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**REINVENTION  
AT JUILLIARD**

**COVID-19 LINGERS  
AS STORM SEASON  
APPROACHES**

**MITIGATING RISKS  
OF AIRBORNE  
INFECTION  
TRANSMISSION  
IN HVAC SYSTEMS**

# **TYING THE PAST TO THE FUTURE AT URSINUS COLLEGE**

# OVERHEAD SOLUTIONS

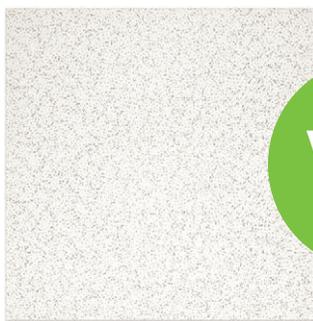


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### REINVENTION

Consider the word reinvention. What does that mean in the context of the higher education community? In particular, what does reinvention mean in the pandemic affected world of higher education, the world where a year ago private colleges and universities moved to online coursework and closed dormitories, cafeterias, libraries, and gathering places such as student centers and fitness centers. Performing arts, sports, and recreation activities were cancelled. Institutions managed to complete the academic year, albeit with many adaptations and revisions put in place out of an abundance of caution.

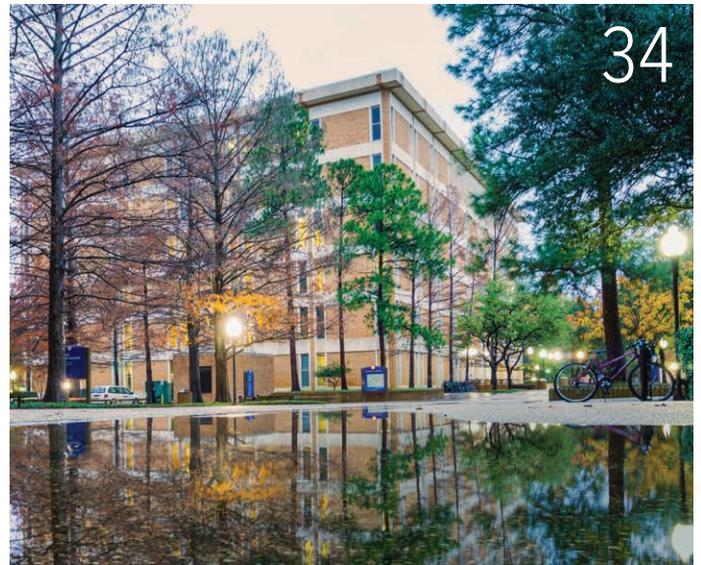


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### COVID-19 LINGERS AS STORM SEASON APPROACHES

2020 was a year many of us would like to forget. Outdoor events were cancelled or rescheduled, remote learning became the new normal and safety guidelines for health, and Covid avoidance changed every day. Covid was a new challenge for which no one ever planned. Therefore, poor planning and a lack of understanding of the disease, created chaos in every direction. 2020 was a year many of us would like to forget. Outdoor events were cancelled or rescheduled, remote learning became the new normal and safety guidelines for health, and Covid avoidance changed every day. Covid was a new challenge for which no one ever planned.



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### TYING THE PAST TO THE FUTURE AT URSINUS COLLEGE

Kara McShane, Assistant Professor of English and Co-Coordinator of Digital Studies at Ursinus College, has served as both leader and collaborator in developing a variety of remarkable digital initiatives during her six years on campus. McShane was an ideal candidate for the position, having experience with both archival and digital literary scholarship—as well as strengths in pedagogy and linguistics.

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### MITIGATING RISKS OF AIRBORNE INFECTION TRANSMISSION IN HVAC SYSTEMS

There is a lot of information available that provides practical advice to help minimize the chance of spreading SARS-CoV-2 (the virus that causes the COVID-19 disease). Infection control is about reduction of risk, not elimination of possibility. A broad, systems approach, with purposeful redundancy, is required. HVAC systems represent just one part of the equation.

# EDITOR'S LETTER

I've been on an odd journey this last year that's taken me down some interesting roads: Some were terrifying; others were awe-inspiring. Some journeying was internal, but much of it has been actual travel, trying to understand my roots and my future. In fact, my daughter changed my name in her cell phone to Odysseus. Since she's recently had brain surgery, and is working to relearn some things, she's no longer sure what the joke is, but she remembers that she thought it was funny to rename me—and she's right.

At times, to be perfectly frank, I have doubted my own sanity. The world seemed to be growing so terrifying and confusing that I didn't know which way to go sometimes. In addition to my daughter's health scares, this week brought new worries and despair. My most loyal and truest friend was diagnosed with yet another health problem she has to face, my beloved father learned he needs a risky heart surgery, and my precious aunt passed away. The pain sometimes seems to be overwhelming, and it's easy to get lost in the noise. Yet, somehow the universe keeps dropping hints to soldier on and not be afraid—which is easier said than done.

What's interesting is how often my education has helped me. In the creature feature *Lake Placid*, one of my all-time favorite movie quotes comes from a character played by Oliver Platt. When the local sheriff in the town notes that he's never heard of a crocodile crossing an ocean, the academic quips, "Well, they conceal information like that in books."

A lot of information is concealed in books, isn't it? And not just books—but in music, art, and dance. In the Information Age, we've never had such easy access to data, which should be a good thing, but often is not. We've lost our decoder, it seems, for which information matters because our world has become overwhelming.

I know that "voices in your head" is not considered a good thing normally, but all of us have voices in our minds. Sometimes those voices aren't kind, and we have to work through that, of course. When we take a moment to clear our minds and feel at peace, comforting thoughts will drift through our minds: words

from family members, dear friends, and favorite authors and artists. We all need these good voices in our heads.

No matter the discipline we choose to focus on, our education can ground us in times of stress. For example, though my father is an attorney who has devoted his life to the law, he turns to John Donne's *Devotions upon Emergent Occasions*.

No man is an island,  
Entire of itself;  
Every man is a piece of the continent,  
A part of the main.

