



# SCIENCE & ENGINEERING RESEARCH ACADEMY

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2018 CAPSTONE SEMINAR PROCEEDINGS  
July 20, 2018

UC SANTA BARBARA • OFFICE OF SUMMER SESSIONS

## SERA RESEARCH CAPSTONE SEMINAR PROGRAM

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### 1001 Engineering Sciences Building

- 8:55 AM**      **Opening Remarks**  
Lina Kim, Director of Pre-College Programs
- 9:00 AM**      **Properties of Plastic Solar Cells**  
Blair Barineau, Benjamin Cooper, Haochen (Angie) Zhao, Jifan (Jessica) Zhou
- 9:20 AM**      **The Effect of Abiotic Habitat Characteristics on Tide-Pool Biodiversity**  
Charlene Collado, Jacqueline Heras Mejia, Gabriella Manzo, Soledad Muhammad, Jennifer Orozco, Taiz Razo
- 9:40 AM**      **Seaweed-Derived Bioplastics**  
Jonathan Chan, Samuel Cho, Alexandra Huynh, Brenda Zhao
- 10:00 AM**     **Anti-Predator Behavior Varies Between Different-Sized Bird Species**  
Avi Sharma, Jai Sharma, Penghuan Xu
- 10:20 AM**     **Refreshment Break**
- 10:40 AM**     **Lyotropic Liquid Crystals for Display and Lighting Applications**  
Eric Jin , Christopher Kayda, Siddharth Nag, John Pantoja
- 11:00 AM**     **Human Disturbance Drives Animal Population Size and Distribution**  
Devin Guilbeau, Zachary Koong, Alexi Mendez Silva, Thuyvi Nguyen
- 11:20 AM**     **Flexible Sensors Patterned by Photolithography**  
Colton Baldridge, Yihong Jian, Matthew Werneken, Yixin Zou
- 11:40 AM**     **Towards a Greener Future: Identifying a Potential Biomechanism for CO<sub>2</sub> Reduction**  
Katrina Amistad, Sophie Eng
- 12:00 PM**     **Lunch Break**  
On your own
- 1:40 PM**      **Soft Actuators for Soft Robotics**  
Sharil Maredia, Rebecca McKinny, Caetano Perez-Marchant, Ryan Yang
- 2:00 PM**      **Calling Gut Reinforcements: Comparing the Effects of *L. casei* and *S. boulardii* on the Growth of *E. coli***  
Jaekob Harper, Andres Parra, Sloka Suresh, Wenji (Amber) Zheng
- 2:20 PM**      **Synthesis of a Biodegradable Plastic Alternative**  
Joyce Chen, Varenaya Chilukuri, Alan Cooper, Anthony O'Dea
- 2:40 PM**      **Outbreak: Lettuce, *E. coli* Growth, and Antibiotics Resistance**  
Katelyn King, Kevin Tan, Macey Turbow, Zhanting (Tina) Zhao
- 3:00 PM**      **SERA End of Program Reception**  
Engineering Sciences Building Courtyard



## SERA RESEARCH CAPSTONE SEMINAR PROGRAM

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### 6020 Humanities & Social Sciences Building

- 8:55 AM**      **Opening Remarks**  
Lina Kim, Director of Pre-College Programs
- 9:00 AM**      **The Countdown to Midnight: Stopping the Rise of the North Korean Nuclear Threat**  
Jacob Gardner, Renee Ge, Dariya Lobko, Sullivan Maley
- 9:20 AM**      **Something in the Water: Effects of Natural Disasters on Water Quality**  
Megan Cunnison, Mohammad Igbaria, Emily Kang, Zoe Petroff
- 9:40 AM**      **The Fall of the Caliphate: The Economic Impact of ISIS on the Regions of Iraq and the Levant Since 2006**  
Rishika Gogineni, Axel Mora, Savannah Natividad, Sanjana Sharma
- 10:00 AM**      **Insane in the Membrane: Effects of a Neurotoxin on *Eisenia Fetida* Gut Bacteria**  
June Bernstein, Samarth Kadaba, Vincent Leong, Angela Zhan
- 10:20 AM**      **Refreshment Break**
- 10:40 AM**      **Rising Tensions, Rising Temperatures: Changing India's Climate Policy & Dependency on Coal**  
Benjamin Doolan, Victoria Miller, Vela Rajesh, Isabel Zhou
- 11:00 AM**      **Migration and Transplants: Implications of *E. coli* Growth in High-Saline Environments**  
Catherine Aitken, Tristan Huang, Ervin Williams Jr., Sasha Xu
- 11:20 AM**      **The US-China Trade War: Understanding North Korea's Role**  
Alejandro Cordova, Miranda Fenton, Angela Li, Melissa Valencia
- 11:40 AM**      **Heating Up: Temperature, Environmental Microbes, and Climate Change**  
Chanjun Ju, Eric Primack, Kelli Sakaguchi, Yeongseo Son
- 12:00 PM**      **Lunch Break**  
On your own
- 1:40 PM**      **2000 to 2018: A Comparison of the Foremost Terrorist Organizations, Al Qaeda and ISIS**  
Laura Bocek, Jacob Donohoe, Rachel Phillips, Michel Ruiz
- 2:00 PM**      **Patch Size and Habitat Quality Determine Population Size of Intertidal Invertebrates**  
Abigail Brown, Paige Dawson, Sabrina Fojut, Jessica Pelonis, Jade Wong
- 2:20 PM**      **The Struggle for Peace: Foreign Involvement in the 2014 Yemeni Civil War**  
Anaily Acosta, Kasra Arjomand, Marissa English, Rainsong Jocas
- 2:40 PM**      **Comparing Methods for Estimating Leopard Shark Population Size at Coal Oil Point Reserve**  
Flynn Cooper, Stephen Grant, Aisha Rashid
- 3:00 PM**      **SERA End of Program Reception**  
Engineering Sciences Building Courtyard