

Phase Two CUP experiment approved for the Class of 2023

Discovery units included in credit limit both sem.

By Soomin Chun
NEWS EDITOR

The Committee on Undergraduate Preparation (CUP) approved a Phase Two continuation of the first-year experiment April 17. The experiment, which will impact the Class of 2023 and is spearheaded by the Office of the Vice Chancellor (OVC), is designed to “promote greater exploration and discovery” according to the OVC website.

The grading policy from Phase One of the first-year experiment that allows students in the Class of 2022 to designate up to three science core General Institute Requirements as Pass or No Record after their first semester will be continued.

The first-year credit limit will be modified, with a fall credit limit of 48 units and a spring credit limit of 60 units, as well as an additional 9

“discovery” units both semesters for discovery-focused subjects and related approved exceptions. Classes that count toward these “discovery” units include one to three-unit first-year discovery subjects, first-year advising seminars, and UROPs for credit.

“What we’re trying to do is have people feel that they’ve had the opportunity to explore and try out different things,” Waitz said. “The difficulty is that when the dominant way to do that is with twelve-unit classes, you can’t try too many of them at once, and I think that [this experiment] will enable students to try many more things.”

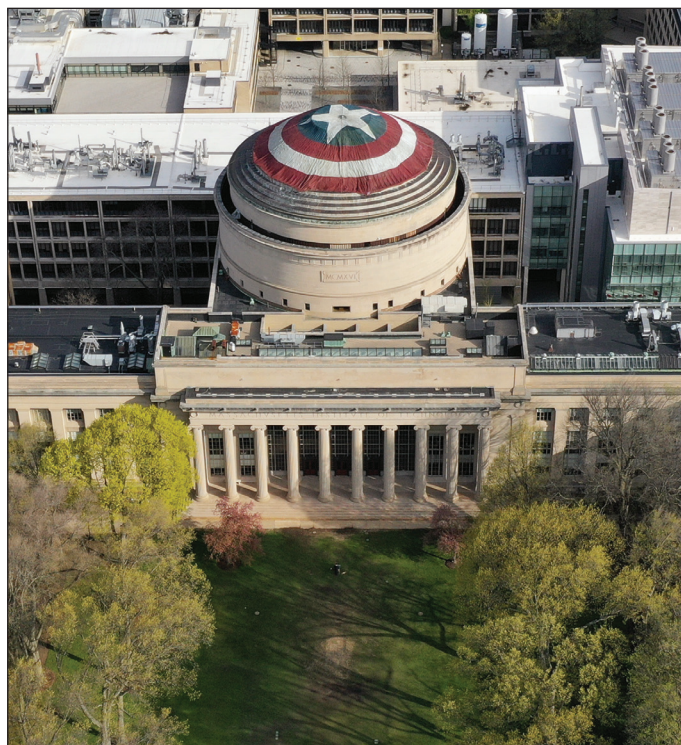
Additionally, Early Sophomore Standing (ESS) status, which allows second semester first-years to declare a major and exceed the credit limit, will not be offered for the Class of 2023.

Kate Weishaar ’18, first-year experience coordinator in the OVC, expressed concerns with ESS in an interview with *The Tech*. According to Weishaar, ESS could pressure students who want to declare their major early to take more units, as well as pressure students who want an increased credit limit to declare their major early.

By removing ESS and increasing the spring credit limit for all students to 60 units plus 9 discovery units, Weishaar said the OVC hoped to separate those elements and make them more accessible, while enabling all students to get advice about different majors.

Waitz conceded that while removing the option to declare ESS might negatively impact the 3–4 percent of current students who want to

Experiment, Page 2



COURTESY OF RAYMOND HUFFMAN

The Great Dome was transformed into Captain America’s iconic shield Saturday in a hack commemorating the release of *Avengers: Endgame*.

Course 7-A discontinued Fall 2019

Course 7, 7-A to be consolidated into one major following changes to Course 7 requirements: 7.02 split, 7.18 removed

By Kaitlyn Hennacy
ASSOCIATE NEWS EDITOR

The Department of Biology has approved changes to the degree requirements of Course 7 to take effect in Fall 2019. With the new requirements, Course 7 will be similar enough to 7-A that Course 7-A will no longer be offered as a major.

The changes consolidate Courses 7 and 7-A into one major. They are meant to accommodate the increasing number of students pursuing interdisciplinary majors or participating in UROPs, according to an email sent to the faculty and students in the biology department from the department’s undergraduate officers.

7-A is no longer a course option for those graduating in 2020 and

beyond. However, current students who declared Course 7-A will be allowed to graduate with a degree in this major, Adam Martin, associate professor of biology and undergraduate officer, wrote in an email to *The Tech*.

7.02 (Introduction to Experimental Biology and Communication), an 18-unit subject that used to be a required CI-M for Course 7s, will be split into a 6-unit lab course, 7.002 (Fundamentals of Experimental Molecular Biology), and a 12-unit CI-M subject, 7.003 (Molecular Biology Laboratory). The goal is to provide an introductory lab course that fits easily in students’ schedules so that they can take it earlier on, Martin said in an interview with *The Tech*.

“They get that experience, it prepares them to do UROPs, and so the idea was to get them into the lab earlier,” Martin said.

7.18 (Topics in Experimental Biology), a 30-unit subject that used to be a required CI-M, is no longer offered. Interest in 7.18 has dwindled due to higher enrollment in UROPs that give students a similar experience, Martin said.

The number of units in the biology major has decreased from 141–144 to 126 due to the removal of 7.18, which can be replaced with a 12-unit CI-M subject. More options for CI-Ms are available in the new Course 7 requirements.

Updated major requirements are available on the biology department’s website.

Great Dome transformed into Captain America’s shield

In honor of the release of *Avengers: Endgame*, hackers transformed the top of the Great Dome into a giant replica of Captain America’s shield Saturday night. The hack remained in place until Monday.

A hacker, who asked to remain anonymous, told *The Tech* in an interview that around 40 people were involved in the process, beginning with the idea being conceived around a year ago. The hacker said they alone had put in about 300 hours for the project.

When asked about the reason for choosing the Captain America shield, a second anonymous hacker explained in an interview with *The Tech* that they needed a symbol of the Avengers series, and the shield was an almost univer-

sally recognized one. The hacker also said the details of the expedition were secret, but the deployment of the shield was “23 minutes behind.”

The first hacker said that one of the best parts about the project was seeing how it influenced other people. “A lot of people in my dorm saw it. It really lifted their spirits,” they continued, expressing that the hack was intended to be a symbol of appreciation for the Avengers series and a reminder of “how influential a silly movie series could be for a ton of different people.”

