

OUTREACH PROGRAMS' NEWSLETTER



DIRECTOR'S MESSAGE:

The past two years have been unusual and challenging ones. We experienced a global pandemic on a scale not experienced for over a century. The pandemic forced a rapid and radically rethinking of the ways in which we share information and interact with peers, teachers, and learners. Our institution, like so many others, moved classes online and temporarily closed research facilities. In 2020, all of our summer programs had to be rapidly shifted to a virtual format. Yet, the scale of the changes and the speed with which they had to be made did not stop our mission. In 2021, our programs remained virtual as we did not have the tools to ensure the well-being of participants, especially when clustered together in housing units. Like many others, we learned that we are adaptable and innovative, and now more skilled on Zoom than we ever imagined. I am grateful for a dedicated and resourceful team, as well committed instructors, partners, and collaborators, who together ensured that our summer programs stimulated our students and provided enriching experiences.

The pandemic highlighted the health disparities faced by minority communities. Black and brown communities bear a far greater burden in terms of hospitalizations and deaths due to COVID-19, making clear the health inequities that had been conveniently ignored for a long time. The deaths of Breonna Taylor and George Floyd provided yet other examples of another deadly inequity faced by people of color. By the summer of 2021 we were all suffering from Zoom burnout. These circumstances could have caused our summer program students to retreat, to withdraw from the programs or to be quiet if they participated. Instead, like countless communities around the country, our students came energized, motivated, and committed to demonstrating their excellence and value. Our programs were vibrant! The students showed that they are brilliant and resilient. And together they showed that if we work in diverse teams there is much that we achieve.

In this newsletter, we invite to explore how our programs shifted to a virtual format and how they maintained their ability to deliver exciting and valuable information to groups of talented and diverse high school and college students. Please also visit our [website](#) for more information on our programs.

Sincerely,
Brian Lewis, PhD

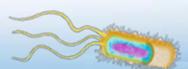
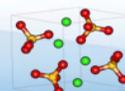
Worcester Pipeline Collaborative



The mission of the Worcester Pipeline Collaborative (WPC) is to encourage, educate, and challenge under-represented, educationally, and economically disadvantaged student for success in the biomedical, biotechnology research, and healthcare professions (BBHP) where they are traditionally under-represented. WPC activities including mentoring, job-shadowing, tutoring, clinical and research internships, touring, laboratory opportunities, after-school programs, visiting scientist programs and a speaker's bureau. Through these efforts, students participate in numerous opportunities in a "seamless K-12 pipeline approach" focused on healthcare and biomedical research as they learn to set high expectations for themselves, as they successfully complete rigorous mathematics and science curricula. For more information please visit: <https://www.umassmed.edu/outreach/wpc>.



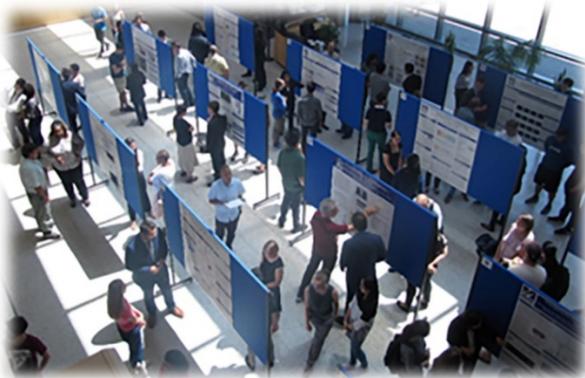
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Summer Undergraduate Research Program



The Summer Undergraduate Research Program is an intensive 10-week research experience on the campus of UMass Chan Medical School. The broad range of research conducted on campus is open to participating students as they expand their research experiences. Students are paired with a research group based on the areas of research interest indicated on their applications. This pairing occurs before the program begins; students are able to read relevant papers and discuss potential projects with their PI's before they arrive. Trainees are divided into small groups of seven to eight students, led by a senior postdoctoral fellow or junior faculty member, where they read and discuss scientific papers to learn how to approach scientific literature. They also learn about the elements and structure of a research poster as they prepare theirs for the poster session that is the culmination of the program. In addition to performing research, students are exposed to research lectures and interactive luncheons with UMass Chan faculty, have networking opportunities with the Deans of the T.H. Chan School of Medicine and the Morningside Graduate School of Biomedical Sciences, the director of the MD/PhD program, as well as current PhD and MD/PhD students. There are also fun social activities, including a field trip to Newport RI to shop, relax and play on the beach. A closing ceremony and luncheon are held on the last day of the program where the winners for best poster presentation are announced. Throughout the 10 weeks, trainees create career-building connections with faculty, postdoctoral fellows, graduate students, and peers. The SURP is supported by grant R25HL092610 from the National Institutes of Health and the UMass Chan Medical School Office of the Provost. Students from colleges throughout the continental United States, Virgin Islands, Guam, and Puerto Rico have participated in the program, visit: <https://www.umassmed.edu/outreach/surp>.



