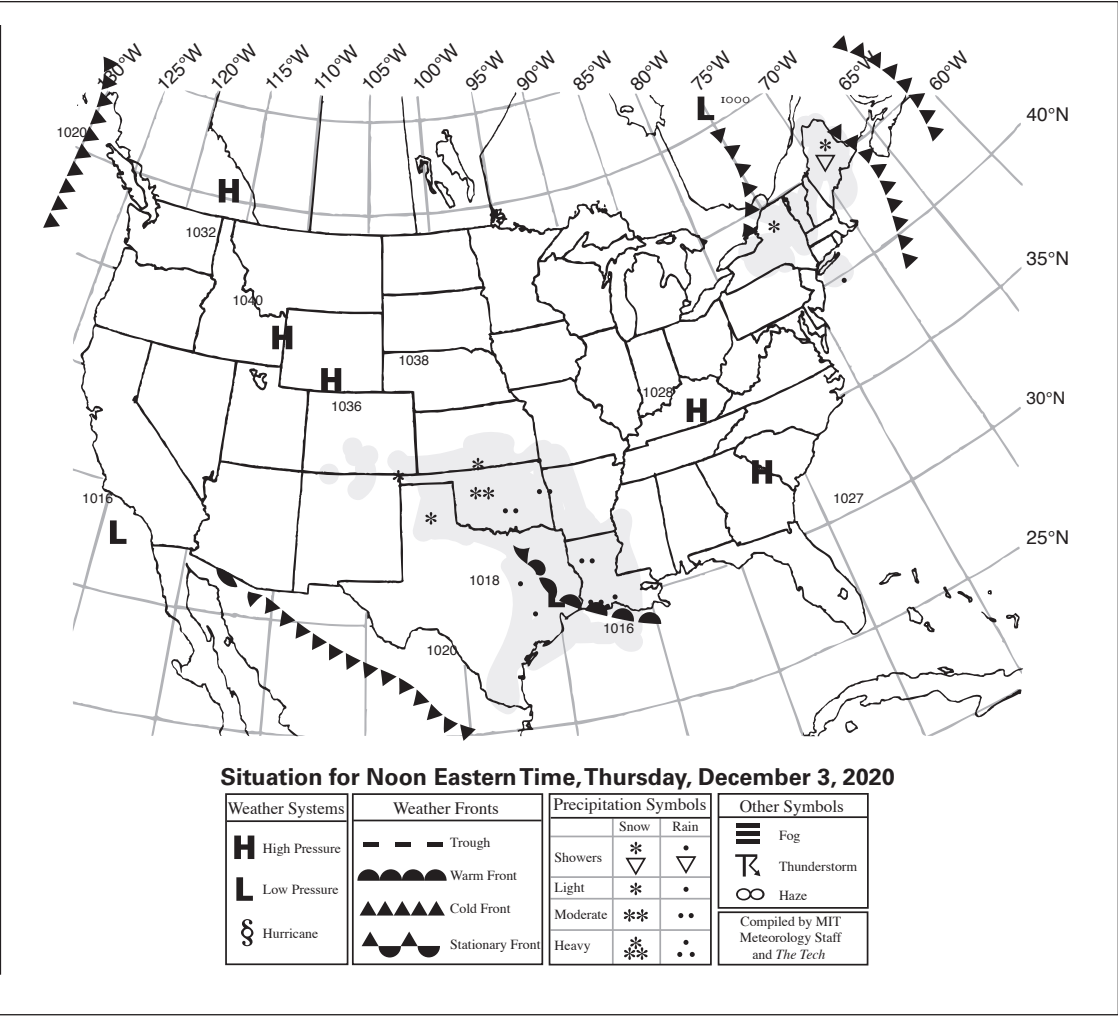
WEATHER

Cloudy days and stormy nights

By Shinjini Ghosh and Phoebe Lin

After a mostly rainy and cloudy week in Cambridge, we are set to expect more rain on Saturday and another cloudy week ahead. After a relatively warmer end of November, temperatures are expected to dip over the first couple weeks of December, with lows of the day consistently being below freezing in the upcoming week, accompanied by gusty winds.