Chris Evans, the actor who plays Captain America in the film, retweeted an article about the hack on Monday morning with the caption, “Very cool!”

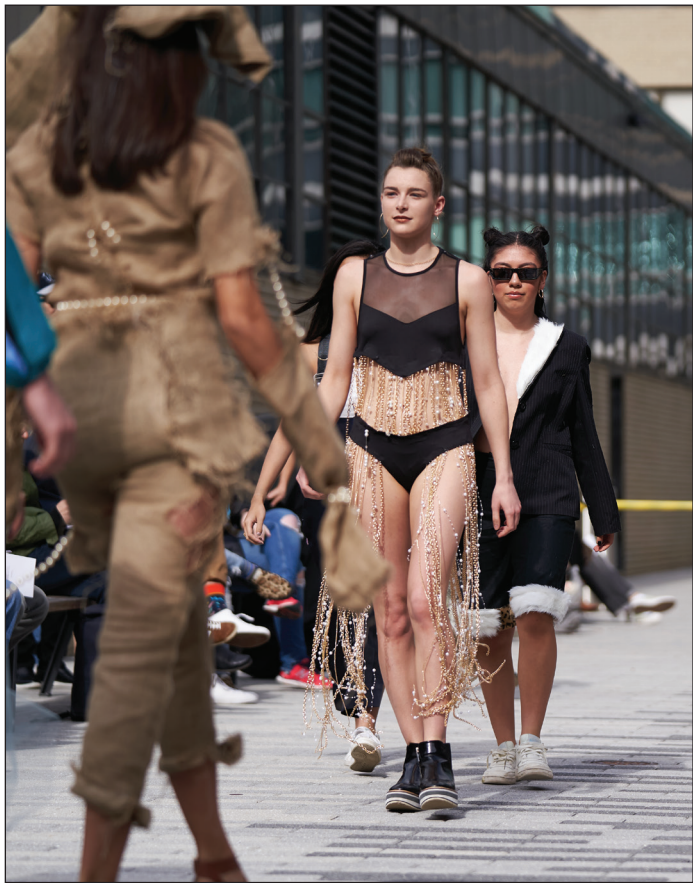
The first hacker quipped, “I love that Chris Evans thinks I’m cool. I’m putting that on my resume.”

“MIT has a beautiful hacking culture. It’s really nice to share that with people. ... Every hacker wants to show the world something and wants to do that in a way that’s safe and memorable,” the first hacker said.

In 2016, a small model of Captain America’s shield previously appeared on the side of the Great Dome to coincide with the release of *Captain America: Civil War*, along with an Iron Man helmet on the Alchemist statue.

When asked if they had anything planned next, the first hacker said, “I plan to sleep.”

—Zoe Sheill



LEON YIM—THE TECH

At the Luminal: Outfinite Fashion Show, models fill the walkway with fashion pieces featured in the MIT Infinite Magazine as part of MIT Design Week 2019.

THIS IS YOUR BRAIN ON CANNABIS

MIT alum gives \$4.5M for cannabis research.
SCIENCE, p. 3

SUBTLE SCANDALS

The power of profit motives in degrading science. **OPINION, p. 5**

A LEGENDARY DUO

Itzhak Perlman and Evgeny Kissin team up. **ARTS, p. 9**



THE END IS HERE

The Avengers return.
ARTS, p. 9

HEY PREFROSH!

Think a little about logistics and a lot about your educational goals.
CAMPUS LIFE, p. 10

SECTIONS

Science 3
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WEATHER

April showers bring May showers

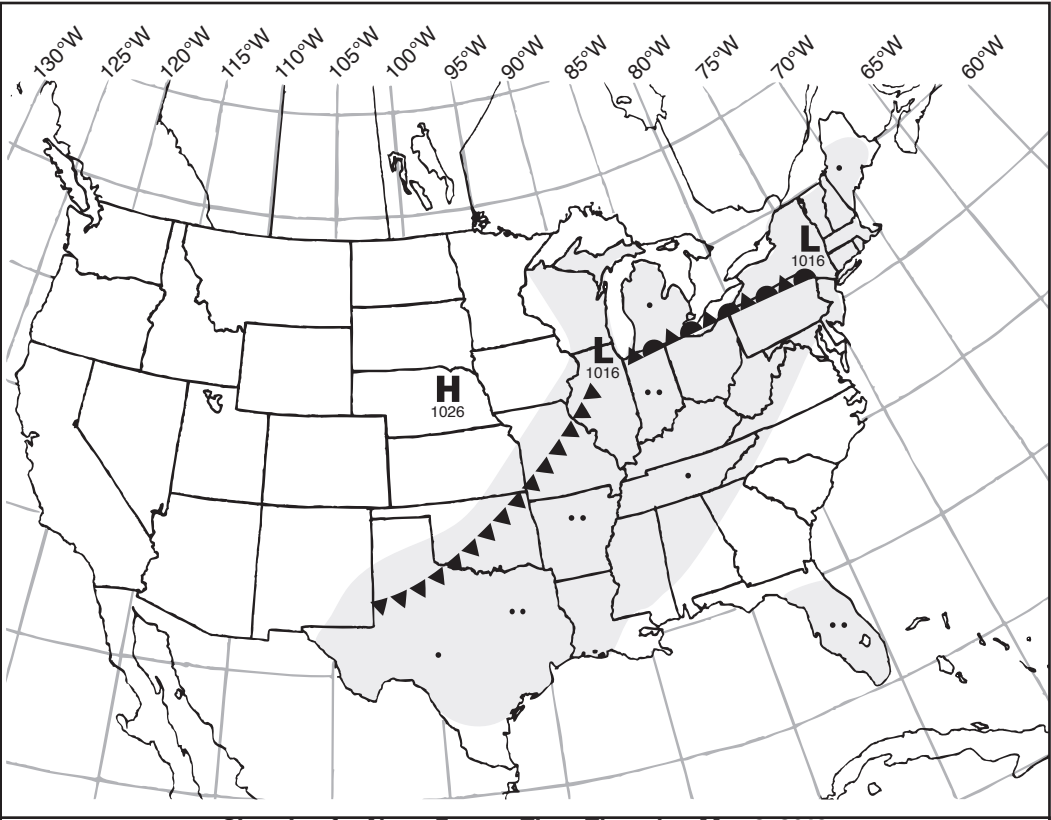
By Jordan Benjamin
STAFF METEOROLOGIST

After a cloudy and wet April that featured a record 21 days with measurable precipitation and almost doubled the monthly average rainfall, May shows no signs of bucking the trend. Today we could see some light showers in the morning as the first of a train of weak disturbances moves through the Northeast. These disturbances will bring repeated chances for rain through Friday and the weekend. Temperatures should remain on the seasonable to cooler side as clouds and precipitation keep them down and no significant weather system is

poised to bring warmer air in from the south. It appears we could remain in a pattern like this for quite some time, with high pressure and warm air to our south, cooler air and a wet transition zone over New England, and low pressure systems moving from the West and Plains towards the region. Looking abroad, these low pressure systems have brought an active severe weather period to the Southern Plains and continued late season snow to the Rockies, High Plains, and Midwest. In the Indian Ocean, Cyclone Fani is expected to make landfall tomorrow in India causing dangerous rainfall and flooding in India and Bangladesh.