If a clod be washed away by the sea,  
Europe is the less,  
As well as if a promontory were:  
As well as if a manor of thy friend's  
Or of thine own were.

Any man's death diminishes me,  
Because I am involved in mankind.  
And therefore never send to know for  
whom the bell tolls;  
It tolls for thee.

Similarly, my aunt—a woman I loved so dearly—would turn to books for peace and comfort. She always did. With a brilliant mind and the most gentle of souls, her goodness emanated from her being, and spending time with her was always a balm for the soul. I can still hear her laugh, and I hold that laughter in my heart as I work through the loss. Though I won't get to hear her voice again in this lifetime, I know she would be the first to tell me to curl up with a good book and get lost in magical realms as I remember her. And I will.



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*Kara McShane, Assistant Professor of English and Co-Coordinator of Digital Studies at Ursinus College, has served as both leader and collaborator in developing a variety of remarkable digital initiatives during her six years on campus.*

## PROFESSOR SPOTLIGHT

by Cynthia Mwenja, PhD

### Tying the Past to the Future at Ursinus College

#### Digital Humanities

The drive toward promoting digital programs at Ursinus began before McShane's arrival, with Meredith Goldsmith, Professor of English and Associate Dean. Goldsmith formed a working group on Digital Humanities to educate the entire campus about the possibilities of expanding offerings in this area. Additionally, Goldsmith took a summer fellowship opportunity in Duke University's Humanities Writ Large program to acquire a digital toolkit and ideas for scaling digital work.

Within literary studies, Goldsmith knew, discipline-specific technologies were taking root, with archival work particularly bring repositioned digitally. When the English Department's medieval line opened up in 2013, Goldsmith pushed to include a Digital Studies component in the job. McShane was an ideal candidate for the position, having experience with both archival and digital literary scholarship—as well as strengths in pedagogy and linguistics. McShane had worked on two digital initiatives through the University of Rochester's Robbins Library: the Camelot Project and the Middle English Text Series. She is now the general editor of *Visualizing Chaucer*, another Robbins

Library Digital Project, which offers a bibliography and numerous images which have been created to illustrate Chaucer's writing. Despite this variety of digital experience, however, McShane did not at first fully comprehend the extent of her experience; colleagues had to point out the impressive strengths in digital humanities she had developed through her pursuit of the various Robbins Library projects.

#### Digital Liberal Arts

As Goldsmith brought her fellowship experiences back to Ursinus and McShane joined the faculty in 2015, they expanded the focus of the Digital Humanities working group to encompass Digital Liberal Arts (DLA), thereby including all disciplines on campus. This working group also involves Library and Information Technology (LIT) staff “who are interested in incorporating digital projects into the curriculum and furthering digital literacy initiatives on campus,” says Christine Iannicelli, Associate Director of Research, Teaching, and Learning Services. This working group has fostered a number of fruitful partnerships between departments and with LIT staff. McShane says that the wide-ranging group of

DLA members spent a few years simply building capacity across campus, helping people in all departments to see that the DLA focus allows faculty and students to continue pursuing one of Ursinus' core questions—“How can we understand the world?”—through a digital lens.

#### Bears Make History

As the DLA working group continued building campus capacity, McShane developed and taught a course called “Bears Make History: U.S. Higher Education and Digital Entrepreneurship in the Archive and Online” (BMH) in collaboration with Susanna Throop, Professor and Department Chair of History. This course was designed to prepare for Ursinus' sesquicentennial celebration in 2019. Throop says that working with McShane to co-develop this course was “a constant joy” and that they learned both from and with each other. When McShane originally broached the idea, Throop found the thought of working together to develop the course very appealing. As medievalists in their respective fields, Throop notes, they are often asked to do things outside their comfort zones and tend to see new challenges as opportunities. Students in this first iteration



of BMH, working in teams, launched three public-facing digital sites. The course, cross listed in English and History, now runs every other year.

Housed on a dedicated web page—[www.ursinus.edu/academics/history/bears-make-history/student-digital-history-projects](http://www.ursinus.edu/academics/history/bears-make-history/student-digital-history-projects)—student projects in this course have focused on subjects such as the history of LGBTQ+ groups on campus and what has happened on campus in times of political crisis. As McShane reports, BMH students move beyond mere participation into professionalization. They work with metadata librarian Andy Prock to digitize artifacts, and learn to work with Omeka—an open source library and archival software program—from Iannicelli. Students also learn professional courtesies such as making and keeping appointments with these professionals and how to interact with guest speakers. Students who have completed the BMH class often become DLA Fellows.

### DLA Fellows

The establishment of a DLA Fellows program is a strong example of initiatives related to the burgeoning digital focus on campus. Piloted

Kara McShane is the general editor of *Visualizing Chaucer*, a Robbins Library Digital Project, which offers a bibliography and numerous images which have been created to illustrate Chaucer’s writing. Despite this variety of digital experience, however, McShane did not at first fully comprehend the extent of her experience; colleagues had to point out the impressive strengths in digital humanities she had developed through her pursuit of the various Robbins Library projects.

by McShane and now overseen by Iannicelli, the program trains students to help everyone on campus—students and faculty alike—with their digital projects. This program acts as a sort of “writing center” for digital projects, McShane explains. DLA Fellows receive training in using a number of digital tools; they lead workshops and class sessions, and they help faculty, staff, and students create digital projects. Iannicelli credits the DLA Fellows with being “instrumental in encouraging faculty to incorporate more digital projects in the classroom and providing support to students every step of the way” as they learn to work in digital spaces.

Paige Szmodis is an Ursinus graduate and current MLIS student at Simmons University as well as one of the first group of four students at Ursinus to be a DLA Fellow in 2017 under McShane. Szmodis credits the DLA Fellow experience with sparking her interest in pursuing her MLIS degree; she says that, as DLA Fellow, she learned a wide variety of digital tools, including Omeka for digital curation, basic HTML/CSS, and mapping programs. She not only taught others to use these tools, she was also able to use them on her own projects. As part of the Pennsylvania Consortium of Liberal Arts (PCLA), Ursinus held a summer conference with

Digital Studies is an interdisciplinary minor that introduces students to the approaches and mindsets they need to engage in digital work within and across disciplines. The minor provides students with curricular opportunities to develop the technical, analytic, and improvisational skills crucial to digital work and has a strong foundation in ethics.

