

Chemical and Biological Engineering

FROM THE CHAIR / Spring 2024

Dear colleagues and friends,

I write this message on a beautiful spring day in Evanston, and I'm very happy to highlight several of the exciting directions that the department is currently taking.

Design has long been a cornerstone of engineering education and research in our department. This newsletter features stories about how Professor **Sam Kriegman** uses artificial intelligence and machine learning to revolutionize the design of soft- and bio-based robots, as well as Professor **Randall Snurr's** research into designing new functional materials. In both cases, the potential design space is enormous and new tools will help make design decisions.

Our researchers and students are also passionate about human and global health. New work from Professor **Josh Leonard** is supporting the development of new drug delivery systems.

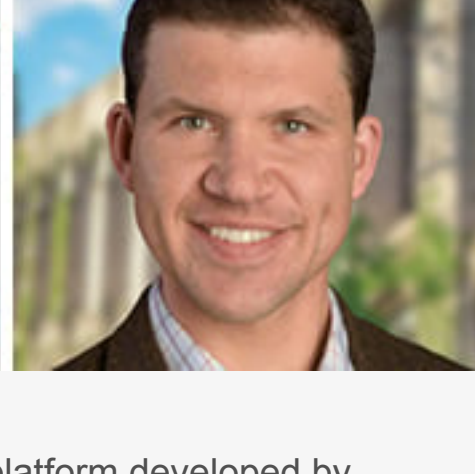
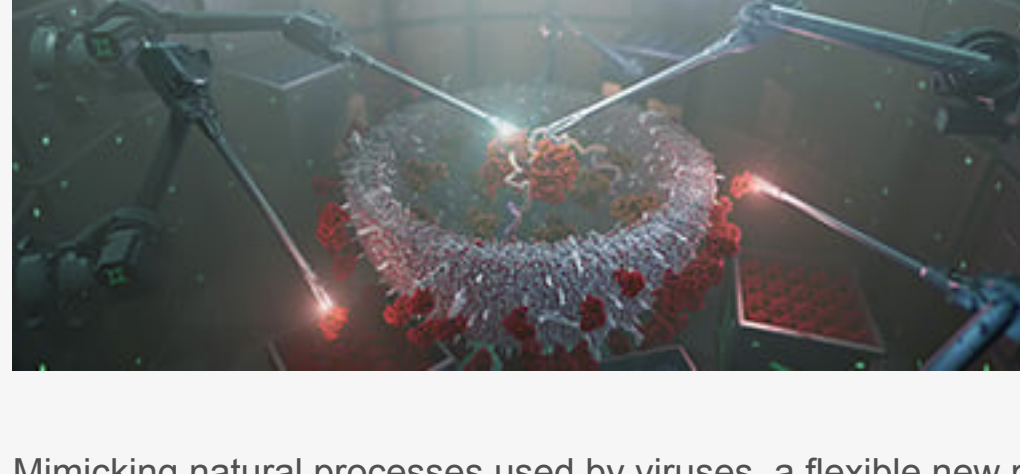
Sustainability is another key driver within our research and education. In a profile of her work, Professor **Linda Broadbelt** discusses how she works to design more sustainable and recyclable polymers. Professor **Jennifer Dunn** led a team of students to Chile to develop a "holistic perspective that intersected the natural, cultural, social, and built environments" on the production of minerals critical to the energy revolution. Jennifer is very much at the heart of sustainability activities at Northwestern, spearheading initiatives related to hydrogen, minerals, and decarbonization.

Finally, don't forget to scroll all the way down and read about some of the recognition won by department members for their excellent teaching, research, and service.



Justin Notestein
Professor and Chair
Department of Chemical and Biological Engineering
McCormick School of Engineering

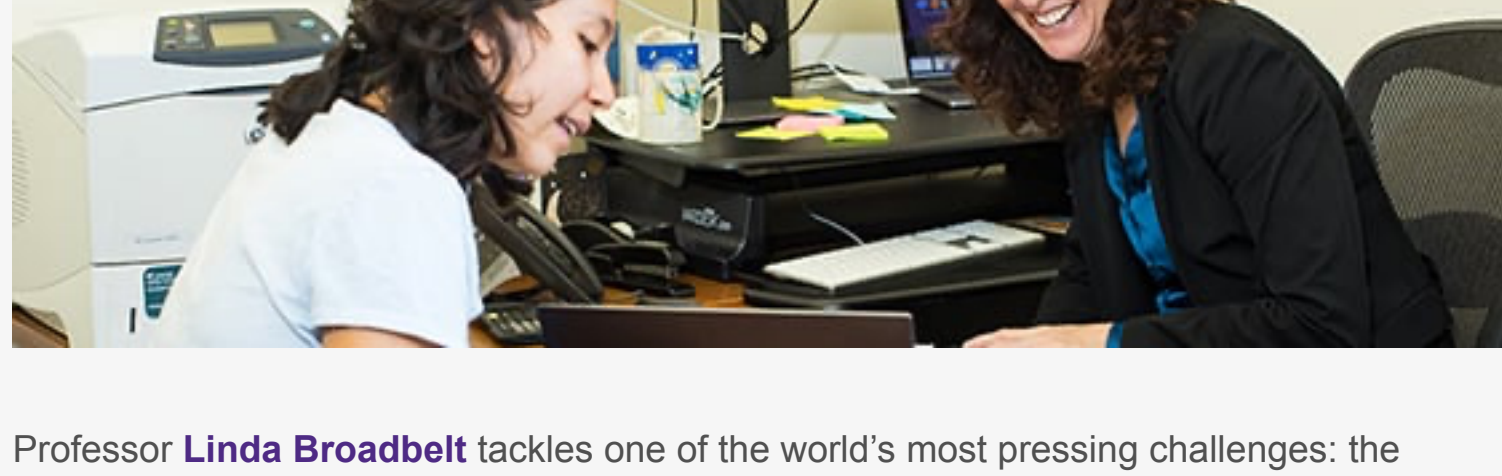
New Platform Solves Key Problems in Targeted Drug Delivery



Mimicking natural processes used by viruses, a flexible new platform developed by Professor **Josh Leonard** binds to target cells and effectively transfers biological treatments inside.

