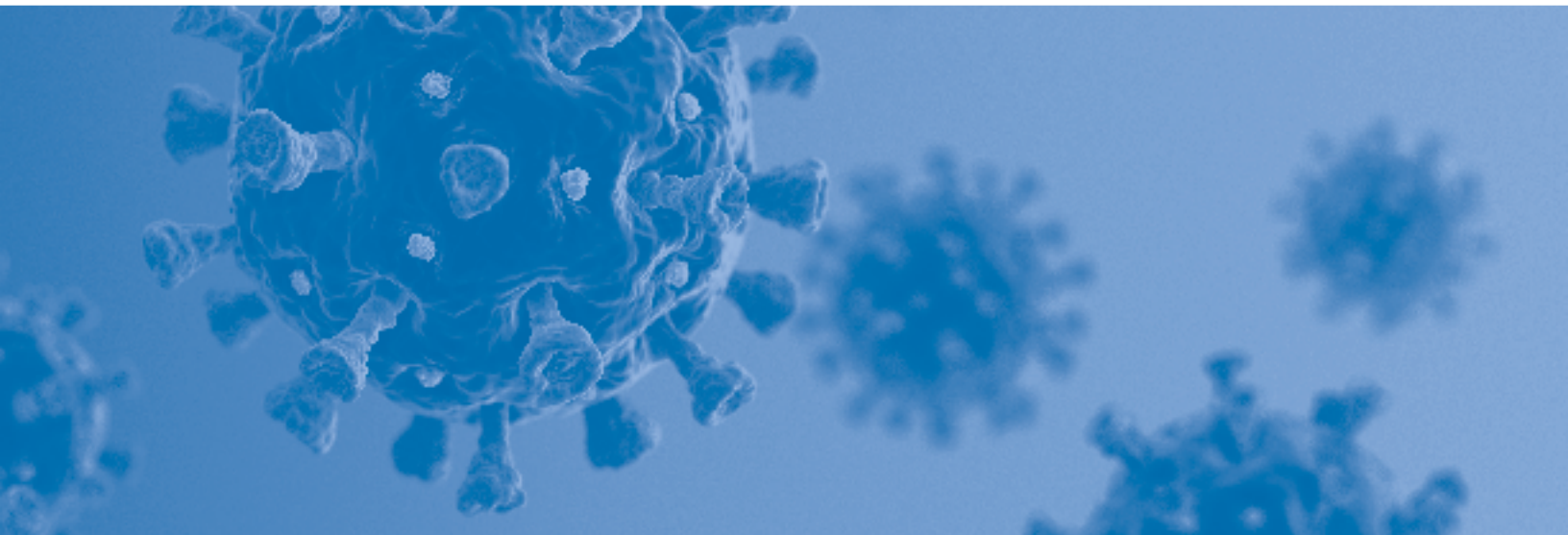


COVID-19 SPECIAL REPORT



Demonstrating resilience during
a global pandemic



Dear Friends,

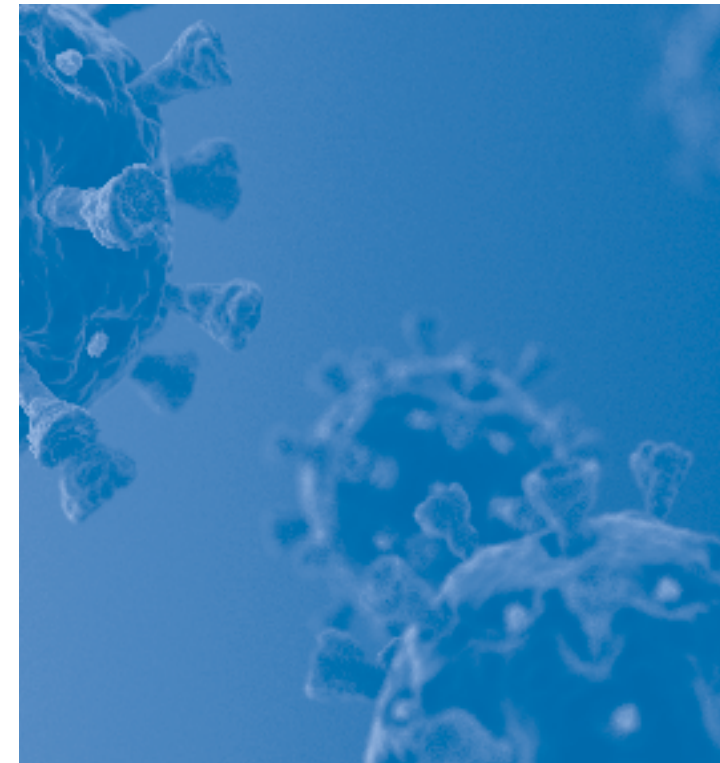
Resilient is the best word to describe the School of Pharmacy family over the past six months. What we have all learned is that pharmacists are on the front lines and are essential to the provision of health care in this country; and life and health science research is critical to solving the world's health issues today and in the future. The education provided by our faculty, preceptors and staff is essential to our world and our future.

In fulfilling our teaching mission, we remained steadfast in our commitment to the health and wellbeing of our students and faculty. Learning continued through video conferencing, recordings, online discussions and, of course, experiential education in our introductory and advanced pharmacy practice experiences. We worked with our Class of 2020 students to help them meet accreditation and State Board of Pharmacy standards to graduate and be eligible to sit for the board exams as soon as possible. Our student pharmacists were front-line responders for COVID-19 patient care in line with the Joint Commission of Pharmacy Practitioners statement: they can test and treat infectious disease; they are immunizers; and they are accessible and respond quickly to patient needs. Indeed, we graduated another outstanding class of practice-ready pharmacists and new scientists in 2020 thanks to the hard work and dedication of so many staff, faculty and preceptors.

We started the 2019-2020 academic year with the usual trepidations of a new year, but the pandemic forced us to recalibrate and refocus our concerns to the new challenges it presented. We have emerged stronger, better prepared for the future. This report highlights some of the great things the school accomplished throughout this difficult year. My thanks to all the great students, staff, faculty and preceptors who persisted and continue to persevere throughout this pandemic.

Sincerely,

Russell B. Melchert, Ph.D.
Dean & Professor



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UMKC Coronavirus Timeline