### Digital Studies Minor

Starting in 2017, the Digital Liberal Arts group met regularly to build a new Digital Studies (DIGS) minor, which was approved in December 2020. To get the program off the ground, McShane and Iannicelli, who now co-coordinate the program, reached out across campus to identify courses to be cross-listed in DIGS. As the program’s website states, “Digital Studies is an interdisciplinary minor that introduces students to the approaches and mindsets they need to engage in digital work within and across disciplines. The minor provides students with curricular opportunities to develop the technical, analytic, and improvisational skills crucial to digital work and has a strong foundation in ethics.”

McShane is one of the faculty members teaching the “Introduction to Digital Studies” course required in the minor, and one of the foundational courses for the new minor has been “Bears Make History” course she and Throop developed together. Ursinus supports this sort of collaboratively co-taught class, with a focus on approaching questions from different

other members of the consortium, including Bryn Mawr, Muhlenberg, and Gettysburg; this conference helped to “contextualize what students, scholars, and librarians were doing in the field beyond Ursinus,” according to Szmodis.

### GIS

One aspect of digital studies that has been taken up across the Ursinus campus is the use of GIS mapping technologies. Environmental Studies faculty had been using such technology,

and Goldsmith brought it to the humanities; as she says, “landscape is a perennial topic.” Ursinus has a license for ARCGIS, and they offer faculty training in its use. Last summer’s training lasted two days, with a focus on how to use the software one day, followed by syllabus development strategies to use the software the next. Goldsmith also advocates the use of QGIS, which is an open source mapping software. Each tool, she says, can serve different purposes.



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disciplinary perspectives. McShane has taught several classes collaboratively, including “Identity in the Digital Age,” for which McShane collaborated with a psychology professor.

Identifying classes that fit the bill for DIGS can be tricky, McShane says, because they’re not media studies and not limited to digital humanities; they are truly interdisciplinary. DIGS students are also required to do applied work; they can meet this requirement through completing a summer Spark internship or becoming a DLA Fellow. McShane and the others forming the minor organized the course requirements around three sets of skills. One set of competencies lies in developing the mindset and technical skills needed to participate in digital liberal arts; these courses can include computer science or an arts focus. The next set of required skills lie in situating the digital within a specific discipline; to be included in the minor, at least a quarter of the course must be a discipline-specific digital project. The last set of courses fully focus on digital projects; this category includes classes like BMH. This wide range of required courses is designed to help students think across boundaries.

McShane says that DIGS students much develop certain habits of mind, including persistence and the knowledge that they “will break” the technology. She encourages students to “break” programs on purpose to see what happens, then to find out how to fix what went wrong. She wants them to know that there will be glitches and they probably will not get things right the first time—and that is absolutely ok. McShane says that launching the new minor under Covid has been a challenge, but she has continued to approach her classes in a spirit of exploration and play. Five students have already declared the new minor, which has mainly been advertised by word of mouth at this early date.

### A Vision of Leadership and Collaboration

As Throop says, McShane is a “rare leader who collaborates” to build grassroots support, while McShane describes herself as a sort of “connector, or hub.” Further, Throop says, McShane “inspires confidence”—her incredible talent for getting things done means that the people working with her are enthusiastic and confident.

Goldsmith says that McShane is really good at getting students to think about combining the liberal arts with professional training and getting people to understand how these two facets interact. Beyond grounding professional training in liberal arts sensibilities, Szmodis says, McShane is “endlessly encouraging of her students’ research and professional interests.” Szmodis credits her work with McShane for helping her to overcome feelings of intimidation in learning to work with new technologies.

McShane’s leadership extends to considerations of ethics in her work. As Goldsmith says, McShane is great at connecting digital studies to ethics and ethical obligations by considering questions of representation and accessibility in digital spaces. McShane says that students are sometimes surprised that issues of equity and inclusion are reproduced in digital spaces. Since the digital space is simply a tool, McShane says, it replicates social inequalities and often even exacerbates them. In McShane’s view, if people use digital tools

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critically and well, which is increasingly needed, we can solve problems and decrease biases. McShane teaches her students that digital spaces have tremendous capacity for social change. In their digital projects, students can do things like amplify long-missing voices of BIPOC students on campus when it can be a struggle to find these viewpoints and subjects in the physical archives. Digital tools, like all other tools, have weaknesses and challenges; McShane aims to teach her students to use these tools responsibly and well.

Throop says that McShane is driven by curiosity and real intellectual passion. She has a commitment to the communities she is a part of, and she is able to both generate a vision and attend to details. New initiatives take both vision and work, Throop says, and McShane is able to do both those things—create a vision, then do the work to bring that vision to reality. McShane is really the full package, Throop says: “She can lead, dream, and execute.”



**ABOUT THE AUTHOR:** Dr. Cynthia Mwenja teaches Composition and Rhetoric at the University of Montevallo.



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Coordinator of Recreational fitness & Wellness  
Stanford University, Stanford, CA*



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## GREEN MAINTENANCE

by Robert F. Goodfellow

### Mitigating Risks of Airborne Infection Transmission in HVAC Systems

There is a lot of information available that provides practical advice to help minimize the chance of spreading SARS-CoV-2 (the virus that causes the COVID-19 disease). Infection control is about reduction of risk, not elimination of possibility. A broad, systems approach, with purposeful redundancy, is required. HVAC systems represent just one part of the equation.

