UMassAmherst | Integrated Concentration in STEM—iCons

10th Annual iCons Senior Exposition

May 18, 2023 | 3:30 - 6:00 pm
Integrative Learning Center (ILC) - UMass Amherst

"Planet X" Cohort at Orientation in 2019

Senior Presentations | 3:30 - 4:30 pm
ILC S110 and S120

Honorary Lectures and Awards | 4:30 - 6:00 pm
ILC S131

With congratulatory comments from Richard Mahoney '55, Founder of iCons

iCons

Senior Presentations

Session A
3:30 - 4:00 pm

Megan Alves | Microbiology and Kinesiology
The Role of Parent Knowledge on Obesity-Related Health Behaviors in Preschool Age Children
Advisor: Sofiya Alhassan, Kinesiology

Nicole Berglund | Biochemistry & Molecular Biology and Microbiology
Persistent Chlamydia pneumoniae Infection Treated with Clofazimine and Taurine
Advisor: Wilmore Webley, Microbiology

Nancy Blankson | Biology
Patient-Clinician Racial or Ethnic Concordance in Maternity Care in the United States
Advisor: Laura Attanasio, Public Health Sciences

Samantha Chasalow Environmental Science
Tracking Scope 3 Emissions from Major Corporations
Advisor: Gregor Semieniuk, Economics

Antonio Escallon | Environmental Science and Computer Science
Algorithmic Design for Power Trading and The Impact of Probabilistic Data Using Game Theory
Advisor: Deborah Henson, Environmental Science

Ariel Fine | Industrial Engineering
Campus EV Charging Optimization
Advisor: Stephen Fernandez, College of Engineering, and Bernd Schleman, Mechanical and Industrial Engineering

Audrey Gabriel | Microbiology and Public Health Sciences
Measuring PFOS in Breast Milk with Analytical Chemistry
Advisor: Martin Hunter, Biomedical Engineering

Elizabeth Geldart | Biomedical Engineering
Eye-Controlled Wheelchair Proof of Concept
Advisor: Martin Hunter, Biomedical Engineering

Floyd Greenwood | Environmental Science
An Analysis of Open Space and its Influence on Suburban Residential Home Value
Advisor: John Mullin, Landscape Architecture and Regional Planning

Ravid Inbar | Biochemistry & Molecular Biology and Psychology
Effect of Removing Hub Domain on Human CaMKII Isoforms Sensitivity to Calcium/Calmodulin
Advisor: Margaret Stratton, Biochemistry & Molecular Biology

Rishabh Jain | Physics and Astronomy
Understanding Dynamics of Lipid Vesicles Exposed to Polycations
Advisor: Anthony Dinsmore, Physics

Claire Kitzmiller| Microbiology
Investigating the presence of Phosphatidylinositol mannosides in the Mycobacterial Cell Envelope
Advisor: Yasu Morita, Microbiology

Phoebe Lasic-Ellis| BDIC
MicrobeBlaster: An Antifouling Approach to Preventing Hospital-Acquired Infections
Advisor: Wilmore Webley, Microbiology

Niamh Lyons | Public Health Sciences
How Poverty Leads to Health Disparities Due to Flaws in the U.S. Healthcare System
Advisor: Kathleen Brown-Pérez, Anthropology

Hayley McIsaac | Biochemistry & Molecular Biology and Economics
Evaluating the Properties, Cytotoxicity, and Antifouling Capabilities of Polymer Zwitterion/Polydopamine Composite Films
Advisor: Todd Emrick, Polymer Science and Engineering

Ryanne McKenna | Industrial Engineering
Evaluating the Associations Between the Contraceptive Pill & Depression
Advisor: Chaitra Gopalappa, Mechanical & Industrial Engineering

Hong Nguyen | Chemical Engineering
Biomarker approach for earlier detection of ovarian cance
Advisor: Dandan Xu, Chemical Engineering

Thuy-Tam Vo | Public Health Sciences and Economics
Effects of Perinatal Exposure to Butyl Benzyl Phthalate on the Composition of the Stroma of the Mouse Mammary Gland in Adulthood
Advisor: Laura Vandenberg, Environmental Health Sciences

Thank you to all of our students, families, friends, research advisors, colleagues, and allies.