January 20	First confirmed U.S. case of COVID-19	March 6	First Missouri case of COVID-19	March 13	University suspends all in-person classes at MU, UMKC, Missouri S&T	March 15	Dean Melchert appoints COVID-19 School of Pharmacy Task Force	March 16	University announces all classes will be taught remotely for the rest of the spring semester	March 21	State of Missouri issues social gathering order limiting groups to 10 or fewer people	March 23	UM System's four campuses close through April 13	April 2	Commencement ceremonies postponed	April 6	State of Missouri issues a stay-at-home order	May 15-18	Virtual commencement ceremonies held	June 1	Phase 1 of the campus reopening begins with limited repopulation	June 26	Kansas City issues face covering mandate for indoor public accommodations and sets occupancy limits
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ONLINE LEARNING – RUNNING ON ZOOM

With all students taking exams from home, the school created protocols for remote testing.

Virtual Classrooms and Exams

Once stay-in-place measures began, SOP instructors quickly shifted to online teaching. Since the SOP maintains distance sites at the University of Missouri-Columbia and Missouri State University in Springfield, our instructors and students were already familiar with distance education.

Remote learning is quite different from remote assessment. Usually, all of our courses—even those at our distance sites—maintain strict procedures for in-person proctoring of quizzes and exams. With all students taking exams from home, the school created protocols for remote testing. With the teamwork of faculty, staff and graduate teaching assistants, the SOP was able to create a means of virtually proctoring exams so that academic integrity could be maintained

PCOA Results

The PCOA—Pharmacy Curriculum Outcomes Assessment—is a comprehensive test developed by the National Association of Boards of Pharmacy to measure student performance. The PCOA helps the school determine whether the curriculum is meeting the desired educational outcomes. To meet accreditation standards, the PCOA is required for all pharmacy students nearing completion of their didactic curriculum.

