

## **Biomedical Engineering**

### **Salisbury Labs Kinnicutt Hall Room 115**

**9:05am**

#### **AquaTherm: Working Towards Core Body Temperature Regulation in Surgery**

Amin Badmos, Brett Marelli, Jeremiah Morgan,  
Kathryn Mulligan, Adrianna Niles  
Advisors: Songbai Ji, Elizabeth Ryder

**9:25am**

#### **Sensor Development for Syncope Prediction Device**

Mila Mejia  
Advisors: Yuxiang Liu, Yihao Zheng

**9:45am**

#### **Wearable Sensor for Dairy Animals**

Lily Brenner, Thomas Cox, Jayden Hart, Serena Tura  
Advisor: Diana Alatalo

**10:05am**

#### **Moving through Life with Uterine Fibroids: Insights from In Vitro Modeling of Sex Hormone Exposure on Fibroid and Myometrial Cells**

Arthur Clark, Margaret Krawitz, Ainsley Poole, Alina  
Potashinsky  
Advisor: Catherine Whittington

**10:25am**

#### **Developing AI Algorithms for Ultrasound Diagnostics**

Jennifer Chaves, John Peabody, Lauren Simonian  
Advisor: Brenton Faber

**10:55am**

#### **A Resistance-Based Colonoscopy Probe for Real- Time Polyp Analysis**

Jamie Baines, Kyla Fu, Jessica Vo, Laurel Whitley  
Advisors: Sakthikumar Ambady, Ahmet Sabuncu

**11:15am**

#### **Shear-Induced Deformation and Drug Effects on Triple-Negative Breast Cancer Cells: Biomechanical Properties and Cytoskeletal Structure**

Yasaman Ganjineh, Delaney Lippert, Eleni Xhupi  
Advisor: John Obayemi

**11:35am**

#### **Pawsthetics: Reimagining Canine Prosthetics for a More Natural Gait**

Emma Gatti, Ella LaFortune, Ryan Mulcahy  
Advisor: Diana Alatalo

**11:55am**

#### **Tremor Reduction Device Using Vibrational Stimulus**

Elizabeth Bowman, Devin Kachadoorian, Brendan  
May  
Advisor: Karen Troy

### **Salisbury Labs Room 104**

**9:05am**

#### **Design of a Wireless EMG/ECG Device with Applications in Myoelectric Prostheses Control**

Emma Barnes, Madison Boutin, Kimberly Huang,  
Anastasiia Likhanova  
Advisors: Taimoor Afzal, Ted Clancy

**9:25am**

#### **Developing a Papillary Muscle Adjustor for Atrioventricular Valve Simulators**

Lily Beals, Mary Pecoraro, Samuel Thai  
Advisor: Zhenglun "Alan" Wei

**9:45am**

#### **A 3D Stretch Cell Mechanoculture Device**

Alyssa Carta, John McCarthy, Tanner Ross, Emma  
VanBeek, Eric Whitty  
Advisor: Kristen Billiar

**10:05am**

**Free Flex: Cervical Spine Protection for Post-Traumatic Injuries**

Jeremy Allen, Madeline Healey, Paige Sommers, Sroka (Haley) Sroka

Advisors: Brenton Faber, Karen Troy

**10:25am**

**Antimicrobial-Loaded Bacterial Cellulose for Chronic Wound Applications**

Isabella DeFronzo, Kelly Kane, Jewel Pauly, Joana Ripa

Advisor: Jeannine Coburn

**10:55am**

**Arm Simulator for Mechanistic Study of Blood Pressure Measurement**

Alyson Crawford, Ani Ladd, Isabella St. Angelo, Alopa Waje, Dhespina Zhidro

Advisor: Yihao Zheng

**11:15am**

**Cardiomyocyte Development through Substrate Design**

Danielle Cook, Benjamin Nye, Drema Uttecht, Lisa Vickery

Advisor: Sakthikumar Ambady

**11:35am**

**Characterization of Single-Cell Anisotropy via Indentation and F-Actin Visualization**

Owen Beaver

Advisor: Kristen Billiar

**Salisbury Labs Room 105**

**9:05am**

**Precision 3D Mapping of Cardiac Vasculature using Intracardiac Robotic Catheter Steering**

Robert Gunduz, Hannah Peloquin, Amanda Shea, Olivia Vogel

Advisor: Haichong “Kai” Zhang

**9:25am**

**Development of Optical Light System for Photothermal Conversion and Light Induced Drug Release by MXene Nanomaterials**