Session B
4:00 - 4:30 pm

Brady Bell | Civil Engineering
Engineering Education: An Evolution, a Revolution
Advisor: Stephen Fernandez, College of Engineering

Narmene Bensaber | Biochemistry & Molecular Biology
The molecular interaction between RAP and the LRP1 receptor and its implications in Alzheimer's Disease
Advisor: Erica Light, iCons

Beverly Brion | Mathematics & Statisticsand Psychology
Mass Media and Public Health: Determining the Impact the Media Has On the Knowledge Of Alzheimer's Disease
Advisor: Erica Scharrer, Communication

Emma Cady | Environmental Science
Community Driven Solar Development
Advisor: Zara Dowling, Environmental Conservation, River Strong, Clean Energy Extension, and Erica Light, iCons

Yi Ding | Computer Science
Domestic Violence Website User Research and Design
Advisor: Andrew Lan , Computer Science, and Erica Light, iCons

Lauren Gustafson | Earth Systems
Investigating Variability in Primary Productivity and Algal Community Structure in Lake Malawi During Marine Isotope Stage 11 Through Marine Isotope Stage 9
Advisor: Isla Castañeda, Earth, Geographic and Climate Science

Maya Iglesias | Biochemistry & Molecular Biology and Mathematics
The molecular interaction between RAP and the LRP1 receptor and its implications in Alzheimer's Disease
Advisor: Erica Light, iCons

Mehak Kang | Biochemistry & Molecular Biology and Psychology
Identification of neural proliferative zones in juveniles of the nudibranch mollusc Berghia stephanieae
Advisor: Paul Katz, Biology

Shakendine Kelkboom | Biology
Hair Phenotype Mechanics x Photogrammetry
Advisor: Alfred Crosby, Polymer Science and Engineering

Emily Laus| Physics
Solar-Powered Wastewater Treatment: Investigating the Use of Oxygenic Photogranules in Wastewater Treatment Through Computational Fluid Dynamics, Experimental Comparison, and Statistical Analysis
Advisor: David Schmidt, Mechanical & Industrial Engineering

Kathryne Lovell | Civil Engineering
Engineering Education: a Revolution, and Evolution
Advisor: Stephen Fernandez, College of Engineering

Madline Mulkern | Psychology and Anthropology
Avoidance and Anxiety: A Fearful Cycle
Advisor: Carolyn Davies, Psychology

Liana Munoz | Biology and Nutrition
Investigating the Correlation between Age, Stressor Index, and Heart Rate Variability in Women Ages 35+
Advisor: Kirby Deater-Deckard, Psychological & Brain Sciences

Liam Murphy | Chemistry and Mathematics
Ferroptosis Cell Death Probes for Better Cancer Therapies
Advisor: Rachid Skouta, Chemistry

Marley Norton | Biochemistry & Molecular Biology and German
An Intersectional Approach to Identity: The Influence of Queer Diversity in STEM Research
Advisor: Anna Marie LaChance, Chemical Engineering

Kelly Simpson | Biochemistry & Molecular Biology
Understanding the Role of RALFs in Plant Reproduction
Advisor: Alice Cheung, Biochemistry & Molecular Biology

Dasol Song | Biology
The molecular interaction between RAP and the LRP1 receptor and its implications in Alzheimer's Disease
Advisor: Erica Light, iCons

Ariel Waldman | Environmental Science and Resource Economics
Economic Analysis of Adding Dual-Use Solar to Deerfield, MA
Advisor: Christine Crago, Resource Economics

Annie Zhu | Biology and Sociology
Examining How Mammals Reconfigure their Neural Circuitry Following Traumatic Brain Injury
Advisor: Sarah Pallas, Biology