Extended Forecast

Today: Mostly cloudy, with a chance of showers. High around 49°F (9°C). Winds E at around 10 mph.
Tonight: A chance of showers. Low around 43°F (6°C). Winds E at around 5 mph.
Tomorrow: Mostly cloudy, with a chance of showers. High around 51°F (11°C). Low around 47°F (8°C). Winds E at 5-10 mph.
Saturday: Mostly cloudy. High around 65°F (18°C). Low around 50°F (10°C).
Sunday: Mostly cloudy with a chance of showers. High around 57°F (14°C).



Situation for Noon Eastern Time, Thursday, May 2, 2019

Weather Systems	Weather Fronts	Precipitation Symbols	Other Symbols
H High Pressure	--- Trough	Snow: * (light), ** (moderate), *** (heavy)	Fog: ☁
L Low Pressure	— Warm Front	Rain: ▽ (light), • (moderate), •• (heavy)	Thunderstorm: ⚡
§ Hurricane	▲▲▲ Cold Front		Haze: ☁
	▲ Stationary Front		

Compiled by MIT Meteorology Staff and The Tech

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A group of faculty, staff, students, and alums are raising their concerns about MIT's financial ties to the Kingdom of Saudi Arabia in a letter to the MIT Corporation.

This letter is available for you to sign. As part of our work supporting ethical reflection at MIT, we invite you to read the letter and consider your response.

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www.mit-ksa.org



P/NR continuation pairs
with credit limit, Waitz says

Experiment, from Page 1

take more than the new second semester credit limit, 60 units was enough for most students. Increasing the limit to 60 units, “students may feel that they have to take five classes, and they absolutely don’t — for most students still, taking four classes is going to be the right answer,” Waitz continued. According to Waitz, while some were concerned that the P/NR policy would lead to students with a weaker foundation in the core subjects, the P/NR policy “pairs well” with the discovery credit limit. “P/NR gives you a little bit of potential for stress relief while you’re trying to add on a different mode

of exploring things for discovery, so it’s a nice balance in that way,” he said. To best implement Phase Two, Waitz and Weishaar said that the OVC will spend the coming months analyzing new information, such as a second round of interviews with students who were interviewed in the fall, as well as choice of major data and spring grades for the Class of 2022. The OVC is also working closely with the departments to encourage them to put discovery subjects in place and help them provide pre-major advising for all first-year students. The OVC has not yet started thinking about an experiment or policy for the Class of 2024, Waitz said.



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This is your brain on cannabis

MIT alumnus gives \$4.5M to support research into the effects of cannabis on the brain

By Jordan Harrod
SCIENCE EDITOR

The MIT School of Science announced on Tuesday that Charles Broderick '99 has made a \$9 million gift to MIT and Harvard Medical School to support basic science research into the effects of cannabis on the brain and human behavior through the creation of the Broderick Fund for Phytocannabinoid Research. With the legalization of marijuana becoming increasingly prevalent (11 states, including Massachusetts, have fully legalized marijuana, and 23 additional states have legalized medical marijuana), both the scientific and the medical communities have voiced concerns on the lack of research of the neurological phenomena that underlie the effects of marijuana use in adults and adolescents. Broderick, who has worked closely with marijuana companies since leaving MIT as a private investor and founder of Uji Capital LLC, created the fund in an effort to destigmatize cannabis use by increasing both the public and the medical community's understanding of the science behind cannabis.

MIT has received half of the \$9 million gift, and that \$4.5 million will be used to support four researchers at the McGovern and Picower Institutes: Earl Miller, Myriam Heiman, Ann Graybiel, and John Gabrieli. This gift aims to make strides in that area over the next three years by supporting both basic science and clinical research

into the neurological effects of cannabis. *The Tech* spoke with Miller, Heiman, and Gabrieli about their plans.

The Heiman Lab focuses on uncovering the molecular phenomena that lead to neurodevelopmental and neurodegenerative disease. Myriam Heiman, Latham Family associate professor of neuroscience at the Picower Institute, plans to use the funds to explore the relationship between cannabis and neurological disorders, specifically schizophrenia and Huntington's Disease. Her work in schizophrenia relates to the glutamate hypothesis, which suggests that dysfunctions in the glutamatergic signaling pathway contribute to the development of schizophrenia. Cannabis is thought to restore this pathway via the cannabinoid receptor, which reduces production of glutamate, a neurotransmitter that excites other neurons and is linked to many psychiatric disorders. However, long-term cannabis use in adolescents is linked to the development of schizophrenia for reasons that are not currently well understood. Heiman believes that developing a better understanding of the role of the cannabinoid receptor in this signaling pathway might uncover drug targets or therapeutic options that were not previously known, saying, "Often if you look at what is broken in a system, you can find out how the system works."

The Gabrieli Laboratory explores the neural circuit systems involved in emotion and learning through functional MRI (fMRI) and behavioral studies. John Ga-

abrieli, professor of brain and cognitive sciences and health sciences and technology at the McGovern Institute, is interested in focusing on the role of tetrahydrocannabinol (THC) in cognition. THC is one of the main psychoactive components of cannabis, giving users their characteristic "high." "There's some evidence that THC can promote cognition in patients with schizophrenia," said Gabrieli. He plans to use the gifted funds to perform behavioral and fMRI studies on the effects of THC in adult patients with schizophrenia, in an effort to better understand the mechanisms that underlie this phenomenon. He is also interested in the potential use of cannabis to reduce anxiety in children with autism spectrum disorder, but plans to focus his initial work with the Broderick Fund on understanding the effects of cannabis on neural circuit dynamics in adults.

