

Summer Undergraduate Research Fest

SURF'S UP!

August 6, 2025

University Center Ballroom and ENG 027
University of Maryland, Baltimore County



UMBC

Hosted by the

**COLLEGE OF NATURAL AND
MATHEMATICAL SCIENCES**

surf.umbc.edu



Participating Programs

The College of Natural and Mathematical Sciences and the Summer Undergraduate Research Fest (SURF) team would like to recognize the support provided by these participating programs that provide research experiences, professional development, and funding for undergraduate researchers during the summer and academic year. These programs, funded by the federal government, private foundations, and the University, provide career-focused research training for undergraduate researchers.

Schedule

8:15 a.m.

Presenter Check-in (University Center Ballroom Lobby)

8:15 - 8:45 a.m.

Poster Set-up (University Center Ballroom) & Continental Breakfast (UC Ballroom Lobby)

9 - 9:15 a.m.

SURF Opening Remarks (Robert and Jane Meyerhoff Building 030)

9:15 - 9:45 a.m.

Lightning Round Talks (Robert and Jane Meyerhoff Building 030)

10 - 10:45 a.m.

Poster Session #1 (University Center Ballroom)

10:45 - 11:30 a.m.

Poster Session #2 (University Center Ballroom)

11:45 a.m.

Closing, Special Recognition of Mentors and Presenters (University Center 312)



PRESENTERS:
surf.umbc.edu/surf-presenters



ABSTRACTS:
surf.umbc.edu/abstracts

Lightning Talks!

The UMBC Beckman Scholars will host the SURF 2025 Lightning Talks. Each selected SURF presenter will have 5 minutes and up to 5 slides to deliver a fast-paced presentation designed to spark conversation and cross-disciplinary collaboration. Six presenters have been selected. Please note that there will be no Q&A following the individual talks.

Baltimore SCIART

sciart.umbc.edu

Beckman Scholars Program

Arnold and Mabel Beckman Foundation

cnms.umbc.edu/beckman-scholars-program-at-umbc

The Center for Women in Technology (CWIT)

orientation.umbc.edu/dawg-days-jumpstart

Dawg Days Jumpstart Summer Bridge

cwit.umbc.edu

HHMI Scholars Program

Howard Hughes Medical Institute

meyerhoff.umbc.edu

Institute of Marine and Environmental Technology (IMET)

imet.usmd.edu

Louis Stokes Alliance for Minority Participation Research Programs

UMBC & University System of Maryland

lsamp.umbc.edu

McNair Scholars Program

U.S. Department of Education TRIO Program

mcnair.umbc.edu

Meyerhoff Scholarship Program

Supported by a network of institutional partners, federal grants, and friends

meyerhoff.umbc.edu

National Institute on Drug Abuse

irp.nida.nih.gov

NSF Research Experience & Mentoring

betenbaugh.jhu.edu/REM.html

NSF-REU in Online Interdisciplinary Big Data Analytics in Science and Engineering

bigdatareu.umbc.edu

NSF-REU in Smart Computing and Communications

reu-scc.umbc.edu

Translational Life Science Technology

shadygrove.umbc.edu/program/translational-life-science-technology

Message from the Dean



Welcome to the 2025 UMBC Summer Undergraduate Research Fest (SURF)! Hosted annually by the College of Natural and Mathematical Sciences, SURF is a signature event that showcases the excellence of UMBC's summer STEM community. Here, students not only engage in high-quality STEM coursework, but also gain hands-on research and applied learning experiences, all while contributing to a vibrant scholarly community. This year, we are excited to welcome students from our existing community college partnerships, who have been invited to present their work at SURF. We are thrilled to have them join us for SURF 2025!

Throughout the summer, our students have followed in the footsteps of distinguished scientists and innovators—practicing, applying, and advancing the skills of research. Some projects were independently arranged, while many were made possible through competitive grants and funding dedicated to supporting undergraduate research.

We are proud of all that our students have accomplished. They return from this experience more skilled, more confident, and more prepared to tackle scientific challenges. Their discoveries and dedication have added to the growing body of scientific knowledge—empowering us with greater understanding, insight, and the potential for innovation.

This progress would not be possible without the exceptional mentorship, support, and encouragement provided by our faculty, staff, and research partners across campus. Thank you for your dedication to fostering the next generation of scholars.

We invite you to explore the outstanding work being presented today and to engage with these remarkable students.