Priyal Anand, Molly Busby, Shaylie Lagasse, Isaac Levine

Advisor: Jeannine Coburn

**9:45am**

**Investigating Endothelial Responses to Tissue Under In-Vitro Flow: System Development for the Preclinical Evaluation of Draper’s LEAP Valve**

Fatimah Daffaie, Emma DeMartino, Adeline Fede

Advisors: Kristen Billiar, Corin Williams (Draper)

**10:05am**

**Soft Substrates, Small Molecules: Exploring Stem Cell Differentiation**

Jillian Burns, Han Chiem, Hiba Khan, Gabrielle Van Kammen, Udaya Rattan

Advisor: Sakthikumar Ambady

**10:25am**

**Graphene-PDMS Nanocomposite Materials: Influence of Mechanical and Structural Properties on Breast Cell-Surface Interactions**

Andrew Cochran, Alejandro Clermont-Delgado, Matthew McLellan, Kayla Vega

Advisor: John Obayemi

**10:55am**

**A Therapeutic Analysis of a Ligament Regeneration System**

Cassidy Choquette, Katelyn Lunny, Emma Record, Jenna Young

Advisors: George Pins, Karen Troy, Dr. David Magit (BIDMC)

**11:15am**

**DermaMend™: A Wound Healing Hydrogel Patch from Adipose Tissue-Derived ECM**

Ryan Forcina, Veronika Gorski, Niamh Grehan, Lauren McAdams

Advisor: Sakthikumar Ambady

**11:35am**

**Development of a Temperature Regulating Bra  
Insert for Lactational Assistance**

Daniel Boutin, Brynne MacWilliams, Noah Scott,  
Taryn Stevens, Michael Tsillas

Advisors: Diana Alatalo, Yihao Zheng

**Salisbury Labs Room 305**

**9:05am**

***Artemisia sp.*, Artemisinin, and Artemisinin  
Derivative Drugs Against Fibrosis Using 3-D  
Models**

Sophia Lally, Isha Medasani, Emiliano Sola

Advisor: Pamela Weathers

**9:25am**

**An *In Vitro* Model to Mimic Altered Molecular  
Transport in Uterine Myometrium**

Lillian Gallinoto, Ava Mattimore, Michelle Miller

Advisor: Catherine Whittington

**9:45am**

**Characterization of LeaVS Perfusion for Scaffold  
Vascularization**

Aaron Lowy, Olivia Thibaudeau, Suzan Unver

Advisor: George Pins, Yonghui Ding

**10:05am**

**The Design and Development of an Oxygen  
Concentrator for Neonates in Low-Income  
Countries**

Mary Lombardi, Emily Narouz, Kirsten Sailer, Salma  
Riad

Advisor: Solomon Mensah, Dirk Albrecht

**10:25am**

**Flow System for 3D In-Vitro Artery Model**

Milad Jaffari, John Steglitz

Advisor: Yonghui Ding

**10:55am**

**Neuroprosthetic Device for Computer Assistance**

Lucas Costa, Morgan Owen, Annalise Russo, Savoy

Volcy

Advisor: Taimoor Afzal

**11:15am**

**Microfluidic Bioreactor System for Modeling Cell  
Migration in Tissue Engineered Heart Valves**

Alex Colleoni-Pimenta, Allison DeVillers, Brady  
Gardner, Alex Wolf

Advisor: Kristen Billiar

**11:35am**

**Mammary Cell Microfluidic Thermal Device**

Kitty Guo, Morgan Polinski, Harish Suresh, James  
Teague

Advisor: Diana Alatalo

**11:55am**

**Role of Hyaluronic Acid in Endothelial Cell and  
Cancer Cell Interactions *in-vitro***

Victoria Cormier, Kimberly Daniels, Namya Saini,  
Ryan Thivaharaja

Advisor: Solomon Mensah