The Miller Lab studies the neural basis of cognition, focusing on how we focus our attention, hold ideas in our minds, and make decisions. Earl Miller, professor of neuroscience in the Picower Institute, explained his lab's work as striving to understand "network dynamics, how neurons work together in networks, and how these network properties produce cognition." The lab previously discovered that there are two types of brain waves involved in top-down and bottom-up processes — that is, processes where we act on our previous knowledge of the world and processes where we act on sensory information. Ac-

cording to Miller, the balance of these two types of brain waves is important for normal cognition: "You can't have a brain where the floodgates are open and everything is coming right in. You have to have a brain where you can regulate what is important to pay attention to." Miller's interest in cannabis relates to these processes and the brain waves that seem to regulate them. "There's a lot of brain disorders, like attention deficit disorder, where this balance goes awry, so the first thing we want to know is the effect that cannabis has on the balance between top-down and bottom-up brain waves. No one has asked the question at that level yet." Specifically, he is interested in understanding how cannabinoid receptors, which are involved in appetite, pain, mood, and memory via the aforementioned excitatory glutamate pathway affect neural circuit dynamics that influence these brain waves.

Looking towards the future, all of the researchers hope to uncover some of the basic mechanisms, on a molecular or systems level, that drive our experiences with cannabis. This knowledge has the potential to both help scientists better understand cognitive functions at the molecular and neural circuit levels and help clinicians design better treatments for neurological diseases. In speaking to MIT News on the topic, Broderick outlined similar hopes for his gift, stating that “We need to replace rhetoric with research” in national conversations around cannabis legislation and use.

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4. Present to the MIT community a comprehensive statement on MIT's "Ethics of Engagement." This statement should address both research partnerships and endowment investments. It should describe the decision-making process regarding the ethics of investment in and engagement with companies, governments, and individuals; identify the MIT offices and individuals who are responsible for making such decisions; and clarify what avenues the broader MIT community has for providing input on these decisions.

MIT has the power to make a difference in the world, but not only through its ability to support science and engineering. It is a powerful symbol of credibility and integrity. We object to MIT's ongoing relations with the Kingdom of Saudi Arabia in our name.

Signatories:
Patricia-Maria Weinmann,
Associate Coordinator, Radius at MIT
Roger P. Levy,
Professor of Brain and Cognitive Sciences
Alonso Espinosa Dominguez '20
Rose Lenehan G
Jonathan King, Professor
Alice Pote, Staff
Sally Haslanger,
Ford Professor of Philosophy and Women's & Gender Studies
Cesar McDowell,
Professor of the Practice of Civic Design
Patrick Brown, Postdoctoral associate
Nina Lytton SM '84,
Humanist Chaplaincy Intern
and 223 additional co-signatories listed at
<https://www.mit-ksa.org/>.

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KEVIN LY—THE TECH



YILIANG LI

Baker House PIANO DROP

As part of a decades-long tradition, a piano is dropped from the roof of Baker House to celebrate Drop Date. To accompany the festivities, a giant cake and other foods are served to students watching from Memorial Drive.



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Solution to Fanta
from page 11

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

Solution to Crush
from page 11

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

Solution to Melodic Trio
from page 11

C	L	E	A	T	E	N	D	S	A	S	E	C
H	A	R	S	H	M	O	O	T	R	I	P	E
E	V	I	T	A	P	A	L	E	T	R	I	O
F	A	C	I	N	G	T	H	E	M	U	S	I
			K	E	Y		W	R				
M	U	D	P	I	E	T	H	A	N		Y	D
O	N	I	O	N	U	B	E	R		S	O	I
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K	I	N	D		L	E	N	S		P	U	R
S	P	A		M	E	R	E		F	I	N	E
			C	U	P		C	A	R			
B	O	U	G	H	T	F	O	R	A	S	O	N
F	I	R	S		A	R	I	A		L	E	V
U	T	A	H		N	U	T	S		E	M	A
R	E	L	Y		T	E	S	T		D	I	L

After you die...

Jasper in Deadland
MIT Musical Theater
Guild
Directed by Geoff Hegg
'17
Kresge Little Theater
April 26–27 and May 2–3
at 8 p.m., April 28 and
May 4 at 2 p.m.

Ya-ta ta-ta, da-da daa da! Jasper, Good-bye! Set to a techno-rock soundtrack that makes you want to put on a skeleton costume and dance, MTG's rendition of *Jasper in Deadland* hits all the right spots – after watching it you may want to cry, or even die (of laughter). The story tells about teenage Jasper (Michael Mandanas '22), trapped within a broken life empty of hope, save for his best friend Agnes. But in a night of misunderstanding and confusion between the two, Agnes runs away and goes missing. In search of her, Jasper soon finds himself in *Deadland*: a place inhabited by gods and demons of every ancient mythology, a sinister business magnate, and the ghosts of receding memories. Armed with only his wit and the help of Gretchen (Phoebe Piercy '20), an Underworld tour guide, Jasper fights to win back the best friend he loves, facing his inner demons and discovering how to live and to love without fear along the way.

reads tabloid magazines when she's not threatening to eat the hearts of Elysium-seekers; and Beatrix (Judy Jiajing Wang '19), an aviator version of Dante's muse, Beatrix. Little Lu (Seth Ayala '19), a cowboyish rendition of the fallen angel Lucifer, sports a southern accent, plaid shirt, and a scruffy beard. "This is the third time I've played the devil in a show, and I always have a lot of fun playing evil characters even if I don't relate," said Seth. "I'm easily distracted like he is, and I had a lot of fun doing the exaggerated accent because I'm from Texas and thought it was hilarious."

And of course, there are our mains. “Jasper is a really interesting character,” said Michael about his character. “He’s got this inner strength and determination that only really comes out when he’s hit rock bottom.” Phoebe said about Gretchen, “I love my character, she has this great tough attitude, big heart personality that I love playing with. There is a great range between sassy sharp and highly emotional that makes her a really interesting and very real character.”

The props and costumes add a razzle-dazzle to the visual scene that matches the spunk of the characters. As Jasper falls into the lake that serves as the portal into Deadland, giant banners of cloth flow like swirling torrents across the stage as an eerie blue light soaks the scene in a vortex of confusion. The three-headed Cerberus, created by puppet designers E. Rosser '12 and Jordan Tappa '21, eyes down the audience with glowing eyes in shades of fire. Ammut sports a crown that evokes the reptilian nature of her face, made from "six plastic crocodiles and a hairband, using a drill, needle and thread, and a pile of gold paint," as costume designer Elizabeth Chang-Davidson '19 explained.