Honorary Lectures

Bellis Min | Public Health Sciences
The glutathione response to PFOS exposures in the embryonic pancreas and liver is modulated by Nrf2a in zebrafish
Advisor: Alicia Timme-Laragy, Environmental Health Sciences

Audrey Gabriel | Microbiology and Public Health Sciences
Beyond the Lab Bench

Callista Macpherson | Natural Resource Conservation
Examining Fish Assemblage Response to Small Dam Removals
Advisor: Allison Roy, Environmental Conservation

Natalie Getsey | Biology
The Challenge of Bacterial Keratitis: A Novel Treatment Approach
Advisor: Margaret Riley, Biology

Awards

Mahoney Alumni Award

Sean McGrath '16 - Physics
LaunchPad | Founder and Chief Technology Officer

Crowley-Nowick Award for iCons Student Leadership and Philanthropy

Jack Minella '24 - Environmental Science
Sriya Munugoti '25 - Biochemistry & Molecular Biology

Thank you to the following for their generous support of the iCons Program

Mahoney Family Sponsorship
Chleck Family Foundation
Edward Marram '59, '61G and Karen Carpenter

iCons Industry Consortium

Impact Nano | Lumanity | Waters Corporation

Western MA Economic Development Council

iCons Faculty and Admissions Teams
(past and present*)

iCons 1
Barry Braun, Kinesiology
Wei Fan, Chemical Engineering*
Justin Fermann, Chemistry*
Lena Fletcher, Environmental Conservation
Christiane Healey, Biology
Sue Leschine, Veterinary & Animal Sciences
Steve Petsch, Geosciences
Jared Starr, iCons
Shubha Tewari, Physics
Paul Wolff, Environmental Conservation*

iCons 2
Scott Auerbach, Chemistry and Chemical Engineering
Shannon Compton, Microbiology
Scott Garman, Biochemistry and Molecular Biology
Allison Hunter, College of Education*
Christine McGrail, College of Education*
Stephanie Purington, College of Education
Laurie Simmons, Sustainability Science
Jared Starr, iCons*
Dhandapani Venkataraman, Chemistry
Sarah Wilson, Chemical Engineering
Bob Zimmerman, Biochemistry and Molecular Biology

iCons 3
Jason Breves, Biology
William Conner, Chemical Engineering
Irene Dujovne, Physics
Shire Epstein, Director of Campus Makerspaces*
Sam Hazen, Biology
Martin Hunter, Biomedical Engineering*
Joohyun Lee, Biology*
Erica Light, iCons*
Ksenia Russka, Environmental Conservation
Emily Smith, Chemistry
Nick Tooker, Civil and Environmental Engineering*
Mark Tuominen, Physics

iCons 4
Scott Auerbach, Chemistry and Chemical Engineering*
Justin Fermann, Chemistry
Courtney Lannert, Physics
Om Parkash, Stockbridge School
Dhandapani Venkataraman, Chemistry

iCons Admissions Committee
Jessica Capri '15*
Dominique "Kiki" Carey '19
Tony Dinsmore, Physics
Justin Fermann, Chemistry
Lily Fitzgerald '14
Audrey Gabriel '23*
Judith Glaven, Harvard Medical School
Maya Iglesias '23*
Ravid Inbar '23*
Michael Lavine, Mathematics & Statistics
Jay Leonard, Isenberg School of Management*
Sue Leschine, Veterinary & Animal Sciences
Jacob Lytle '16
Sean McGrath '16
Aurelia Reynolds '21*
Hansen Tjo '21*
Nick Tooker, Civil and Environmental Engineering
Janice Telfer, Veterinary & Animal Sciences*
Dhandapani Venkataraman, Chemistry
Carter Wall, FirstLight Power
Wilmore Webley, Microbiology
Jack Wileden, Computer Science
Gordon Wyse, Biology