McKelvey Engineering
Staff Town Hall

*Life in the times of COVID-19*

Aaron Bobick
Dean & James M. McKelvey Professor

May 5, 2020
Non-COVID news

- The first-year undergraduate class could be the largest and academically strongest – and most diverse in the school’s history.
Non-COVID news

McKelvey Hall construction is on track for January ‘21 occupancy.
But of course our world changed this semester...
COVID-19 timeline

• March 3: Dean speaks at LA Regional Cabinet dinner. Two hundred people attended, with a few folks declining because of not wanting exposure. A few masks in the audience and lots of handwashing in LAX.
• March 5: Meeting with Provost, recommending no unnecessary travel.
  — Mar 6: Dean and crew cancel trip to India that was to leave in the next day.
• March 7: Spring Break starts
• March 9: University begins ramping down events
• March 10: McKelvey leadership meet and begin preparing for online delivery (in anticipation of what’s coming)
• March 11: WashU officially extends Spring Break by a week and tells students not to return (we will ship them their essential items), and all classes will be online as of March 23
And it got worse...

- March 12: School-wide town hall laying out the (soon abandoned) education plans
- March 17: Decision that *no one* will be allowed on campus except *essential* personnel. Impact on education and research:
  - Education: originally converting 10-20 classrooms into studios for recording; now rapid development of lab materials
  - Ramp down of entire research enterprise except CV19-related

- As of March 25, only “essential” personnel on campus. Everyone else working remotely including research.
How WashU responded

• Packed and shipped *2,000 boxes* of computers, medicine, books and other essential items from the residence halls
• Provided IT infrastructure that made online courses and remote work possible
• Offered additional mental health resources for students and employees
• Established *Crisis Fund* for students and employees in need (currently on second round)
• Opened the Knight Center and Loop residential facilities for medical personnel and first responders – currently ~80 people

Medical School:
• Treating patients with partners at BJC HealthCare facilities
• Conducting research in the School of Medicine
How McKelvey responded

• Dean appointed a Covid-19 response team that met daily through April 20, now meeting twice weekly
• Created a McKelvey Covid-19 email address (McKelvey-covid19@wustl.edu) that is monitored every day – external and internal constituents are encouraged to send questions, suggestions and feedback
• Developed a McKelvey webpage with FAQs and other resources
• Held several town hall sessions for faculty, staff and students
• Increased internal email communications
How McKelvey responded: Education

• Through the tremendous response of the faculty, **203 unique courses** (245 if counting different sections) taught by **239 instructors** were online in **10 days**

• Changed several academic policies
  – Spring 2020 courses completed with the pass/fail grade option will count toward all McKelvey degree and program requirements, and students may change grade options up until the last day of classes
  – Students will not be placed on academic suspension due to spring 2020 grades
  – Dean’s List will not be awarded to McKelvey undergraduate students for spring 2020
  – Thesis and dissertation defenses held virtually

• Summer courses will be online and all on-campus summer programming and study abroad programs were cancelled
How McKelvey responded: Research

Federal funding for rapid COVID-19 test goes to McKelvey Engineering researchers

Srikanth Singamaneni hypothesizes their plasmonic-fluor-based biosensor will be 100 times more sensitive compared with the conventional SARS-CoV-2 antibody detection method.

In the media: This 3-D Simulation Shows Why Social Distancing Is So Important

In The New York Times on April 14, Pratim Biswas describes how aerosols play into social distancing.

Aerosol researchers at McKelvey School of Engineering tackle novel coronavirus

Aerosol research at the McKelvey School of Engineering is working at breakneck speed to understand the novel coronavirus and its effects at scales ranging from ecosystems, to virus particles suspended in droplets.

In the media: Eclectic St. Louis team of doctors, engineers and machinists answers call for emergency ventilators

Local experts collaborate to meet the local surge of COVID-19 patients.
How McKelvey responded: Maker task force

• With the School of Medicine and BJC HealthCare, made face shields in the school’s makerspace
• Coordinated with industry partners and included Sam Fox School

McKelvey Engineering staff creating face shields for health care workers
McKelvey Engineering staff are pitching in to create personal protective equipment for health care workers in the COVID-19 pandemic.
COVID-19 WashU/BJC Maker Task Force (MTF)

A WashU/BJC Maker Task Force has been established to make recommendations and provide solutions for Personal Protective Equipment (PPE) and medical supply prototypes due to challenges caused by COVID-19. The task force includes technical experts and leaders from McKelvey Engineering, Washington University School of Medicine (WUSM), BJC Supply Chain, BJC/WUSM Healthcare Innovation Lab, and the broader St. Louis “maker” community.

The Maker Task Force executive team has been working to understand how to best use these collective efforts to identify the medical supplies that are needed, build or source them to scale, and ensure they are delivered to the clinicians and patients who need them quickly.

A variety of sub-groups within the Maker Task Force are currently exploring 14 different product lines in the following areas:

- **Face Shields, Masks & PAPRs**
  - Face Shields
  - N95s
  - Isolation Masks
  - Cloth Masks

- **Ventilators**
  - Emergency Ventilators
  - Ventilator Splitting and Multiplexing
  - Ventilator Replacement Parts

- **Wipes, Gowns & Swabs**
  - Isolation Gowns
  - Disinfectant Wipes & Solution
  - NP Swabs

Key Contacts

Clinical Contact:

Ali Kosydar
Director, Healthcare Innovation Lab
BJC Health Care/WUSM
Ali.Kosydar@bjc.org

Industry/Manufacturing Contact:

Kelli Delfosse
Director, Industry Relations
McKelvey Engineering
kelli.delfosse@wustl.edu

Key Partners

- Sam Fox School of Design and Visual Arts
- Spartan Lights Metal Products Makerspace
- Made STL
How McKelvey responded: Staff

You are the glue that holds the school’s operations together:

- Working as course moderators
- Advising current students and recruiting new students
- Providing critical information technology resources
- Providing financial and accounting services
- Assisting with grant proposals and managing other aspects of research administration
- Ensuring lab safety and essential research continuity
- Providing HR guidance and support
- Maintaining virtual operations of departmental and school offices
- Communicating with internal and external constituents and the public
- Engaging industry, community and international partners
Budgetary and operations impact

• Revenue reductions and new expenses
  – Danforth Campus: Approximately $30M cost incurred
  – Medical Campus: losing $60M/month – likely $150M for quarter

• WashU and McKelvey Response:
  – Hiring freeze for new staff and faculty positions
  – Delayed renovation and construction projects (except for finishing McKelvey Hall)
  – Reduced operational expenses
  – No merit raises for FY21
  – Furloughs
Moving forward – scenario planning

Re-opening with employees on campus:

- Will do in phases, with faculty and staff who can successfully work from home continuing to do so until end of July at earliest.

- Who is brought back and when (in phases) will depend on how easily their work is done remotely, with a process for considering medical and other accommodation factors.

- University will provide masks, training, increased cleaning.

- Employees will conduct a health self-screen through an app before coming to campus each day; thermometers will be provided if needed.
Moving forward – scenario planning

• **Education**
  – Potentially a combination of in-person and remote courses, including online courses for new international students who cannot get visas before the start of fall semester
  – Possible changes to academic calendar

• **Research**
  – Covid-19 research continues
  – Committee is working on plans for re-opening all labs in phases, beginning June 1, with appropriate new protocols
McKelvey Engineering