The three blind justices who participated in the weighing of Jasper's heart wear lavish golden dresses and blindfolds that match the spunky beat of the song they dance to, "Hungry for Your Heart." The glowing object representing Jasper's heart itself enthralled me — a small rainbow of colors that beat with a life of its own. Elizabeth designed Pluto's shirt as "an Easter egg of sorts" and even envisioned a backstory for it. Supposedly, Elizabeth said, "Pluto had some worker make this shirt to commemorate his and Persephone's relationship with flowers on one side and a skull on the other, because he's just that kind of dork."

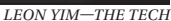
Each of the components of musical theatre — singing, dancing, and acting — may be manageable alone, but putting the three components together is no easy feat. “I’ve been doing musical theatre ever since I was a kid, and I’ve always believed that the sum of all the parts was much, much harder than any of the individual parts themselves,” said Michael. Phoebe added, “A song might sound great when you plant your feet and focus on breath control. It might feel natural to act when you can put all your mental energy into your character and their thoughts. The choreo is much easier to get right when you can really focus on getting it sharp. But you can’t consciously think about all three at once. The hardest part about musical theatre is therefore just how much you need to put into muscle memory, in order to perform, say, a single song.” But despite the challenges, the cast and crew find so much joy in the production process. “Once I figured out how to handle the time commitment, it has been my lifeline amongst the stressors of MIT,” said Phoebe.

As an Off-Broadway show that escaped most public attention when it first opened, the musical is, in my opinion, very sadly underrated. The soundtrack squeezed out all the teenage fervor I had in me, especially thanks to Michael and Phoebe's poignant, youthful voices. The song "Goodbye Jasper" opens the show with a wistful melody of strings and bright piano as Jasper's life flashes across the stage, but soon escalates

into a “*ya-ta ta-ta*” riff of electric guitar and electronic rhythms as Jasper falls into Deadland. The haunting voices of the ensemble embodying Jasper’s memories sing, “*aaaaah...aaaah... AAAAAH! Goodbyeeee!*” When the living dead begin dancing to the hasty rhythm of “The Killing,” the energy of the song made me bounce in my seat as well. The song “Stroke by Stroke” marks a turning point in the story, evoked by hopeful strings and the thumping, stroke-by-stroke beat of the bass drum. And the lyrics bring out all the feels — “*We’ll never know we’re alive, Till we jump, till we dive!*” Michael shared about the song: “It really plays into the swimming motifs of the show. The message of the song is really powerful — you can do anything as long as you take it a bit at a time,”

And sure enough, a bit at a time, the message of the musical hits home. To Jasper, Agnes is the most perfect girl in the world — unreachable. Because of the example set by his cheating mother and drug-addict father, Jasper is afraid of loving someone like Agnes, afraid he will never be good enough for her. “It’s difficult sometimes to recognize that you don’t have to be the best to be worthy of love,” Michael shared. Stroke by stroke, Jasper learns to love and to be loved.

All in all, this is an enthralling performance by MTG. Showings continue today through Saturday — don't miss your chance to die from laughter and heartache.



Jasper (Michael Mandanas '22) is taunted by his memories of Agnes as he falls into Deadland.

Moonchild vibes at the Gardner Museum

There's something peculiar about the Isabella Stewart Gardner Museum's concert venue. You walk in through a beautiful modernist entrance forged from concrete and glass and climb the light lacquered wooden stairs to the second floor. When you enter the performance venue, however, in front of

a dozen scattered chairs is the center stage. From a seat upfront, the pianist has to be careful not to trod on your toes as they walk onstage. Look up, and you'll see several floors of open balconies and seats behind glass and wooden railings. The venue's spirit is a neat inversion of that of the typical concert venue; while typically the artists look below at their throngs of fans, here the fans look down at the couple performers onstage.

Staring up at the balconies on the upper levels, I couldn't help but think of an aquarium, where artists were performing like some exotic aqua-fauna behind glass.

There were two opening acts: Camille Merendail, a precocious fifteen-year-old from Boston, and Carson Schmidt, a Berkeley College of Music student with four albums on Spotify. Neither were stirring. Merendail's rendition of Radiohead's "Creep" came across as rehearsed and just a little bit too fast, despite the pleasant lilt in her voice. Carson Schmidt's performance was technically impressive, with its rapid leaps in octaves and falsetto, yet the lyrics seemed to portray the same vague scenes of emotional distress that inspire many forgettable pop songs. It was around this point that I decided that I did not like the second row at the Isabella Gardner concert venue so much after all; after nearly an hour of declining my head at a forty-five degree angle, the muscles on the back of my neck began to feel strained.

Finally, Moonchild took the stage. Amber Navran, lead singer, saxophonist, and flutist, strode out, clad entirely in red in a billowing floral robe. The rest of the band, Max Bryk and Andris Mattson — the lead and the bass piano players — followed in t-shirts and black pants. And then they began to play.

Navran's voice is a consistent soothing whisper. This is reflected in the sound of the band as a whole. Moonchild's swirling shimmer evokes names like Erykah Badu and J Dilla, but without their crispness. Each song



Moonchild (left to right: Andris Mattson, Amber Navran, Max Bryk) performed at Isabella Stewart Gardner Museum April 25.

April 25

comes across as typically pleasant neo-soul jazz fusion, with little variation between them. The lyrics are fresh — Navran’s internal conflict feels real when she sings “*I hate I know your birthday... // I just wanna be free (like the love I was savin’)*” — but the repetition of staccato diminished chords in every song comes across as flat.

If you spend enough time on YouTube listening to ambient tracks, you'll stumble across the vast but depressingly similar lo-fi hip hop genre of videos. They all tend to have the same two bar muffled hi-hat kicks, four bar repeated II-V-I jazz-chords, and a sample from a noir-film. Moonchild's songs at their worst remind me of this, which isn't unpleasant so much as relaxing. What's more, if you lean your head downwards and close your eyes, you might just find yourself being shaken awake and told that it's time to go.

CONCERT REVIEW

How can musicians make their instruments sing?

Violinist Itzhak Perlman and pianist Evgeny Kissin perform pieces by Mozart, Brahms, and Beethoven

By Lani Lee
STAFF WRITER

World-renowned instrumentalists, violinist Itzhak Perlman and pianist Evgeny Kissin, appeared together in a sold-out concert in the Boston Symphony Hall. Both musicians are easily recognizable, famous icons in the world of classical music, so this performance was highly anticipated by experts and newcomers alike. Although these pieces are often thought of as violin sonatas with piano

accompaniment, this performance demonstrated that they could be the opposite.