According to Erin Bromage, Ph.D., Associate Professor of Biology at the University of Massachusetts Dartmouth, becoming infected requires an infectious dose of the virus. An infectious dose is a product of concentration and time. Some experts estimate that inhaling 1,000 infectious virus particles is enough for a virus to take hold. For a frame of reference, studies based on influenza suggest that normal breathing (at rest) releases about 20 viral particles/minute. Speaking increases respiratory droplet production to about 200/minute. So, a direct, face-to-face conversation could infect another person in about five minutes in the unlikely event that the recipient inhales all the exhaled particles from an infected person.

The SARS-CoV-2 virus itself is relatively small, in the ~0.15-micron range. When it

is coughed, sneezed, or exhaled, it becomes part of larger 0.6 to 10+ micron droplet nuclei. The larger of these droplets will fall to the ground quickly and that is why there is a focus on social distancing. However, smaller droplets when aerosolized, can remain suspended and entrained into HVAC systems. According to the American Society of Heating, Air Conditioning and Refrigerating Engineers (ASHRAE), transmission of SARS-CoV-2 through the air is sufficiently likely that heating, ventilating, and air-conditioning systems should be controlled to reduce airborne exposure to the virus.

There are many different types of HVAC systems used in college and university facilities, so it is necessary to adapt these guidelines to specific cases. It is also

recommended that those responsible for facility maintenance consider reaching out to qualified HVAC professionals for additional assistance.

### General guidelines as it relates to HVAC systems include:

**1. Inspection and Maintenance:** Assessing the condition of systems that have not been running and making any necessary repairs before starting up systems.

**2. Ventilation:** Increasing outside air to dilute indoor contaminants is a first line of defense. For every cubic foot of fresh air that comes in, a cubic foot of potentially contaminated indoor air is exhausted. It should be noted that this approach is apt to increase utility costs in instances where it is necessary to heat or cool incoming ventilation air.

**3. Air Filtration – Central HVAC:** To the extent the coronavirus transmits from person to person by aerosols, improved air filtration can reduce the risk of transmission by reducing the concentration of infectious particles in the air. However, because improved air filtration in

HVAC systems will not address short distance spread by large droplets, it cannot be considered as a standalone solution to airborne infection control.

ASHRAE recommends MERV-13 rated filters if it does not adversely impact system operation. MERV, otherwise known as Minimum Efficiency Reporting Value, is a system used to evaluate the efficiency of an air filter based on how effective it is at catching particles of varying sizes. The higher the MERV rating, the higher the air filtration capabilities of a particular filter.

Generally, the larger the HVAC system, the more feasible it will be to upgrade to MERV-13 air filtration. Some systems will not accommodate MERV-13 or better filters either because of space within the system (e.g. ductless, mini-split systems) or because of system design. Many older systems that were installed without high-efficiency air filtration may lack sufficient fan horsepower to push air through denser filter media and/or long duct runs.

An upgrade to high-efficiency filters may have other effects on the HVAC system:

- Traditional high-efficiency filters have higher pressure drops than the standard filters they replace. Higher pressure drops means reduced airflow, which reduces heating/cooling capacity.

- Increasing fan speed to overcome the increased pressure drop and maintain original airflow will increase motor load, so it is important to ensure that fan motors will not be overloaded.

- Traditional high-efficiency filters may need to be changed more frequently which may be costly.

Even if filters are not upgraded to a minimum of MERV-13, consider upgrading filters to the highest MERV filter that will not compromise HVAC system performance. Further, it is very important that care be taken to seal any gaps or leaks that might allow air to bypass filters.

**4. Portable Air Cleaners:** Where MERV-13 filters cannot be used, including situations where there is no mechanical ventilation of a space, consider portable HEPA air cleaners for occupied spaces. HEPA stands for High Efficiency Particulate Air and HEPA filters

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range from MERV-17 to MERV-20. Portable HEPA air cleaners have a fan to pull air through the unit, a pre-filter, and a final (HEPA) filter. A recent report from the Harvard School for Public Health recommends a minimum of 100 CFM (cubic feet of air per minute) per every 250 square feet of occupied space. A typical classroom of 1000 square feet would require a minimum of 400 CFM.

**5. UVC and Air Cleaning:** Air cleaners such as germicidal ultraviolet light systems may also be considered to supplement ventilation and air filtration. UVC dosage is based on dwell time, proximity, and light intensity. Supplying a lethal dose instantly as droplet nuclei are expelled is not possible and supplying the necessary dose in the fast-moving airstream of a duct is difficult and has many variables. While duct mounted UVC systems can be effective at virus inactivation and reducing contaminant levels, it does not mean that all viruses in a space will be inactivated. UVC systems mounted in ductwork or HVAC systems should be used in conjunction with effective air filtration to ensure that inactivated pathogens are removed by the

filters. UVC systems do not impose a pressure drop burden on the HVAC system. UVC lamps are usually replaced every year or every two years, depending on the type of lamps used.

**6. Bipolar Ionization:** Bipolar ionization breaks air down into positive and negative ions. The ions diffuse through the space and either react with or attach to particles. Reactions break down organic compounds to remove odors. Attaching to particles causes them to agglomerate into larger particles that fall to the floor or are more readily filtered. The following information should be evaluated when considering bipolar ionization:

- There are no industry standards or test protocols for bipolar ionization systems, so performance is not verified. There is some track record for reducing odors and destroying volatile organic compounds (VOCs), but solid data on killing viruses is scarce.
- Technologies and equipment should be carefully evaluated to ensure proper safety to systems and occupants. Some ionization systems produce Ozone as a byproduct. Ozone is a

disinfectant, but it is also an irritant. Ozone attacks rubber and could lead to the deterioration of belts and gaskets in HVAC systems.

**6. Humidity:** Scientific evidence generally reflects the most unfavorable survival for microorganisms when relative humidity is between 40% and 60%. This is also usually the most comfortable level for building occupants.

Again, infection control is about reduction of risk, not elimination of possibility. For additional information about mitigating infection transmission in HVAC systems, visit the COVID-19 resource pages at [www.ashrae.org](http://www.ashrae.org).