Even the coronavirus could not delay the PCOA. Completed and assessed remotely, the Class of 2021 performed better than ever. Results reveal a gain over previous years. Additionally, results were **above** the national average for mean scaled scores for the total examination, as well as each of the four content areas.

PCOA National Scaled Score Mean (SSM) and Standard Deviation (SD)						
	CLASS OF 2019		CLASS OF 2020		CLASS OF 2021	
	UMKC	SSM±SD	UMKC	SSM±SD	UMKC	SSM*
Total Score	338	348 ± 49	354	344 ± 52	360	344
Basic Biomedical Sciences	337	349 ± 81	355	349 ± 86	368	349
Pharmaceutical Sciences	329	349 ± 55	345	346 ± 59	352	346
Social, Behavioral, and Administrative Sciences	342	351 ± 65	363	343 ± 69	373	343
Clinical Sciences	347	348 ± 57	360	345 ± 58	362	345

*SD not yet available

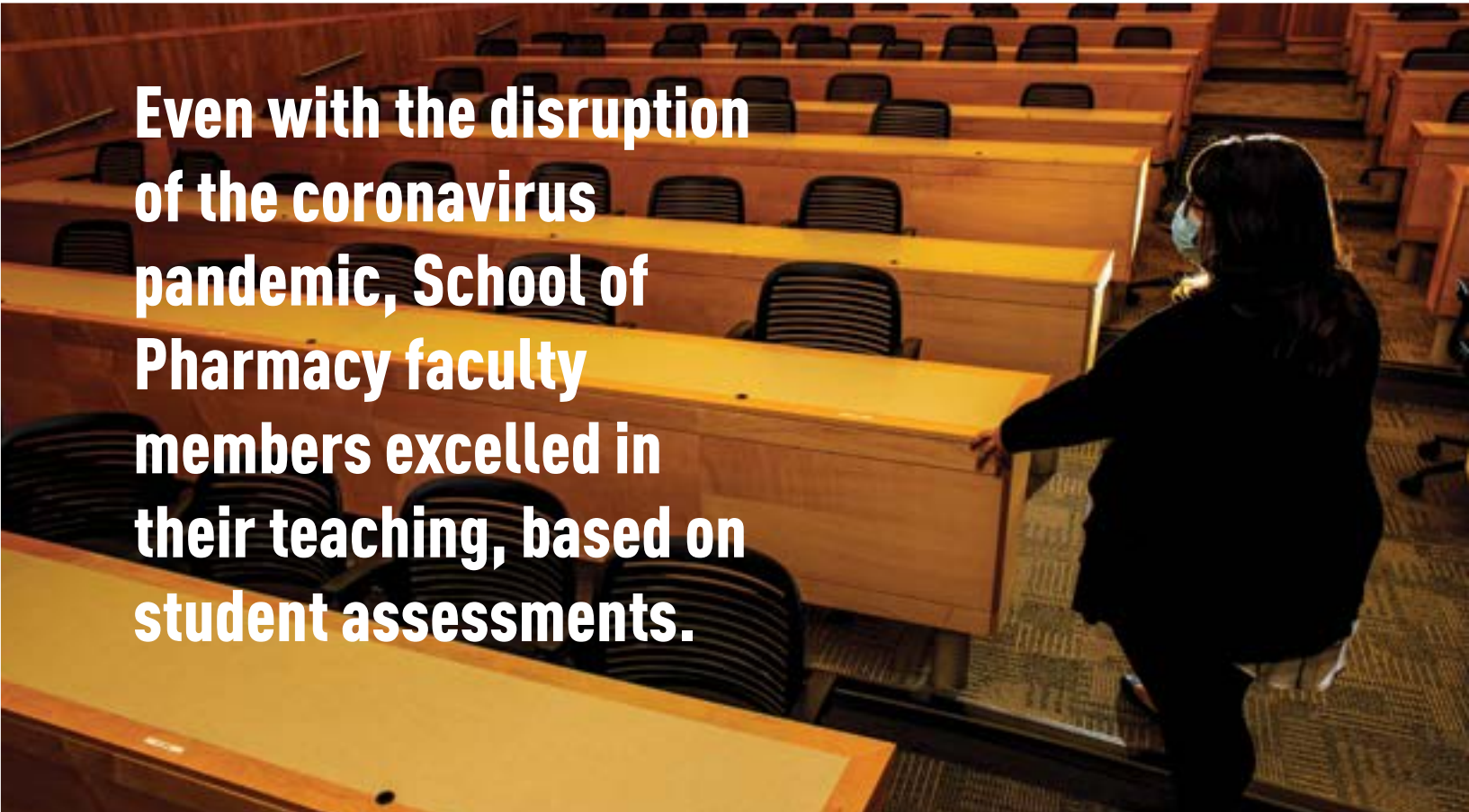
Objective Structured Clinical Exams (OSCEs)