In the opening sonata, Mozart's Sonata No. 23, the violin was much quieter than the piano, and, unfortunately, certain phrases were harder to hear in this venue and set-up. This imbalance was especially noticeable in this piece. Regardless, each movement created beautiful images through the notes. The melodic lines were expressive with clean, precise articulations that conjured natural settings like a deep



ROBERT TORRES

Itzhak Perlman, violin, and Evgeny Kissin, piano, perform together in Symphony Hall.

forest with birds, a hidden meadow, and even a bright spring dance party. What was particularly impressive was Kissin's ability to create completely different voices with each of his two hands.

An even more melodic portion of the concert was during the Brahms, where the main theme was gently brought out from the instruments. The way the violin and piano both echoed throughout the hall made this experience a lot more intimate. The tune in this piece expressed a bitter-sweet memory, rather different from other interpretations that are more radiant. The violin, able to control volume a lot more freely than the piano, really sang out under the virtuosity and sensitivity of Itzhak Perlman. The full-bodied arpeggios from Kissin were reminiscent of waves, clean yet powerful notes that both highlighted the part and supported the melody.

The last piece on the program was the highlight of the concert, perfectly placed as a closing piece because of its showiness and more energetic mood. Beethoven's Sonata No. 9, also known as the "Kreutzer" Sonata, is famed for its length, difficulty, and intensity. Our high expectations were not disappointed. The more aggressive nature of the piece suited the two performers and connected them better than the previous pieces, and the fast tempo showed off their technical abilities. Even amongst the busy, long movements, the duo managed to deliver many emotions to the piece, most notably in the second movement with the warm, golden tune.

The dynamics of this duo were intriguing, with Perlman usually taking a more confident playing style and Kissin a more subdued and deliberate one. This was even clearer in the two encore pieces. The first was an arrangement of Lensky's Aria from Tchaikovsky's opera, *Eugene Onegin*. Perlman, an inspiring figure and an eloquent speaker, shared a personal story about this

**Mozart's Sonata
No. 23 in D Major,
Brahms' Sonata
No. 2 in A Major,
Beethoven's Sonata
No. 9 in A Major**

The Celebrity Series of Boston

Itzhak Perlman and Evgeny Kissin

Boston Symphony Hall

April 22

piece, which was received with laughter and applause. The last piece to be performed was "Spanish Dance" from Mañuel de Falla's opera *La Vida Breve*, an exciting, vivid piece that showed a bit more of Perlman's flamboyant nature of playing. They said they had never practiced the piece before, but it was extremely well-interpreted.

The Celebrity Series of Boston brought together two incredibly famous instrumentalists for a night full of many emotional palettes. In a rare collaboration, Itzhak Perlman, arguably one of the best violinists alive, and Evgeny Kissin, equally esteemed as a pianist, performed pieces with different moods and showcased a lot of their musicality. Their individuality and artistry was well-received and respected of all present at this unforgettable concert, and their return to Boston will be awaited with anticipation.

MOVIE REVIEW

All's well that Endgame's well

Marvel's thrilling conclusion to *Infinity War's* storyline exceeds our high expectations

★★★★★

Avengers: Endgame

Directed by Anthony Russo and Joe Russo

**Screenplay by
Christopher Markus and
Stephen McFeely**

Starring Robert Downey Jr., Chris Evans, Chris Hemsworth, Mark Ruffalo, Scarlett Johansson

Rated PG-13, Now Playing

By Rogers Epstein and Lior Hirschfeld

Hype for *Avengers: Endgame* has been building for a long time. We've been waiting for this release since *Infinity War* released last year, nay — since we first saw Thanos's big purple mug in an *Avengers* post-credit scene in 2012. Truthfully, the Marvel Cinematic Universe has been building towards this moment since Iron Man forged his first suit in 2008. Certainly, *Endgame*, which sees the surviving Avengers reunite after a catastrophic defeat in *Infinity War*, has enormous shoes to fill. We went into the film wondering if even its beefy three-hour runtime would be enough, not just to resolve the colossal cliffhanger at the end of *Infinity War* (which ends with Thanos wiping out half the universe's population), but also to bring the decade-long arcs of its huge cast to a close. With contracts ending for the original Avengers, plot-armor

seemed to evaporate, and fans were left in the dark about what might happen to their favorite heroes. Would they die, throw in the towel, or stick around for more?

Obviously, if we answered any of these questions we'd be spoiling the film, and the only spoiler we're willing to give is that this movie is incredible. *Endgame* is clearly made by fans for fans. If you've been following these heroes' journeys, you will be rewarded handsomely with a million callbacks. For just about every one of the MCU movies, there's a moment in this film that makes you glad you saw it. Some are subtle, some not so much, but they each left us feeling warm and fuzzy inside.

The film makes sure to set the stage as dismally as possible in the wake of *Infinity War*. The dark colors do a great job of reminding us of the impossible devastation that we're up against, while the Avengers' new white uniforms, bright apparel, and strikingly unique styles contrast these surroundings as the universe's last hope. There are some spectacular visuals in this movie, but there are just as many moments showing us of how small our heroes are in the scheme of this story.

Past *Avengers* films, with their huge casts, may have left some viewers wanting for character development. In fact, Captain America had fewer lines in *Infinity War* than he did in *Spiderman: Homecoming*, where he only appeared on a television screen. However, *Endgame* does a remarkable job of highlighting each character's individual journey within its epic story. Tony Stark (Robert Downey Jr.) and Steve Rogers (Chris Evans) get some much needed solo time where they work to overcome the near relationship-ending division that has grown between them since *Captain America: Civil War*. Hawkeye (Jeremy Renner) and Black Widow (Scarlett Johansson) rely on each other's friendship to get out of some dark places, leading to one of the



COURTESY OF MARVEL STUDIOS

The Avengers assemble once more in the MCU's latest film, *Avengers: Endgame*.

movie's most emotionally compelling moments halfway through the film. It's nice to return to relationships that have gone underdeveloped in the last few films. Given the film's reasonably large cast, these moments also help the audience follow the story better without sidelining characters.

The newest addition to the ensemble, Captain Marvel (Brie Larson), was also handled well. Without taking away from the closure that us fans desire for our original heroes, she contributes in a way that's consistent with her role as a galaxy-wide defender. Other characters that didn't get screen time in *Infinity War* add meaningfully to the story too. In particular, Ant-Man (Paul Rudd) instills an incredibly bleak world with his typical levity and hopefulness without it feeling forced and unnatural.