**ABOUT THE AUTHOR:** Robert F. Goodfellow, CAFS is Vice President of Marketing with Dynamic Air Quality Solutions and an indoor air quality professional with over thirty years' experience in the HVACR industry. You can visit [www.DynamicAQS.com](http://www.DynamicAQS.com) to learn more.

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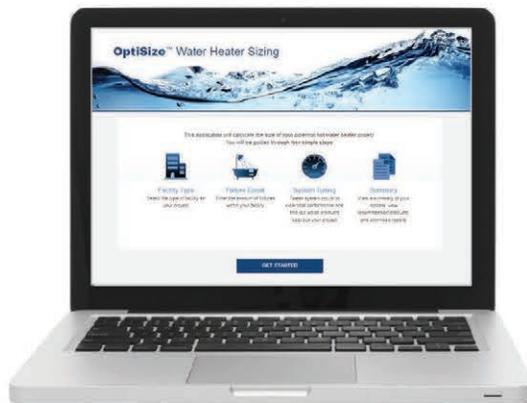
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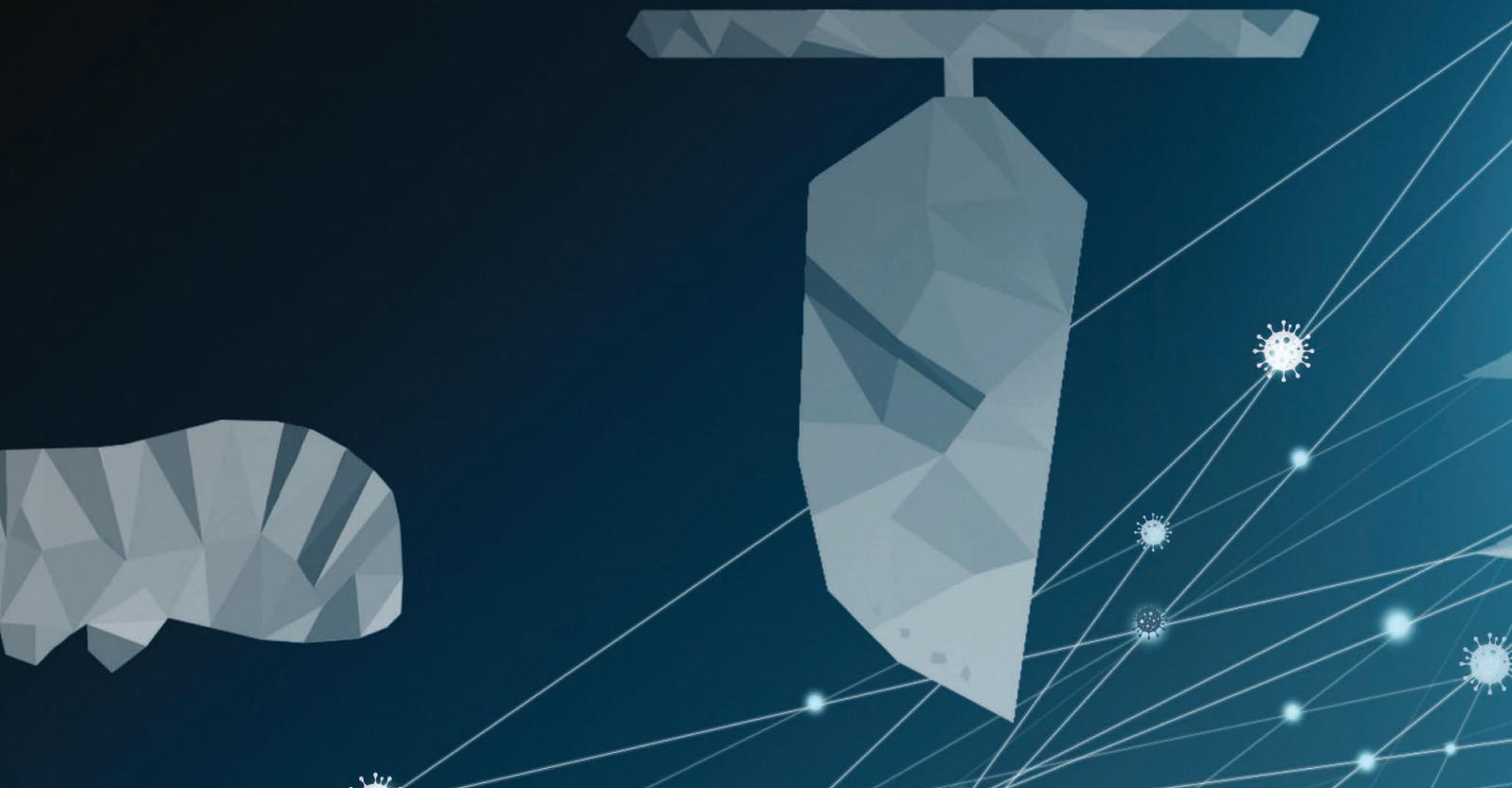


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# REINVENTION

by Lisa Gibbs, Ed.D.

Consider the word reinvention. What does that mean in the context of the higher education community? In particular, what does reinvention mean in the pandemic affected world of higher education, the world where a year ago private colleges and universities moved to online coursework and closed dormitories, cafeterias, libraries, and gathering places such as student centers and fitness centers. Performing arts, sports, and recreation activities were cancelled. Institutions managed to complete the academic year, albeit with many adaptations and revisions.







The Juilliard School

The summer was a time for revising and adapting. Campus leadership worked diligently with state and local health departments to implement protocols for safely reopening campus. Faculty revised syllabi and curricula to suit the virtual learning space, and to suit smaller in-person class sizes and distancing. Facilities management revised cleaning and sanitizing practices, cleaned ducts and upgraded air filter systems, created signage such as to direct foot traffic, and installed plexiglass and hand sanitizer stations in certain high traffic areas. Campus health services developed and activated protocols for testing, quarantine, contact tracing, and treatment. Many institutions welcomed students back to campus in the fall of 2021 with these and other rigid safety protocols in place.