Objective Structured Clinical Exams occur within three applied skills labs each spring. The exams, which differ for each class year, assess our students’ ability to provide patient care. The exams also assess and recommend therapy for differing, self-limited diseases such as heartburn, as well as chronic conditions such as depression. Of note, each OSCE is typically preceded by a teaching OSCE (TOSCE) to expose students to logistics and expectations of an OSCE.

The OSCE Program Lead, Dr. Kylie Barnes, and Associate Dean Maqual Graham worked quickly and efficiently with the Sheldon Clinical Simulation Center staff at the University of Missouri-Columbia to move all TOSCE/OSCE assessments online, as well as to modify the number of patient encounters. Patient interactions continue to mimic practice as telehealth is currently used to promote or support long-distance care.

Student Assessment of Instructors

Even with the disruption of the coronavirus pandemic, School of Pharmacy faculty members excelled in their teaching, based on student assessments. From clarity of presentations and teaching to their professionalism and response to student questions and needs, our instructors scored above the mark of excellence across the board on student surveys. These annual assessments are required by the university and the Accreditation Council for Pharmacy Education to document program and teaching effectiveness.



Student Performance (Pass Rates)			
	YEAR 1 STUDENTS	YEAR 2 STUDENTS	YEAR 3 STUDENT
	N=138	N=149	N=147
TOSCE Case	128 (93%)	132 (89%)	NA
OSCE Case 1	136 (99%)	125 (84%)	124 (84%)
OSCE Case 2	NA	144 (97%)	132 (90%)
Total Patient Interactions*	276	447	294

*1,017 student/patient encounters were assessed from April 17 through May 13

Online or In-Person – Instructor Excellence Endures				
	S17	S18	S19	S20
Survey Response Rate	74%	99%	NA*	95%
The instructor effectively responded to student questions.	4.26	4.38	4.33	4.40
The instructor taught in a manner that was effective and facilitated learning.	4.18	4.33	4.28	4.36
The instructor taught in a professional and respectful manner.	4.34	4.44	4.43	4.5
The instructor’s command of English was effective in communicating the content of the course.	4.33	4.48	4.40	4.53
The instructor’s presentation of the material is clear.	4.21	4.36	4.29	4.37
The instructor’s assessment of students was fair and consistent with lecture objectives.	4.24	4.37	4.35	4.40

*Unable to calculate response rate.

Student responses based on 5-point Likert scale in which 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

EXPERIENTIAL EDUCATION

WHEN the pandemic prompted a stay-at-home order, the Office of Experiential Education jumped into action to ensure students would not fall behind. Each academic year, from June through the following May, students must complete Advanced Pharmacy Practice Experiences (APPE). Because of the generosity, flexibility and commitment to education of the School of Pharmacy's preceptors, 134 members of our Class of 2020 successfully completed required and elective rotations and graduated on time. Through these efforts, our students adapted quickly and effectively to meet their curricular requirements and to meet the demands of practice at the onset of the COVID-19 outbreak.