It's great to see this mature cast express the most refined versions of themselves in this installment. We see how much they've grown throughout the past ten years, adapting to their weaknesses and

developing new strengths. When Captain America uses his intellect to get out of situations we might've expected him to punch his way out of, or the Hulk (Mark Ruffalo) learns to control his rage, it feels like we've witnessed the organic evolution of their characters, and the slow buildup makes the end result that much more satisfying. Thor (Chris Hemsworth) goes through a particularly controversial journey in this film, as he deals with his failure to kill Thanos (Josh Brolin) in *Infinity War* and his associated guilt. He gets a bit less focus in this film, which was at times disappointing, but Thor fans still have a few of the film's best visuals to look forward to. While characters' motivations make sense, *Endgame* provides plenty of surprises and fanservice galore.

So, should you see this movie? Yes. Would you benefit from watching the other MCU movies beforehand? Probably. Even that solo Hulk movie? Ok, maybe you don't have to see that one, but it's the fun we've had throughout the journey that makes this conclusion truly awesome.

ADVICE

What to expect when you’re expecting... to come to MIT

Auntie Matter on what to do and think about before your first year

By Auntie Matter

If you have questions for Auntie Matter, please submit them at tinyurl.com/AskAuntieMatter. Questions have been edited for length, clarity, and content.

Dear Auntie Matter,

I'm a prefrosh who's been enthusiastically reading your columns to understand some of the grievances of MIT campus life (the more you know!) I love your sense of humor and wanted to thank you for making me laugh and providing quality advice to everyone.

Anyways, I have some questions of my own: do you have any advice for prefrosh like me before setting foot on campus for orientation? Specifically, here are some pressing questions of mine: is studying for the GIRs over the summer worth it? Should I be trying to figure out a potential schedule for freshman year over the summer? How do I actually get my belongings across the country into my dorm in the first place? If there are any other tips you think would be helpful, please share them!

— Pensive Prefrosh

Dear Prefrosh,

On GIRs: You should not study for the GIRs unless you’re planning on ASE-ing them. If you do want to attempt ASEs, it is helpful to study using material from OCW. And even if you don’t get around to studying, try ASEs you think you might pass. But beware of your confidence levels here: if you are under-confident, you may skip ASEs you could have passed and then

be bored in a class whose material you already know. On this note, Auntie has a pet theory that women tend to not take as many ASEs and hard classes as they should because the advice is that everything is going to be difficult. This advice is calibrated for overeager young men and should not necessarily be heeded by the less confident. However, don’t fill up your entire orientation week with taking ASEs. Just take a few ASEs. The vast majority of people end up taking most of the GIRs. You probably will too, and trying to ASE out of everything would most likely be miserable and pointless.

In terms of your potential schedule, choose a couple of HASS (Humanities, Arts, and Social Sciences) classes and a couple non-GIR technical classes, but don’t worry about your GIR choices. There are a ton of HASSes you could take and you should try to choose meaningful ones (approximately one-quarter of your classes will be HASSes — you should make them count), but you can’t know which GIRs you will take until you take ASEs and the physics placement exam. Also, there are so few GIR choices that you’ll have plenty of time to think about them when you are here. Furthermore, you can get better advice once you are actually on campus, because (good news!) you will be surrounded by people who have taken the GIRs. Also, look into learning communities! Concourse, ESG, Terrascope, and MAS can all provide structure and community in your first year (and require you to sign up over the summer).

As a last note on scheduling, new this year for the 2023s, a number of approximately three-unit discovery classes will be offered, and you will have built-in space in your schedule to take them. Choose a few discovery classes in fields you are interested in! They will help you learn about these fields.

You ask about how to get your worldly possessions to campus — this depends where in the world you’re coming from. Auntie drove all of her things to MIT with help from her parents, so she was able to bring more stuff. If you need to take a plane to get here, you may not be able to bring as many things. Auntie’s international friend recommends buying bulky items like comforters when you get to campus and only bringing with you what you can fit in a few suitcases. Unfortunately, there isn’t a better answer to this question — you just need to work with your transportation plans and your budget to figure out what would be best for you.

All of this advice aside, Auntie recommends you not to think too much about logistics this summer. Instead, have fun in your last summer before college! There are no consequences for what you do in the coming months — that is, it won’t matter for your resume — so do whatever you want, whether that’s watching Netflix all summer, working on your epic sci-fi novel, walking the dog a lot, hanging out with your high school friends before you all scatter, etc. Also, don’t get too caught up in constantly interacting with your future peers on Facebook or other social media. The

Facebook page is not that great of an environment, even though it’s exciting. It’s full of the anxiety of people who, like you, do not know what they are doing, no matter how much they act like they do. You’ll get to talk to your fellow prefrosh soon enough in person. Be present with your life at home while you still can! It, and you, will not be the same again when you return.

Lastly, spend some time reflecting this summer on your educational goals. You are about to leave home, probably for the first time. You will be in charge of yourself, ultimately with only yourself to answer to. Think about what you want out of an education. Think not just in a narrow, technical sense, but also in terms of the power education has to shape your character. (If you do not think education can shape your character, Auntie worries your view of education is impoverished.) What sort of person do you want to be, coming out of college? What might you have to learn and do to become that person? Make your character the priority, not the market: regardless of what you study here, you will almost certainly be able to support yourself later. MIT is one of a few institutions in this country with a name that carries such weight. The opportunity to really follow your passions without too much to lose — that is a tremendous privilege, a freedom that few human beings in history have had. Do not waste it by following along with what everyone else wants just because everyone else wants it. Be deliberate and courageous about getting the most out of your college education.

DID YOUR MIT ESSAYS
GET YOU IN?

The Tech is collecting successful application essays (hint: yours!).