The summer was also a time for reinvention. Reinvention goes much deeper than revising and adapting existing procedures. Reinvention means finding new ways of doing which comes from new ways of thinking.

The Juilliard School, in hard hit New York City, NY, determined to reinvent the 2020-2021 academic year. President Damian Woetzel asked the Juilliard

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In the Dance Division, students were challenged to take what would have been a live stage production and make it digital. One student choreographer took notice of “how beautiful outside was and how that could really just be another layer in the video, so I changed and had to figure out locations that made sense to film.” A dance that was originally designed for the stage was reinvented for film and was enhanced by the choice of various outdoor settings and camera angles.

community this question: “What valuable things might we do now that we wouldn’t ordinarily focus on?” Fourteen working groups with faculty and staff from all departments were established. Students, medical and engineering experts, and the local community were asked to provide input via surveys and consultations. Two non-negotiable commitments guided the process: community safety, and the integrity of the educational experience. The recommendations of these groups became the Covid-19 Academic Plan for the Juilliard School.

### Continuing Hybrid Mode

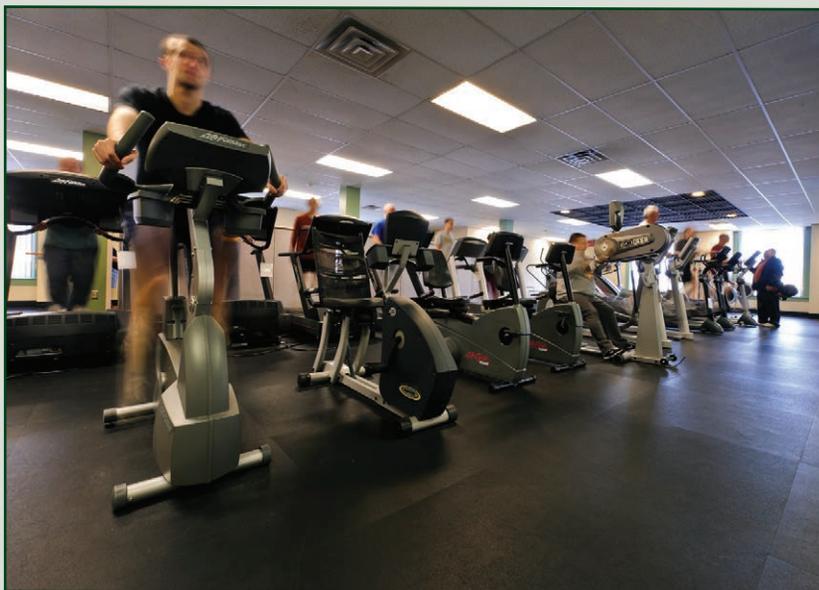
Because many of the summer activities that Juilliard students typically take part in were cancelled, the school took advantage of the opportunity and elongated the fall semester. Summer Term 2020, a new six-week optional summer term with online only instruction, was included in fall semester tuition. Both for-credit and non-credit courses were offered, and many students chose to use the time to get ahead on their coursework and to stay engaged and connected with the campus community.

The remainder of the fall semester was divided into three 7-week blocks. Block 1 was fully online. Students could schedule time in dance studios, drama classrooms, and music practice rooms as needed and as available per campus guidelines. Block 2 phased in on-campus classes and performances. Since safety protocols worked and cases did not increase over prescribed limits, for Block 3 the campus was able to continue the hybrid mode.

### Facilities

Facilities management consulted outside experts to assess and make recommendations so the school could meet its goal of high safety standards. As a result, every classroom, teaching studio and rehearsal room was evaluated to identify capacity under social distancing guidelines. Improvements were made in ventilation systems and touchless mechanisms were added to or replaced bathroom fixtures. Inoperable windows were repaired and regular cleanings and sanitization was increased. Stairwells were given new paint and better lighting in an effort to cut down on elevator usage. Carpets were replaced, wireless thermostats and air purifiers installed, and HVAC automation systems were upgraded. Improved audio and

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video components enhanced the free livestreaming of performances from campus venues. These improvements and others reinforce the new ways in which Juilliard delivers high quality education to students.

### Dance/Drama/Music Reinvented

The Juilliard School specializes in the performing arts of dance, drama, and music. These fields typically require person-to-person physical interaction and in some cases specific equipment. The faculty and students focused on the reinvention of typically face-to-face courses and performances. As part of that effort, the school provided students and faculty with a credit to purchase equipment such as webcams, portable lighting, marley squares, ethernet cables and more.

In the Dance Division, students were challenged to take what would have been a live stage production and make it digital. One student choreographer took notice of “how beautiful outside was and how that could really just be another layer in the video, so I changed and had to figure out locations that made sense to film.” A dance that was originally designed for the stage was reinvented for film and was enhanced by the choice of various outdoor settings and camera angles.

As part of the goal to continue excellence in educating, the Drama Division reinvented how actors perform together while separated by the pandemic. Matching props, green screens and Ethernet cables were sent to students around the world. Distance allowed for a deeper study of the text and Zoom backgrounds depicted scenery, such as Norwegian fjords, that can be difficult to express on a physical stage.



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The Music Division also addressed the challenges of virtual learning and performing for group events such as orchestra. Students studying how to conduct an orchestra made silent videos of themselves conducting a specific concerto. The student instrumentalists recorded themselves playing their parts based on the cues from the conductor. This resulted in a learning experience quite unlike that of in-person situations and likely made a deeper impact on those involved.

As the saying goes, you can't reinvent the wheel. The pandemic has shown us that you can reinvent higher education. Private colleges and universities, such as the Juilliard School, are opening their vision to see what valuable things can be done now that may not have been thought of before.



**ABOUT THE AUTHOR:** PUPN staff writer Lisa Gibbs earned her Ed.D. in Higher Education Administration in 2018. She is an advocate for arts, particularly dance, in education and for increasing the financial well-being of artists through financial education.