For the rest of the country, after last week's wild storm, get hyped for another one coming up this week! This storm will bring heavy snow, rain, and wind to much of the East Coast, from Georgia to New England. As always, California continues to bring us mild cloudy days, perfect for psetting while staring out the window with hot chocolate.



Grey-Stewart encourages all MIT students to ‘explore new fields through their electives’

Rhodes, from Page 1

Nation through the Priscilla King Gray Public Service Center. Grey-Stewart will pursue an MPhil in nature, society, and environmental governance at Oxford. In an email to *The Tech*, Grey-Stewart wrote that her research interests “are still pretty broad, spanning from electronic characterization of nanomaterials to science policy as a whole.” She wrote that her interest in materials science “stemmed from [her] classes and research experiences” while her interest in policy comes from her experience “working in the PKG Center” and her “desire to understand how I can use my

background in engineering in public service.” Grey-Stewart encourages all MIT students to “explore new fields through their electives. There are a lot of awesome classes here; I wish I had taken more time to really look through the options outside of my major and HASS concentration.” **Ghadah Alshalan:** Ghadah Alshalan is a senior majoring in Course 8 with a minor in Course 6. Alshalan is currently “developing computational models relevant to quantum nanoelectronics” with Professor Pablo Jarillo-Herrero in the department of physics, according to MIT News. In the past, she has conducted research at the Research Laboratory of Elec-

tronics, the MIT-Harvard Center for Ultracold Atoms, and the University of Hamburg Center for Quantum Technologies in Germany. Alshalan has been a teaching assistant for the physics department. In high school, Alshalan was Saudi Arabia’s first female medalist at the International Physics Olympiad. Alshalan has also served as president of the MIT Arab Student Organization and participated in committees for the MIT Muslim Student Association and the MIT Arab Conference. Alshalan will pursue a master’s research program in condensed matter physics at Oxford. Alshalan did not respond to *The Tech’s* request for comment.

Solution to Three
from page 4

8	2	6	4	5	1	7	3	9
4	9	3	7	8	6	5	2	1
5	7	1	3	2	9	4	6	8
3	4	5	8	1	7	6	9	2
9	1	7	5	6	2	3	8	4
6	8	2	9	4	3	1	5	7
2	3	4	6	7	8	9	1	5
7	6	8	1	9	5	2	4	3
1	5	9	2	3	4	8	7	6

Solution to More
from page 4

1	6	3	5	4	2
3	2	5	1	6	4
2	1	4	6	5	3
4	3	6	2	1	5
6	5	2	4	3	1
5	4	1	3	2	6

Solution to Weeks!
from page 5

4	1	3	2	7	5	9	8	6
5	2	4	3	8	6	1	9	7
7	4	6	5	1	8	3	2	9
6	3	5	4	9	7	2	1	8
2	8	1	9	5	3	7	6	4
9	6	8	7	3	1	5	4	2
1	7	9	8	4	2	6	5	3
8	5	7	6	2	9	4	3	1
3	9	2	1	6	4	8	7	5

Solution to Over
from page 4

ETAS	SHOO	ARCH
PALE	POUCH	LUAU
ICAN	RULES	TIRE
CONSTELLATIONS		
EAT	NOD	
NFL	MEMO	PESTS
IRA	EURO	APOP
PASSENGERPLANES		
MEET	SOAR	GAP
ERECT	SLOP	SKY
HAT	WAR	
HOT	AIRBALLOONS	
FADE	NOONE	ABIT
ALOE	TONER	DONE
DORM	SPEW	SEEP

Do you have a question for President Reif?

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Capture the Moment

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Solution, page 3

[illegible]

Imagination vs. Reality of Thanksgiving break 2020

Who I thought I'd be this Thanksgiving break



...where the journey begins

on the pavement on a sunny day. Okay. Maybe the cracked egg wasn't exactly *sizzling*, since this *is* Boston, rather just... kin-

Sure, that makes sense in practice. A breeze blows past my face as a storefront flag flaps wildly in it. Am I crying? I can't tell; my face is numbed in frost. I sense my arrival outside Target again, but this time, instead of going inside, I turn around to go home.