Honors in Experiential Education

The designation "Honors in Experiential Education" recognizes students who perform exceptionally on APPE rotations. Of the students in the Class of 2020, 20 individuals or approximately 15 percent of the class earned the designation of "Honors in Experiential Education."



9
Kansas City, MO
HONOREES



6
Columbia, MO
HONOREES



5
Springfield, MO
HONOREES

COVID-19 cannot stop the Class of 2021. Students were not delayed in starting June 2020 APPEs. Students enrolled in summer Introductory Pharmacy Practice Experiences (Classes of 2022 and 2023) were also not delayed. The following testimonials further support the extraordinary work of our students and preceptors.

Holistic Rotation



"I have learned more in these two-and-a-half weeks than I thought was possible! I have absolutely loved being on rotation here. A highlight has been seeing first-hand how to recommend supplements based on a patient's prescriptions, diet and exercise history. It's been fascinating because it is a more holistic approach to treating patients that gets to the root cause of some their symptoms."

HANNAH TERMORSHUIZEN
P1 Pharm.D. Student, Rotation at Phillips Family Pharmacy, Preceptor Josie Phillips-Ross (Class of 2011)

OSCEs Pay Off



"My highlight on rotation happened while educating a patient on his medications. It turned out the family member who brought him in was actually a Risk Management RN. She was grateful to see someone take the time to explain things thoroughly. All those OSCEs paid off!"

MICHAEL BARBARA
P4 Pharm.D Student, Rotation at Cox's Meyer Orthopedic and Rehabilitation Hospital in Springfield, Preceptor Ashley Seifert

Statistics for Experiential Education

2
Suma Cum Laude

3
Cum Laude

3.0-4.0
GPA RANGE

3.55
AVERAGE GPA

On the FRONTLINES of the PANDEMIC

Travis Kremmin, Pharm.D. '11, is a clinical pharmacist at AdventHealth Shawnee Mission, a hospital in Merriam, Kansas. In March, the COVID-19 pandemic was just ramping up in the Kansas City area and Kremmin was looking to establish a COVID response team of pharmacists.

Then, he received a text message from fourth-year UMKC School of Pharmacy student Melinda Johnson.

She had made a lasting impression on Kremmin six months earlier while the two worked together during a clinical rotation at the hospital. Johnson had a general question for him about his specialty, infectious diseases. Kremmin had a question of his own: Would Johnson consider coming back to join his team?

"It's a very fast-moving environment right now with tons of literature and data to sort through, both good and bad," Kremmin said. "I was familiar with Melinda and I knew when this was going on that not only could we help her gain experience, but we could use her skills. It was an ideal matchup."

Johnson spent the month of April working as part of Kremmin's team. She was largely responsible for helping develop the protocols for a convalescent plasma treatment program in partnership with the Mayo Clinic. The program worked like this: In coordination with local blood banks and those in New York, plasma is received from New York patients who have recovered from the COVID-19 virus. Antibodies from those plasma sources are extracted and then used to treat the most severely ill COVID patients.

Johnson was tasked with reading and understanding the Mayo Clinic's institutional review board treatment protocols for the procedure, and then developing a treatment plan for the Shawnee Mission hospital. That included developing the necessary checklists to ensure the required documentations were in place. On April 10, AdventHealth Shawnee Mission was the first hospital in Kansas City to use the treatment. The procedure is now being used across the 49-hospital AdventHealth system under Johnson's designed protocol. Facilities throughout Kansas City have shown interest in the hospital's convalescent plasma program, as well.

"It was a team working on this," Johnson said. "Travis initiated the process and we came up with the protocols. We were looking every day at patients to see if they would be candidates for the treatment at our facility. I'm grateful to have had this opportunity to work with AdventHealth and all the preceptors there."