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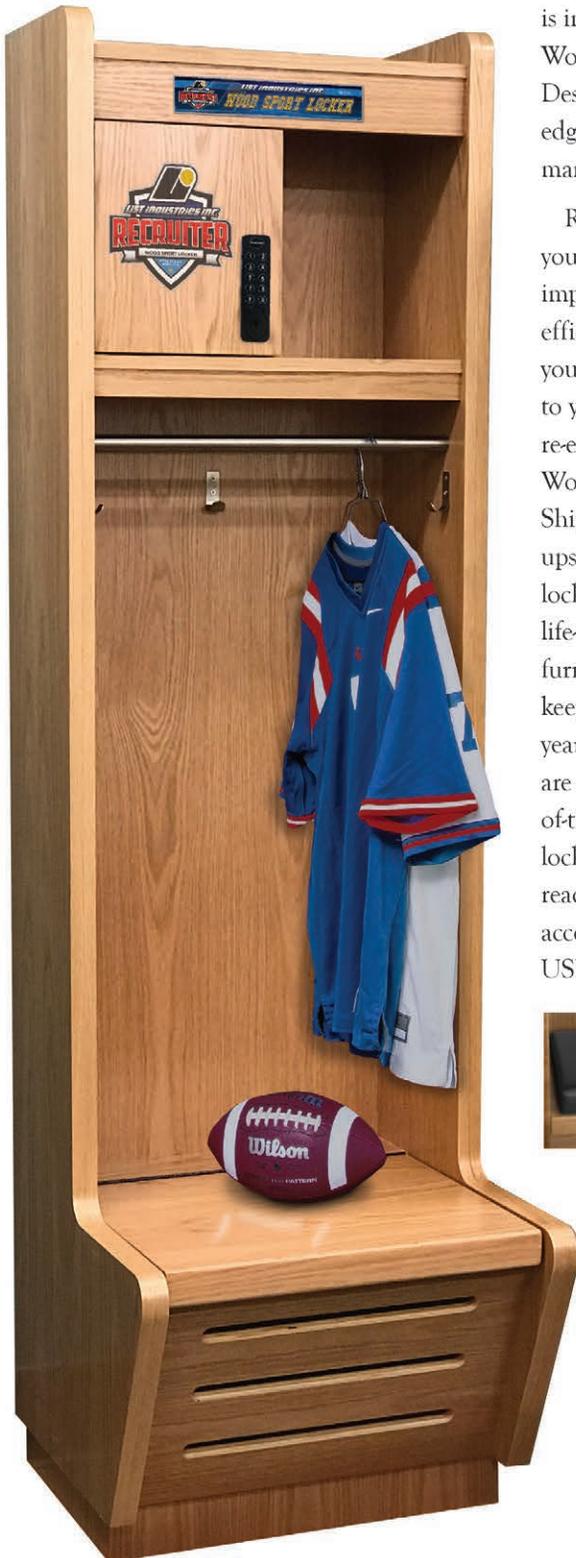
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by Bob Dugan

# COVID-19 LINGERS AS STORM SEASON APPROACHES

2020 was a year many of us would like to forget. Outdoor events were cancelled or rescheduled, remote learning became the new normal, and safety guidelines for health, and Covid avoidance changed every day. Covid was a new challenge for which no one ever planned. Therefore, poor planning and a lack of understanding of the disease created chaos in every direction.



Weather safety, on the other hand, has been a part of our daily concern every year. In most areas, spring is the time of year weather events begin challenging all of us. Fortunately, over the last thirty years, schools and universities, parks, athletic teams and every conceivable outdoor endeavor have taken positive actions to provide strong safety protocols for outdoor recreation and work.

You may be well-versed on the subject at hand, but you should always remember that there are new technologies and guidelines designed to help everyone push the limits of outdoor safety for their constituents. As a manager or administrator, it is also your responsibility to educate the public so that they can move forward and be safe anywhere they venture. They, in turn, can accurately educate others and save lives.

### Lightning, Severe Storms, and Tornadoes

Lightning has traditionally been the most disruptive and dangerous weather event encountered every year. Many facilities utilize detection or prediction technology to help manage this menace. The two technologies are very different. Detection is a reactive approach to warning while prediction is a proactive management tool.

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Simply stated, a stand-alone detection system or networked detection system will provide notification that a strike has occurred somewhere within an arbitrarily defined area. Because each strike is an independent event, the only method of advance warning in a specific area is through forecasting (guessing). A prediction system monitors and measured the energy in the local area that actually creates the lightning. In order to understand the differences, one needs to understand exactly how lightning forms and ultimately occurs.

A lightning strike is created when storms form and create the atmospheric conditions which produce large areas of positive and negative ions in the air and on the ground. Prior to a strike, these charges build over time and eventually grow large enough to allow the leader (cloud-based energy) to electrically couple with the streamer (ground-based energy). To our eyes (eyes are excellent detectors), the lightning strike is instantaneous and seemingly comes from nowhere. In reality, it does take time for the energy to build to a level that allows the

Many of you have already worked hard to provide your campus areas evacuation and weather warning instructions in public areas. You have probably distributed much of this information on a website accessible to students, professors, visitors, and workers. It is important to understand each of these weather dangers and evaluate the completeness of your written and verbal safety notifications.

two oppositely charged areas to collapse. The only method of anticipating a lightning strike prior to its occurrence is to measure the growing energy. These measurements and observations are made possible with a smart device much like a voltmeter. Regardless of whether the strike is a side strike, a back strike, a first strike or a bolt out of the blue, before the strike can materialize, it must grow large enough to overcome the air resistance between the clouds and the

ground. If these areas of energy do not exist in the immediate area, there can be no lightning. Advanced lightning warning technology provides lightning detection as well as prediction.

When a lightning event occurs, the explosion of air within the ionized column creates a large electrical impulse which disturbs earth's electromagnetic field. If you are in a stormy area, you can hear these impulses on your AM radio. These are the disruptions which detection

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systems use in order to “see” a lightning strike. Detection systems and networks were initially developed to provide lightning warning for very distant storms.