Of course, I am still a ways from my dreams. Of course, not every step along the way has exactly been sunshine and rainbows. And, of course, I still carry a bit of my parents and other relatives within me, but only to the extent that their expectations

With that, I shall conclude *Wenbo's Walks* for the remainder of 2020. Have a happy holiday season, and I hope that you and your loved ones stay safe and healthy over New Year's Day. I will see you again in 2021. What shall the item of my infatuation be next year? Tune in to find out!

If I have to read the words 'in these trying times' one more time, I swear I'll vomit

I've been feeling the same flip-flop with myself, too. With the last few days of the semester coming up and innumerable tasks

But is it necessarily bad to feel frustration? Should I always give everyone the benefit of the doubt? (I have been told no.) Being upset with a situation shouldn't prevent me from recognizing that it's difficult for everyone in any predicament. But finding the balance is definitely a work in progress.

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The Swager Group combines principles of organic chemistry and materials science to produce innovative solutions for detecting foodborne pathogens

A deadly foodborne bacteria, *Listeria* is one of the leading causes of food poisoning deaths via its namesake disease, listeriosis. Able to live through high levels of stress, *Listeria* is one of the pathogens frequently screened for in foods. However, current methods for screening are costly and require at least one day to grow cultures, a timeline that is often impractical for public safety. With such limitations, a new method for detecting *Listeria* is needed, a problem that the Swager Group at MIT Chemistry has tackled using a combination of materials science and traditional biosensing.

For the actual biosensing aspect, researchers in the Swager lab coat one side of the droplets — the hydrocarbon face — with antibodies specific to *Listeria*. To do so, they use a burgeoning field in chemistry known as “click chemistry,” which involves functionalizing two chemicals with complementary groups and allowing them to react. In this case, the Janus droplets are modified with *trans*-cyclooctene (TCO) groups, which react efficiently with tetrazines added to the antibodies. Coated with antibodies, these Janus droplets are now

Innovative as this approach is, the technical details are challenging. In order to make the rotation of the droplets detectable, the group employs two dyes: a blocker dye to absorb incoming light and a fluorophore that absorbs and re-emits light. Kosuke Yoshinaga, a fifth-year graduate student in the Swager lab, focuses on developing the dyes for this project. He describes the two primary considerations for these dyes: their spectra (what wavelengths they absorb and emit at) and their solubility. "Very limited examples of dyes can be soluble in the fluorocarbon phase," Yoshinaga says. He adds, "You want to make something that you can manipulate with organic chemistry, but also maintain the fluorocarbon solubility, which is kind of contradictory because it's organic but kind of fluororous." In addition to solubility considerations, the two dyes must have compatible spectra; the blocking dye must not only block most incoming radiation but also absorb the emissions of the fluorophore in order to establish maximum contrast. Walking this tightrope, the group settled on subphthalocyanines for the blocking dye and a perylene bisimide for the emissive dye, which they amicably call the "Kosuke dye."

So how does this technique stack up compared to others? Jie Li, a third-year postdoctoral student in the lab, seems enthusiastic about its potential. Not only does it achieve a high level of sensitivity (100 CFU/mL), but this technique covers its predecessors' weaknesses. As Li explains, "I think our advantage in comparison with



other detection methods of *Listeria* is that our whole setup is very cheap, and our detection is quick." Each sample requires only 10–20 microliters of solvent for screening, making the setup significantly more cost-friendly and scalable; meanwhile, the speed and ease of detection also is greatly improved, requiring only two hours and a one-step mixing for detection.

Despite the progress, both Yoshinaga and Li are excited for the further improvements that can be made. For the dyes, Yoshinaga is still searching for more emissive structures to enhance the detection limits. In addition, they're looking for ways to in-

The Swager Group's work on the biosensing of *Listeria* can be found in their paper published in *PNAS*.

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