COVID-19 patients, particularly those on ventilators, have unique drug requirements. One of Johnson's roles was to review emerging trials and data to calculate how many drugs and dosages are needed for the average patient to ensure that the hospital would have an adequate supply on hand.

"With all the information emerging for COVID, it's almost a constant blast of information," Johnson said. "I was sorting through what was most relevant, most important, and analyzing things to see what's actually strong data versus studies that have come out that have been a little bit skewed." She also explored treatment options in light of caution flags that were raised related to potential future drug shortages resulting from the coronavirus pandemic's disruption of supply chains.

"I did work on potential treatment options, proposed treatment options," Johnson said. "I was looking at data for anything else beyond our first-line agents. Sometimes, we went down to our sixth and seventh options."

Throughout April, Johnson and Kremmin met online daily for two to four hours to review the day's patient consultations list and discuss the information being released on COVID-19. Kremmin said Johnson was instrumental in analyzing and deciphering the waves of data to develop treatment and dosing algorithms for COVID patients locally and across the AdventHealth network.

Twice a week, she and Kremmin met with physicians and pharmacists to discuss patient needs and the latest developments surrounding the virus. The process of working remotely worked out better than they imagined, Johnson said. "This was a totally new concept, especially for a student being on a rotation," Johnson said. "I don't think we really knew what to expect going into it, but it turned out to be an amazing experience."



"I don't think we really knew what to expect going into it, but it turned out to be an amazing experience."

MELINDA JOHNSON
P4 Pharm.D. Student

DESPITE the difficulties presented by COVID-19, research efforts at the SOP persisted. This is due to the dedication of the faculty, staff and students within the school, as well as the support from the UMKC Office of Research Services.

Our efforts to minimize research disruption while maximizing the safety of our lab personnel during the COVID-19 shutdown were successful. We anticipate working with graduate students and research faculty to recover from any disruptions caused by COVID-19, and we aim to reduce the long-term impact on our productivity, graduation rates and extramural grant production.

Grant Submissions

Since March 15, 2020, the following proposals were submitted:

Division of Pharmacy Practice and Administration

- Program to increase enrollment of underrepresented minority pharmacy students. Proposal 0063751 (Santee)
- The Quality and Value Innovation Consortium (QVIC)—Transitions of Care Project. Proposal 0064347 (Patterson)

Division of Pharmacology and Pharmaceutical Sciences

- Peptide-based conjugate for a water-insoluble drug treating advanced prostate cancer. Proposal 0064468 (Cheng)
- Advanced treatment strategy against COVID19 induced pulmonary infections. Proposal 0064474 (Lee)
- Development of novel boron containing inhibitors as a tool to study HIF pathway. Proposal 0064475 (Mukherji)

This represents a set of proposed research, including proposed funding for COVID-19-related projects, in keeping with our normal proposal submission pace. Additionally, with extensions to NIH deadlines, we expect that several more NIH-grant applications will be submitted before August 2020.

Laboratory Activity

Finally, several research labs with time-critical projects, live animal work or COVID-19-related research have remained active through the UMKC “depopulation.” These include the labs of Dr. JianPing Wang, Dr. Kun Cheng and Dr. Gerald Wyckoff. Dr. Pete Silverstein worked with Dr. Peter Koulen early in the shutdown to ensure effective use of expensive cell culture lines. Cell cultures were maintained under liquid nitrogen, and critical lab supplies were acquired and delivered with the assistance of Casey Ramsey. Additionally, Dr. William Gutheil restarted the mass spec facility in mid-May 2020, and as of June 1, all principal investigators and graduate students have returned to labs following CDC guidelines for masks and social distancing.

Research Award

Dr. Simon Friedman in the Division of Pharmacology and Pharmaceutical Sciences received a new NIH R01 grant to continue in his successful work developing continuously variable protein delivery using a photoactivated depot. This allows him to



Dr. Simon Friedman

continue to develop his long-term research while providing about \$1.6 million in total costs over the next four years.