Email your pieces to *cl@the-tech.mit.edu*

Fanta

Solution, page 7

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

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Crush

Solution, page 7

6×		75×		32×	
1−				9+	
14+			72×		3×
2		4		5	
1−		6×		60×	
12×			2÷		

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

Melodic Trio

by Sally R. Stein

Solution, page 7

ACROSS

- 1 Spike on a sports shoe
- 6 Concludes
- 10 “Wait just __!” (“Be patient!”)
- 14 Very severe
- 15 Not worth arguing about
- 16 Ready to harvest
- 17 Lloyd Webber musical set in Argentina
- 18 Lacking color
- 19 Threesome
- 20 Accepting responsibility
- 23 Lock opener
- 24 Tongue-in-cheek
- 25 Inedible “dessert” made of dirt
- 29 As compared to
- 31 NFL distances
- 34 Pungent burger topper
- 35 Ridesharing service
- 36 Ground for planting
- 37 Behaves differently
- 40 Tender-hearted
- 41 Glass in a monocle

- 42 Baby food’s consistency
- 43 Health club
- 44 Insignificant
- 45 Most excellent
- 46 “Runneth over” container
- 47 Sedan or coupe
- 48 Acquired very inexpensively
- 56 Evergreen trees
- 57 Solo for a soprano
- 58 Flood barrier
- 59 Salt Lake’s State
- 60 Cashews and almonds
- 61 Note sent online
- 62 Depend (on)
- 63 Try out
- 64 Varieties of pickles

DOWN

- 1 Gourmet cook
- 2 Volcano’s outflow
- 3 Explorer called “the Red”
- 4 __ spumante (Italian wine)
- 5 Expressing appreciation to
- 6 Lowest gas gauge reading

- 7 Biblical ark builder
- 8 Parcel (out)
- 9 Collection of goblets
- 10 Pretentiously designed
- 11 Apple’s digital assistant
- 12 Heroic tale
- 13 Corp. boss
- 21 “__ whiz!”
- 22 Large coffeemaker
- 25 Makes fun of
- 26 Not trendy at all
- 27 Prince William’s mom
- 28 Small lake
- 29 Variety of steak
- 30 Barnyard cacklers
- 31 “Tag! __ it!”
- 32 Has an elegant meal
- 33 Frozen rain
- 35 Smartphone owner
- 36 Astonish
- 38 Big beast with a trunk
- 39 Traveled a coiling path
- 44 Beer stein
- 45 Remote
- 46 Undemanding, as a job

1	2	3	4	5		6	7	8	9		10	11	12	13
14						15					16			
17						18					19			
20					21					22				
				23				24						
25	26	27	28				29	30				31	32	33
34						35					36			
37						38					39			
40						41					42			
43				44					45					
			46					47						
	48	49				50	51				52	53	54	55
56						57					58			
59						60					61			
62						63					64			

- 47 Seashore
- 48 Small snack
- 49 Word-of-mouth
- 50 __/false quiz
- 51 Is the right size
- 52 “Half” prefix for circle
- 53 “Squashed circle” shape
- 54 Astronaut Armstrong
- 55 Hairdo-holding products
- 56 Hair of a bear

[2142] Dangerous Fields

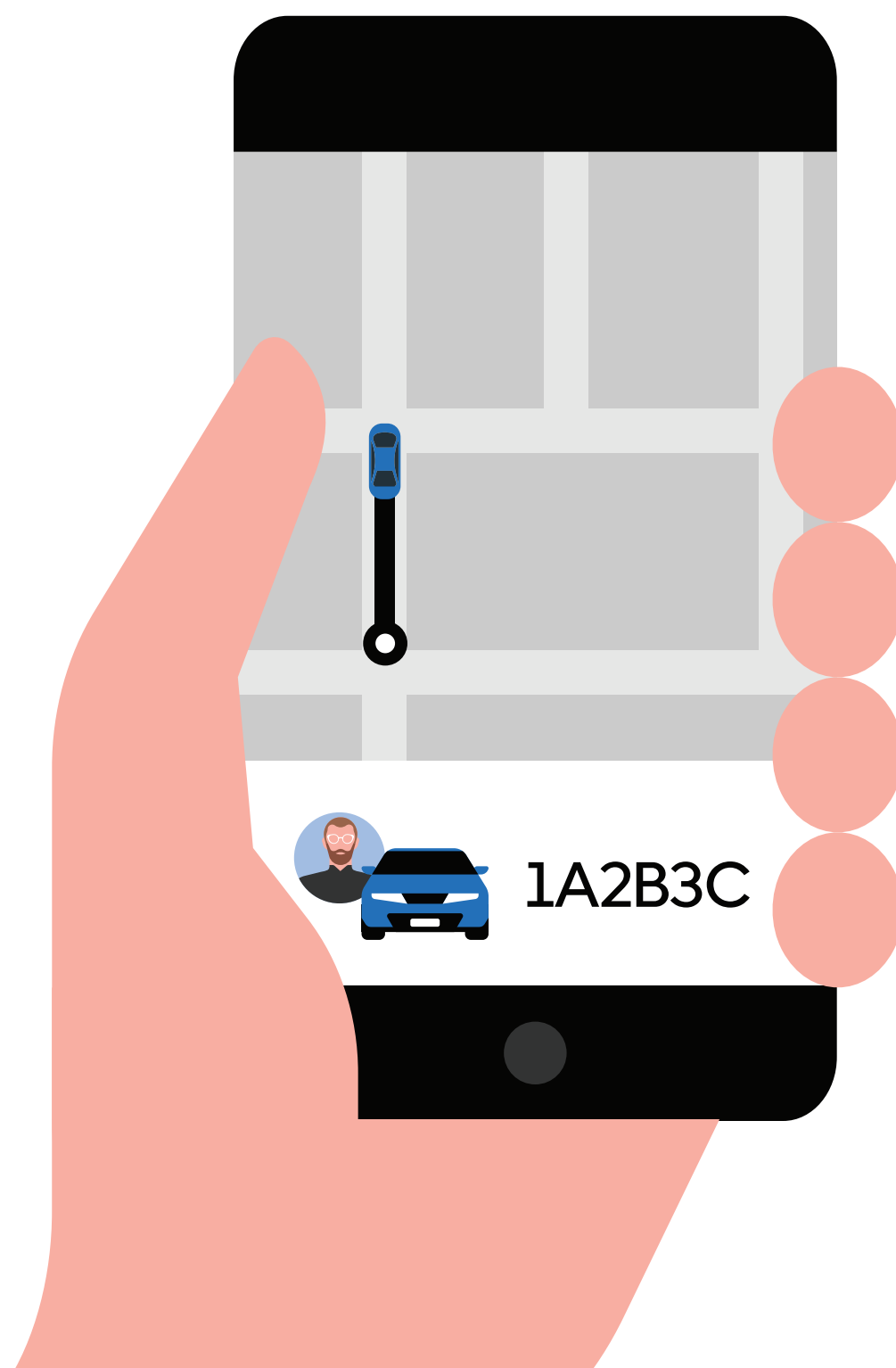


Eventually, every epidemiologist becomes another statistic, a dedication to record-keeping which their colleagues sincerely appreciate.

Ride Safer

Check Your Ride

1. License plate
2. Car make & model
3. Driver photo
4. Have driver confirm your name



Uber