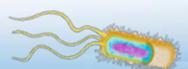
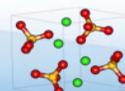
2019 Poster Session: Participants prepare and present a professional research poster



2019 Closing Ceremony 1st Place Poster Winner: from left: Pranoti Mandrekar, PhD, Fatou K. Dieng, Brian Lewis, and Keynote speaker David R. Burgess, PhD.



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2020 and 2021 Virtual Summer Undergraduate Research Program



In 2020 we quickly converted our in-person, hands-on experience into a two-week long virtual program. All accepted students were given the opportunity to opt-in to this virtual research education opportunity that occurred from June 1-12, 2020, lasting approximately 4 hours each day. While we could not recreate the hands-on research, we were able to replicate many other components of our regular program. The students heard daily research talks by some of UMass finest faculty, as well as a series of journal club discussions of primary research papers facilitated by UMass faculty and postdoctoral fellows. The students also engaged in career path discussions with UMass alumni currently working in research, technical sales and support, as well as regulatory affairs in the biotech and pharmaceutical industry. This provided a glimpse into the range of career opportunities for PhD scientists outside of academia. Students also had networking opportunities with current students, as well as the Dean of the Morningside Graduate School of Biomedical Sciences, and the Director of the MD/PhD program. Students worked in teams of 3-4 students to develop and present original research proposals focused on areas of interest. Given the raging pandemic, many research proposals focused on various aspects of COVID-19 disease pathology and potential therapeutic strategies. All teams presented their projects to their peers in a stimulating Zoom mini symposium instead of our traditional poster session. The 2020 First Place consisted of Danny Kwong, Kylie Belanger, and Bianca Serrano-Torres. Their project was titled “Prevention of the COVID-19 Cytokine Storm” (picture to the right). We were honored to have Dr. Jean King an active neuroscientist and the Peterson Family Dean of Arts & Sciences at Worcester Polytechnic Institute as the keynote speaker at the closing ceremony.



The 2021 SURP also was also held in a virtual format. The program was expanded to 4-weeks from June 1-25. The core of the 2020 program was maintained and four sessions introducing students to programming in R and Bioconductor bioinformatics packages were added. Students were also embedded within UMass Chan research groups where they participated in lab meetings and other virtual lab activities. Students also engaged in remote research projects with their hosts labs and presented their projects at the closing ceremony. The top presentations are shown below:



Matthew Hanlon from Wolfe's Lab whose presentation was “CRISPR/Cas Technology: A Therapeutic Approach to FSHD”.

**2021 First
Place
Winners**



Quinn Cunneely from Lien's Lab whose presentation was “Characterization of Gasdermin-D Pores for the Purposes of Identification and Labelling”.

The program closed with keynote speaker Anthony DePass who is a national leader in the area of STEM workforce development through his professional activities that include: Professor of Biology; Principal of DePass Academic Consulting; Co-Founder Career Navadeer, a division of Lifestyle Learning; and Principal Investigator and Co-Director of Understanding Interventions that Broaden Participation in Science Careers.

We look forward to welcoming students back on to our campus in 2022.



Summer Enrichment Program



The SEP is a tuition-free, four-week, residential program for college sophomores and juniors interested in entering the health professions. Participants must be from educationally or economically disadvantaged backgrounds and/or groups underrepresented in biomedical research, biotechnology, and the health professions (BBHP). Housing at Worcester State University (WSU), and daily transportation between WSU and UMass Chan are provided by the program. Known as the Bootcamp to Medical School, the program includes enrichment classes in Physics and English/communication skills. Seminars include the medical school application and admissions process along with financing medical/professional school education. Cultural and Contemporary Health Issues Seminars on biomedical research are also provided. Additionally, the SEP offers participants the opportunity to interact with medical students, scientists, physicians, and other healthcare professionals. Optional weekend observations in the Emergency Department are provided. Participants are required to work in teams, to research a health disparity within an ethnic group residing in Massachusetts. The teams earning the top three scores give PowerPoint presentations of their research projects at the closing ceremony for the program. Upon successful completion of the program, participants are awarded a Certificate of Achievement and a stipend. For more information please visit: <https://www.umassmed.edu/outreach/sep>.