Severe storms are somewhat less of an issue because the national weather service issues

watches and warnings for incoming storms. Typically, a severe storm is associated with a large area of storms. By the time the severe storm arrives, everyone has previously sought shelter. However, severe storms can cause wind and hail damage and may cause flooding. Once a

severe storm warning has been issued, individuals must make certain the shelter they are using will protect them from these other storm forces. It has now been clearly documented that a severe storm is commonly a significant electrical event that can be monitored and predicted.

Tornadoes are the most destructive weather events, except for hurricanes, that are spawned on land. Watches and warnings should be taken seriously and considered a life-threatening event. Anyone in areas where tornadoes occur should be aware of locations considered safe and know how to get into these shelters. Even though warnings are not a guarantee that a tornado will impact your area specifically, it does not mean you can ignore the warning. Always assume there will be a local storm and seek the appropriate shelter without delay. Schools and universities should have well-placed evacuation directives where everyone visiting the facility can observe them. Similar to lightning and severe storms, tornadoes are usually major electrical events that can be measured accordingly.

### Heat Exposure Dangers

In recent years, there have been more recorded incidents of heat-related injuries and death. Regardless of one’s age, heat exposure can be deadly, even if the individual is not exercising. Signs of heat exhaustion include cold shivers, faintness, weakness, confusion, excessive sweating and unexplained falls. People should always try and be aware of their own conditions and seek help, even if they just feel different or strange. During hot days, it should be everyone’s responsibility to watch those around them and look for any indications that another person may be in danger.

One well known method for calculating heat dangers is the wet bulb method. Calculations are made considering wind, UV radiation, humidity and temperature. Most of these calculations are made with hand-held devices. Another method of calculation is using the same atmospheric measurements with different algorithms applied. Many professionals do not like the wet-bulb technology and want an alternative, such as the heat index. Well-engineered technology will provide options for the end user from a single system for either technology.

Again, clear public service posters should be easily accessed at a facility. The poster should explain what heat warning one and heat warning two mean and what actions are recommended to avoid a dangerous tragedy. It would also be useful to direct people to different websites specific to heat-related health issues.



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## Spring Storm Season

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Also, do not overlook some of the new, state of the art technology that is available and can help with all of these weather-related dangers. Today's new ultra-fast firmware has permitted some firms to make significant advancements over previous technology manufactured and installed over the last seven to ten years. Now is a good time to take a hard look at the new technology which can help make your job easier and you a more effective weather safety advocate.



**ABOUT THE AUTHOR:** Bob Dugan is President of Thor Guard, Inc., and began with the company in 1988. Bob grew up in Albany, NY, and Pittsfield, MA. Bob graduated from the College of the Holy Cross in 1975 and now resides in Marco Island, FL. For more information, email Bob at [bdugan@thorguard.com](mailto:bdugan@thorguard.com) or call 954-835-0900.



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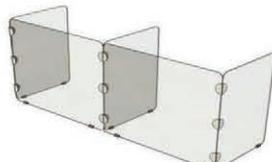
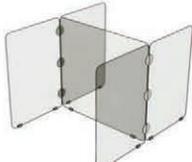
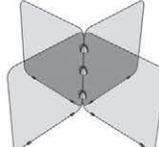
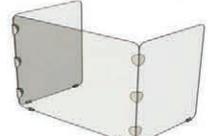


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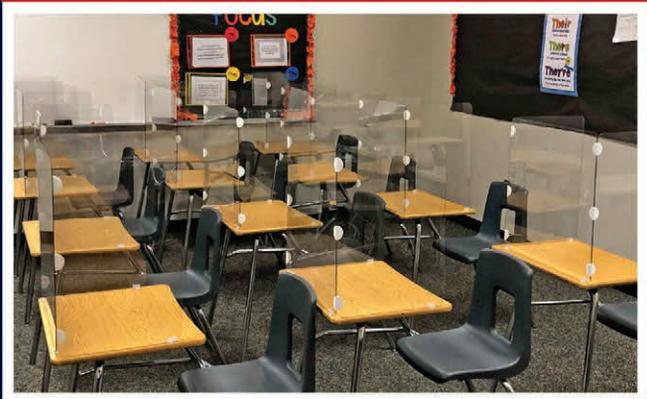
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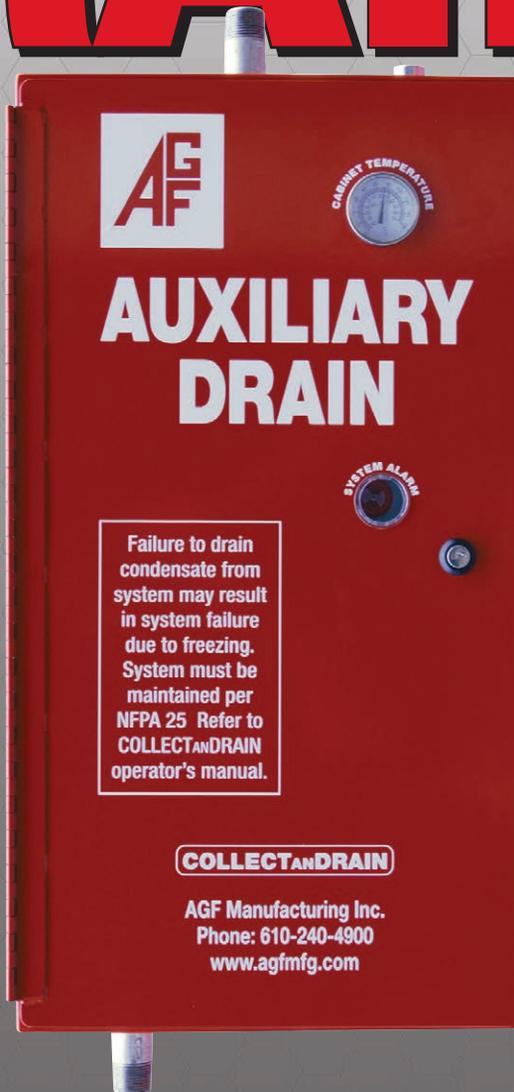
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