SEVERAL changes in SOP leadership have occurred during the upheaval of the Spring 2020 semester. Current technology allowed the SOP to maintain standards in recruiting and hiring for open leadership positions. The following summary provides relevant details for three administrator positions:



Dr. Steven Stoner

an internal search and interview of candidates by the search committee, Dr. Steven Stoner was named the new Associate Dean for Student Affairs effective July 1, 2020.

Associate Dean for Student Affairs

Dr. Patricia Marken announced her resignation from the position effective July 1, 2020. She will return full time to the Division of Pharmacy Practice and Administration as a tenured professor. After



Dr. Cameron Lindsey

With Dr. Steven Stoner accepting the position of Associate Dean for Student Affairs he departed his previous position as Chair of the Division of Pharmacy Practice and Administration. Dr. Cameron Lindsey was appointed as Interim Chair effective July 1, 2020.

Chair, Division of Pharmacy Practice and Administration

With Dr. Steven Stoner accepting the position of Associate Dean for Student Affairs he departed his previous position as Chair of the Division of Pharmacy Practice and Administration. Dr. Cameron Lindsey was appointed as Interim Chair effective July 1, 2020.



Dr. Gerald Wyckoff

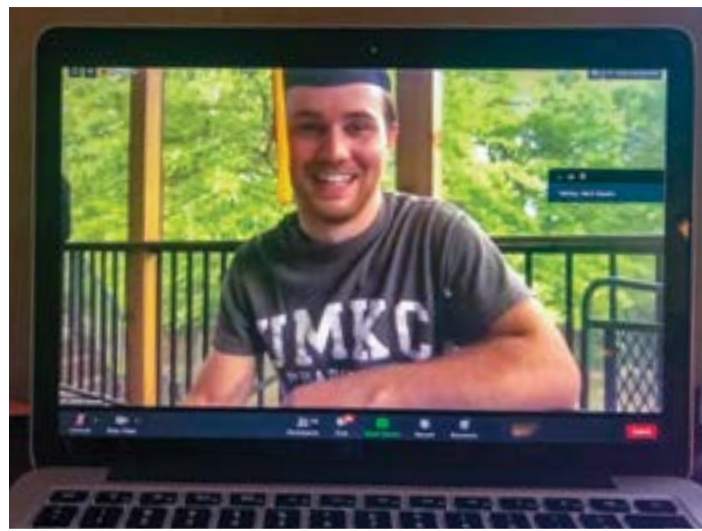
Pharmacology and Pharmaceutical Sciences, effective July 1, 2020. Dr. Wyckoff has served as the inaugural “interim chair” of the new combined Division of Pharmacology and Pharmaceutical Sciences since July of 2018. Before serving that interim role, Dr. Wyckoff was a tenured professor in the UMKC School of Biological Sciences (now the School of Biological and Chemical Sciences).