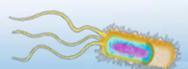
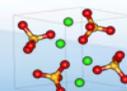
Cultural and Contemporary Health Issues Seminar with Dr. Mark Johnson, Chair, Department of Neurosurgery “Journey to Neurosurgery”



2019 SEP Health Disparities Research Project Winning Team: Daryle Lamonica, Andrea Sheaj, and Dominick Taveras “Prevalence of HIV Amongst the Hispanic/Latino Population Compared to the General Population in Massachusetts”



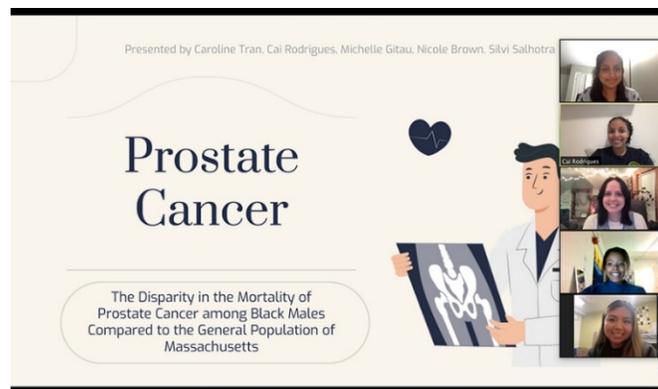
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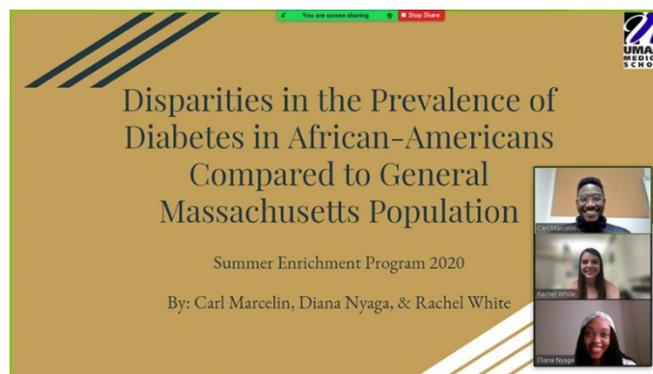
2020 and 2021 Virtual Summer Enrichment Program



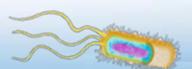
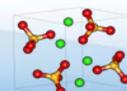
The 2020 and 2021 iterations of the SEP were also held in a virtual format. Books and other materials were mailed to participants a week before the start of the program. The program maintained the academic enrichment classes in Physics and English/communication skills. The students participated in several virtual seminars covering a range of important topics including discussions about the school of medicine application and admissions process, as well as discussions on how to finance medical/professional school education. The Cultural and Contemporary Health Issues Seminars on biomedical research were also expanded. Through these activities, the participants had the opportunity to interact and made connections with medical students, scientists, physicians, and other healthcare professionals despite the absence of in-person interactions.



Participants are required to work virtually in teams, to research a health disparity within an ethnic group residing in Massachusetts. The first placed team for 2021 (above picture) were: Caroline Tran, Cai Rodrigues, Michelle Gitau, Nicole Brown, and Claudia Salhotra. They presented their PowerPoint presentation at the closing program. The 2020 team placed 1st (below) were: Carl Marcelin, Diana Nyaga, and Rachel White.



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High School Health Career Program



The High School Health Careers Program (HSHCP) is a four-week, tuition-free, residential program for Massachusetts high school sophomores and juniors who are from educationally and economically disadvantaged backgrounds and/or groups underrepresented in the biomedical sciences, biotechnology, and health professions. Housing at Worcester State University (WSU), transportation between WSU and UMMS daily, meals, and stipends are provided by the program. Participants are challenged to improve academic and social communication skills. They are also placed in job-shadowing/internship observations in the healthcare and science professions. Participants are provided the opportunity to network with UMass Chan faculty, staffs, students, and other Massachusetts high school students. These experiences allow students with the opportunity to learn more about and envision themselves in BBHP careers. The daily schedule includes:

- Morning Academic Enrichment in: English, Mathematics, Information Technology and Biology/Science
- Afternoon Internship, followed by Cultural and Contemporary Health Issues Seminars conducted by UMass Chan faculty, staff, and medical and graduate students
- Fridays fieldtrips to the: Forensic Science Lab at Mass Bay Community College and Veterinary Science Program at Tufts Cummings School of Veterinary Medicine

Participants are required to work in teams, to research a health disparity within an ethnic group residing in Massachusetts. The teams earning the top three scores are recognized for their accomplishments. Upon successful completion of the program, participants are awarded a Certificate of Achievement and a stipend. For more information please visit:

<https://www.umassmed.edu/outreach/hshcp>.



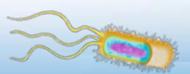
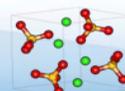
2019 HSHCP group picture during tour to UMMMC Life Flight



2019 HSHCP Health Disparities Research Project Winning Team: Nina Phan, Alejandra Zambrano, and Diego De Souza "Lung Cancer in African American Males Compared to the general Population"



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2020 and 2021 Virtual High School Health Careers Program



2020 Participants



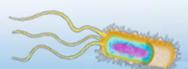
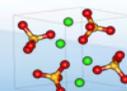
2021 Participants

The 2020 and 2021 HSHCP continued as a four-week virtual program. Books, science supplies, and equipment were mailed to participants one week before the start date so that all students could fully engage in the program. The program offered participants academic enrichments in English, Mathematics, Information Technology and Biology/Science. To compensate for the absence of afternoon shadowing opportunities and Friday field trips, the Cultural and Contemporary Health Issues Seminars were increased to provide more interaction opportunities with UMass Chan faculty, students, and staff. Even in the virtual setting, program participants worked in teams to research a health disparity within an ethnic group residing in Massachusetts. During the closing ceremony, the recognized first, second and third place winning teams gave their PowerPoint presentations to their peers. Three students were selected to offer reflections on their experiences of the program.

The virtual format of the program created some challenges for the students that are common for similar remote activities, including connectivity issues and Zoom fatigue. The intense workload required for the program also made for some long days on Zoom. Despite these challenges, the students were fully engaged, asking questions of the guest speakers. Their health disparities project presentations were excellent, reflecting their ability to work together even in virtual spaces. And their personal reflections offered during the closing ceremony highlighted the ways they had grown and bonded together.



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Partner Program

Massachusetts Life Sciences Center (MLSC) in partnership with the Worcester Pipeline Collaborative. A six-week summer program gaining an introduction to the biomedical research process and basic laboratory techniques.

<https://mailchi.mp/masslifesciences.com/epigendx-provides-internship-opportunities-for-10-years-b2p057mscg?e=102230bff4>

Our summer programs received media coverage through the UMassMedNow website

All three summer programs 2021: <https://www.umassmed.edu/news/news-archives/2021/07/summer-study-research-set-aspiring-health-care-providers-and-scientists-on-path-to-success/>.

All three summer programs 2020: https://www.umassmed.edu/news/news-archives/2020/07/summer-outreach-programs-for-high-achieving-students-delivered-online/?utm_source=UMassMedNow+weekly+07-27-20&utm_campaign=CC-weekly-07-27-20&utm_medium=email

Summer Enrichment Program 2019: <https://www.umassmed.edu/news/news-archives/2019/06/diverse-undergraduates-soak-up-experience-at-summer-enrichment-program/>

High School Health Careers Programs 2019: <https://www.umassmed.edu/news/news-archives/2019/07/high-school-students-pursue-health-career-goals-at-summer-program/>.

Summer Undergraduate Research Program 2019: <https://www.umassmed.edu/news/news-archives/2019/08/summer-research-program-exposes-students-to-a-new-realm-of-lab-experience/>

Program Dates

Summer Enrichment Program: May 29, 2022 – June 24, 2022

Summer Undergraduate Research Program: May 29, 2022 – August 5, 2022

High School Health Careers Program: July 3, 2022 – July 29, 2022

Worcester Pipeline Collaborative: September 2021 – June 2022



Thank You!

One of our major achievements in the past years has been our ability to have such exceptional individuals to serve as selection committee members, teachers, speakers, judges, panelists, lab hosts, small group leaders, volunteers and faithful donors who support our programs. You are greatly appreciated and we thank you for your continuous support!

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