[Read more »](#)

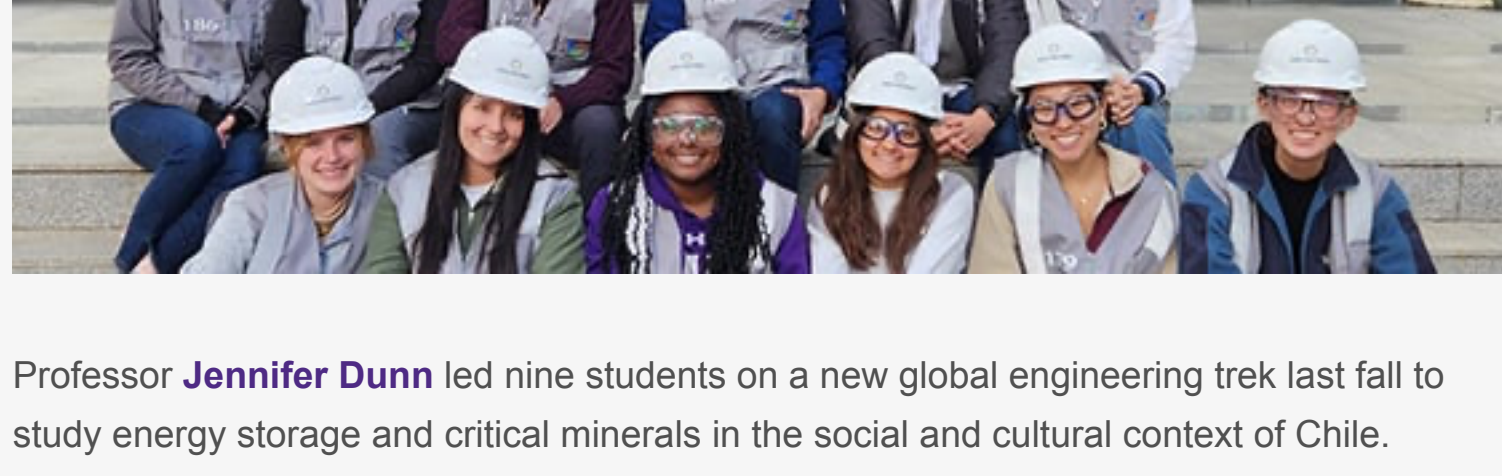
Seeking Sustainable Solutions



Professor **Linda Broadbelt** tackles one of the world's most pressing challenges: the global plastics crisis.

[Read more »](#)

Trek to Chile Widens Northwestern Students' Perspective



Professor **Jennifer Dunn** led nine students on a new global engineering trek last fall to study energy storage and critical minerals in the social and cultural context of Chile.

[Read more »](#)

Can We Really Discover New Nanoporous Materials on the Computer?



In a review article, Professor **Randall Snurr** surveyed the role of predictive computational modeling for the discovery of metal organic framework adsorbents for separation and storage of energy-relevant molecules such as hydrogen and carbon dioxide.

[Read more »](#)

Instant Evolution: AI Designs New Robot from Scratch in Seconds



The artificial intelligence developed by Professor **Sam Kriegman** is the first AI capable of intelligently designing new robots that work in the real world. **VIDEO**

[Read more »](#)

Megan Greenfield Urges Graduates to Keep Growing, Give Back, and Aim High



Greenfield (PhD '09) spoke at the December PhD Hooding and Master's Recognition Ceremony, reciting how three principles have guided her career. **VIDEO**

[Read more »](#)

DEPARTMENT NEWS

Professor **Jennifer Dunn** **wrote an essay** in the first edition of *Nature Chemical Engineering*. Dunn is also **leading Northwestern's involvement** in the Midwest Alliance for Clean Hydrogen, and the **Sustainable, Resilient, Responsible Global Minerals Supply Chain collaboration**.

Professor **Jeffrey Lopez** earned **a prestigious NSF CAREER Award**.

Professor **Richard Lueptow** was **elected a Fellow** of the American Institute of Chemical Engineers.

Professor **Chad Mirkin** was **named a 2024 Guggenheim Fellow**.

Professor **Linsey Seitz** won the American Chemical Society Division of Catalysis Science and Technology's **Early Career Award**, and **received a grant** from the Triens Institute for Sustainability and Energy.

Adjunct Professor **Abigail Stringer** won a 2023 **Cole-Higgins Award**.

Professor **Dayne Swearer** received a **2023 Packard Fellowship**.

FACTS & FIGURES

4

Charles Deering McCormick Professors of Teaching Excellence

5

Members of the National Academy of Engineering

100+

PhD graduates and postdocs who took academic positions in past 20 years



[Make a Gift](#) [Update Contact Info](#)