Chair, Division of Pharmacology and Pharmaceutical Sciences

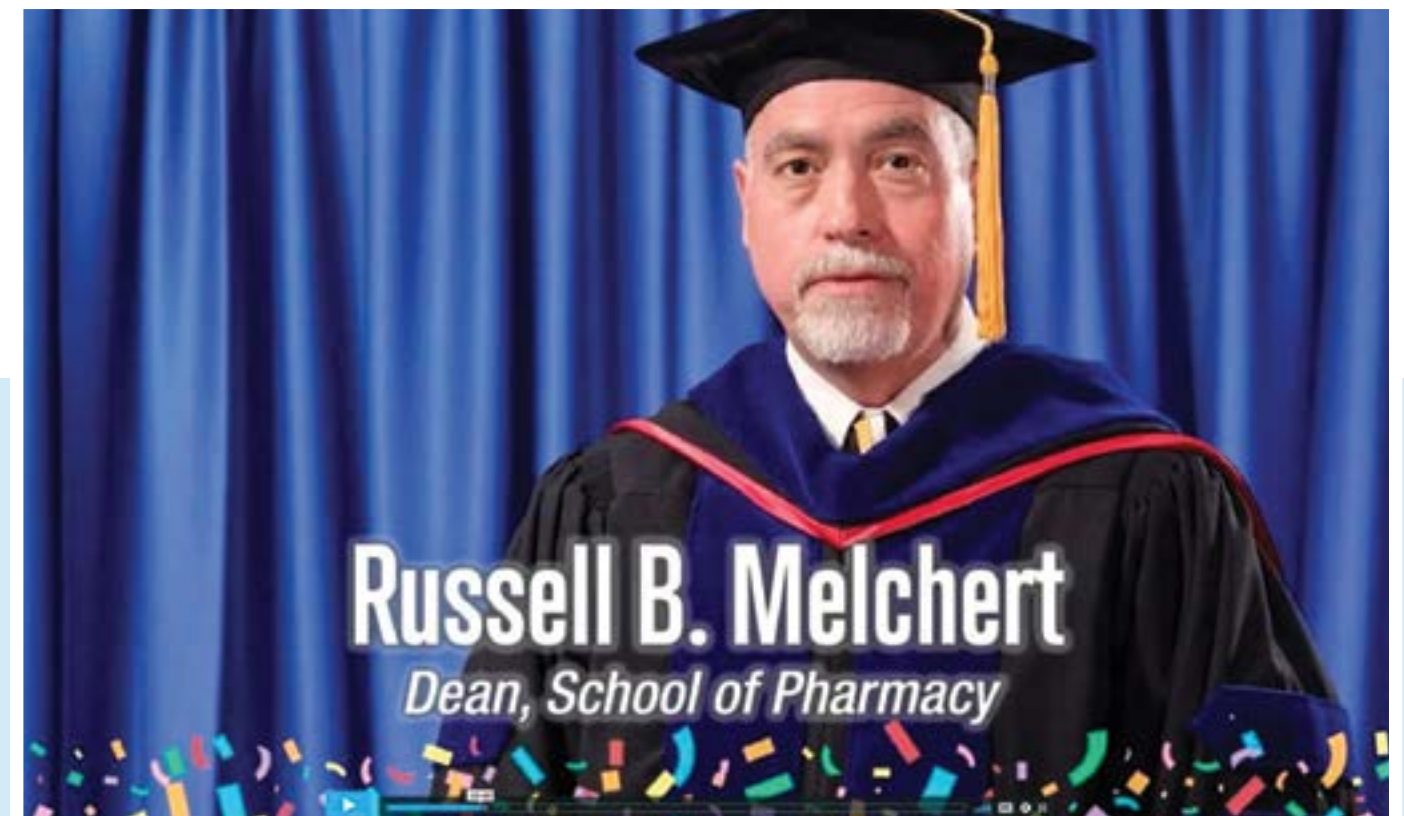
After a national search and interview of four highly qualified and interested candidates, Dr. Gerald Wyckoff accepted the position of Chair, Division of

A DIFFERENT KIND OF CELEBRATION

The annual School of Pharmacy graduation ceremony is a highlight of the academic year as we celebrate the hard work and accomplishments of the senior class. Social distancing measures required the event to be reimagined as a virtual ceremony. While this year's event was different, the achievement and excitement were still the same.



REMARKS FROM DEAN MELCHERT



Every May is special because it is the time that the fruits of our labor are so beautifully symbolized in the pomp and circumstance of commencement. This year was different. Different, but no less beautiful than previous years. And that's because four years of hard work cannot be diminished by the method by which we celebrate.



*This year was also different for myself, as well as my wife, Stephanie, as we are the proud parents of **Philip Melchert, UMKC SOP Class of 2020**. I want to give a special thank you to all faculty and staff: What you have given to my son—as well as all our graduates—can never be taken away, not even by a pandemic. For that, Stephanie and I are forever grateful.*