A handwritten signature in black ink, reading "Bill LaCourse". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Bill LaCourse, Ph.D.
Dean and Professor of Chemistry
College of Natural and Mathematical Sciences



Thank you to all of the SURF 2025 mentors:

Tulay Adali
*Computer Sciences &
Electrical Engineering*

Janet Alexander
*University of Maryland
School of Medicine*

Gretchen Alicea
Biological Sciences

Jorge Almodovar
*Chemical, Biochemical, &
Environmental
Engineering*

Basnyat Bipendra
*Computer Sciences &
Electrical Engineering*

Joseph Bennett
Chemistry & Biochemistry

Charles Bieberich
Biological Sciences

Lee Blaney
*Chemical, Biochemical, &
Environmental
Engineering*

Rachel Brewster
Biological Sciences

Earl Brooks
English

Campo Cheryl
*Howard Community
College, Learning
Engagement*

Ozgur Capraz
*Chemical, Biochemical, &
Environmental
Engineering*

Cheah Charissa
Psychology

Chengpeng Chen
Chemistry & Biochemistry

Fow-Sen Choa
*Computer Sciences &
Electrical Engineering*

Janelle Clark
Mechanical Engineering

Lorraine Clarke
*Prince Georges
Community College,
Natural Sciences*

Marie-Christine Daniel
Chemistry & Biochemistry

Kenny Diazeguigure
*Howard Community
College, Physics*

Diana Elizondo
Biological Sciences

Manas Gaur
*Computer Sciences &
Electrical Engineering*

Matthias Gobbert
Mathematics & Statistics

Karrie Godwin
Psychology

Enis Golaszewski
*Computer Sciences &
Electrical Engineering*

Lydia Grmai
*Yale University School of
Medicine
Department of
Comparative Medicine*

Zahid Hasan
*Computer Sciences &
Electrical Engineering*

Lynne Heighton
*Prince Georges
Community College,
Biological Sciences*

Christopher Hennigan
*Chemical, Biochemical, &
Environmental
Engineering*

Michael Hunt
*Office of Academic
Opportunity Programs*

Riadul Islam
*Computer Sciences &
Electrical Engineering*

Corine Jackman Burden
*Chemical, Biochemical, &
Environmental
Engineering*

Lisa Kelly
Chemistry & Biochemistry

Deepak Koirala
Chemistry & Biochemistry

Tara LeGates
Biological Sciences

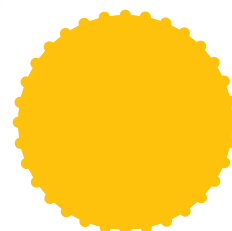
Jeff Leips
Biological Sciences

Cheng-Yu Li
Biological Sciences

Dong Li
*Computer Sciences &
Electrical Engineering*

Weihong Lin
Biological Sciences

Da-Ting Lin
*National Institute on Drug
Abuse*





Deepa Madan
Mechanical Engineering

Mark Marten
*Chemical, Biochemical, &
Environmental
Engineering*

Stephen Miller
Biological Sciences

Molly Mollica
Mechanical Engineering

Janie Moore
*Texas A&M University,
Agricultural*

Wen Nellis
*Frederick Community
College*

Charles Nicholas
*Computer Sciences &
Electrical Engineering*

Kevin Omland
Biological Sciences

Achuth Padmanabhan
Biological Sciences

Paria Parto
*Prince Georges
Community College,
Biological Sciences*

Marcin Ptaszek
Chemistry & Biochemistry

Anuradha Ravi
Information Systems

Zeev Rosenzweig
Chemistry & Biochemistry

Rachel Saidi
*Montgomery Community
College*

Francisco Sánchez-Rivera
*Massachusetts Institute of
Technology*
Katherine Seley-Radtke
Chemistry & Biochemistry

Herana Seneviratne
Chemistry & Biochemistry

Ergun Simsek
*Computer Sciences &
Electrical Engineering*

Venkatesh Srinivasan
*Center for Advanced
Sensor Technology*

Michelle Starz-Gaiano
Biological Sciences

LaToya Staten
Fearless Institute

Michael Summers
Chemistry & Biochemistry

Laurie Sutton
Biological Sciences

Caitlin Varisco
*College of Natural &
Mathematical Sciences*

Ramana Kumar Vinjamuri
*Computer Sciences &
Electrical Engineering*

Paris Von Lockette
Mechanical Engineering

Fernando Vonhoff
Biological Sciences

Nykia Walker
Biological Sciences

Malik Warren
BlueMeta Technologies

Rebecca Williams
*Computer Sciences &
Electrical Engineering*

Yonathan Zohar
*Institute of Marine &
Environmental Technology*

**To see the digital
booklet, full list of
abstracts, and
schedule, please
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Special Thanks

The Annual Summer Undergraduate Research Fest (SURF) hosted by the College of Natural and Mathematical Sciences (CNMS) highlights the research conducted by undergraduates at UMBC over the summer. SURF enriches the research experience of more than 100 undergraduate researchers each summer, setting them on a path to become researchers and leaders in their chosen fields. SURF also exposes the broader UMBC community to the remarkable scientific contributions of the participating undergraduates.

The college would like to extend a special thank you to the Meyerhoff Scholars Program for their support of SURF 2024. We would also like to extend our appreciation to the federal and state agencies and private institutions and foundations that provide funding to UMBC. Their support creates research opportunities for students matriculating at UMBC and other institutions to conduct research at UMBC and gain valuable experience and mentoring from our outstanding faculty.

UMBC welcomes support for SURF from our alumni and friends. If you or your organization is interested in making a gift to support the program, please visit give.umbc.edu and choose College of Natural and Mathematical Sciences from the dropdown menu. If you would like to talk to someone about making a gift, please reach out to Jocelyn Kehl at jjkehl@umbc.edu. Thank you!



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