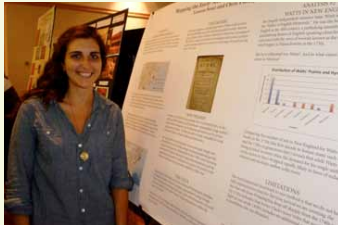


Welcome to the 2014 Student Summer Research Poster Symposium

Welcome to the latest installment of this poster session, celebrating the research that Lafayette students conducted in the summer of 2014. As in years past you will find an impressive array of work on display, far more than anyone could possibly absorb in the limited amount of time available. Please visit as many posters as you can, making sure to include at least one where you do not know any of the nouns in the title!

Lafayette's multi-faceted undergraduate research program includes the Excel Program and work on honors theses. It also includes the LEARN Program in Neuroscience, Nalvin Scholars in Biology and the Life Sciences, Sherma Scholars in Chemistry, creative art projects and the STEAM camp supported by generous funding from the Andrew W. Mellon Foundation, and many others. Given the opportunities available, it is not surprising that more than half of Lafayette students have been involved in a student-faculty research project before they graduate. While the number of posters in this symposium may be impressive, it in fact represents only a fraction of the work students are undertaking with faculty mentors.

This poster event is often not the concluding event of a student's research experience, but is more of a warm-up for future presentations and research. Lafayette has sent contingents of students to present at the National Conference for Undergraduate Research every year since the beginning of that event in 1987. We send dozens of students to present at national and international

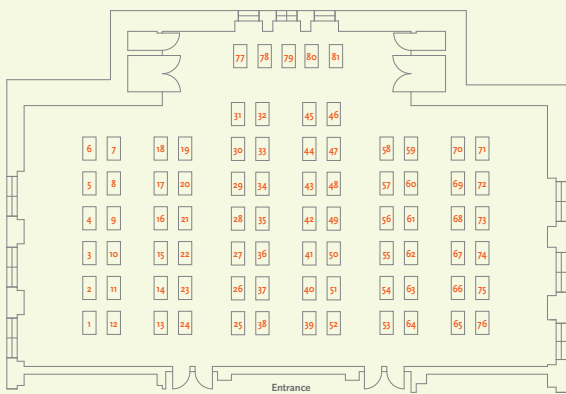


meetings every year. And in 2014 we also had a student present at Posters on the Hill, an annual event where students present their work and have the opportunity to interact with members of congress and their staffs.

This is a room full of discoveries, representing successes and the prior failures they are built upon. It underscores Lafayette's commitment to close faculty-student interactions. And more than anything it demonstrates the tremendous ability and promise that comes from mixing talented students with the hands-on educational experiences that we provide.

—John Meier
Dean of the Curriculum and Resources

POSTER LAYOUT IN MARLO ROOM



9/14 • 300

STUDENT SUMMER RESEARCH POSTER SYMPOSIUM

September 22, 2014 | 4:35 p.m. – 5:45 p.m.



LAFAYETTE

Student Summer Research Titles and Authors

A layout of the posters in the Marlo room can be found on the back of this brochure.

Please note: Odd-numbered posters will be presented from 4:15 to 5:00. Even-numbered posters will be presented from 5:00 to 5:45.

No. 1 The need to be me: Influence on participant specific instructions on mu-based BCI performance

Lisa A Gabel, Maura Schluessel, Alexandria Battison, Tom Fuller, Camila Moscoso, Alexandra McCullough, Victoria Corbit, and Yih-Choung Yu

No. 2 TBD

Sammy Chavin and Lisa Gabel

No. 3 Using fNIRS to Identify Face and Scene Selective Regions in the Adult and Infant Brains

Li Guo, Lindsey J. Powell, and Rebecca Saxe

No. 4 A Novel Analysis of CD24 Expression in the Lens

Christopher Kelbaugh, Yichen Wang, and Melinda K. Duncan

No. 5 ENGAGING Arts Participation Through Brain-Computer Interface

Alexandra McCullough, Tom Fuller, Camila Moscoso, and Dr. Lisa Gabel

No. 6 Human-Computer Interaction Using An Eye Tracking Interface

Brandon Smith

No. 7 Heat Map Comparison of Adults, Children, and Mice in Virtual and Physical Hebb-Williams Maze Tests

Rachel Szeinberg, Dr. Jeffrey Pfaffmann, and Dr. Lisa Gabel

No. 8 Amplification of *oxyR* and *dps* from desert crust isolates

Michael Galperin, Tim Blackwell, and Laurie Caslake

No. 9 Physiology and Environmental Adaptability of the red-eared slider turtle

Kofi Boateng and Rebecca Larosa

No. 10 Analyzing Expression of the Chitin Synthase Gene in *Phytophthora infestans*

Emma Bremner and Manuel Ospina-Giraldo

No. 11 Pollen Sensitivity to Environment During Germination In Vitro and In Situ

Melissa Bucher, Alexandra Lazzara, Mai Nguyen, Sumana Rao, and Anna Edlund

No. 12 Ultra-structural Location of Melanopsin in the Iris of the Turtle

Sze Cheng, Olivia Erdman, J.R. Dearworth Jr., and Christopher R. Anderson

No. 13 Locating Melanopsin in the Retina of the Turtle

Olivia Erdman, Sze Cheng, James Dearworth, and Christopher Anderson

No. 14 Using Models to Study the Role of the TLR4 Pathway in Tumor Progression

Tiffany Phuong, Carl Jones, Robert Kurt, and Chun Wai Liew

No. 15 TLR4 Pathway Activity in Cancer Cell Lines

Samantha Evans and Robert Kurt

No. 16 An Open Geminivirus Database

Eric Ho and Greg Flynn

No. 17 Comparing Expression of Genes in the Inflammation Pathway Between Cancer Cells and Dendritic Cells

Damarcus Ingram and Robert Kurt

No. 18 The Effect of Road Proximity on Abundance and Movement Patterns of Vernal Pool-Dependent Wood Frogs in Jacobsburg State Park

Katherine Engberg and Dr. Megan Rothenberger

No. 19 The Red-Slider Turtle: A Model for Neurodegenerative Diseases and Conservation Biology

Rebecca LaRosa, Kofi Boateng, James Dearworth, and Megan Rothenberger

No. 20 Light Responses from Optic Nerve of *Procambarus Clarkii*

Steven C. Nesbit and James R. Dearworth Jr., Ph.D.

No. 21 Structural and functional analysis of a group of genes encoding carbohydrate-active enzymes in *Phytophthora* spp.

Andrea Parish and Dr. Manuel Ospina-Giraldo

No. 22 Chitin synthase gene expression analysis in *P. sojae*: soybean infection, RNA extraction, and RT-PCR

Brandon Ross and Dr. Manuel Ospina-Giraldo

No. 23 The Effects Of Furanone 56, A Quorum Sensing Inhibitor, On Biofilms Formed By *Pseudomonas Fluorescens* MICroZL In Sandy Soil

Jasmeen Saini, Michael Galperin, Mary Roth, and Laurie Caslake

No. 24 Abundance, distribution, and social perceptions of two non-native crab species in the Raritan Bay System: an interdisciplinary approach to bioinvasion.

Sarah E Woodruff and Megan Rothenberger

No. 25 Biliverdin-based eggshell coloration relative to egg quality of European starlings

Haleigh Waite and Dr. Mike Butler

No. 26 Anti-prion β -protein 1st (A β) in the curing of the prion [PSI⁺] by Hsp94 overexpression

Michael T. Astor, Zachary A. Sporn, and Justin K. Hines

No. 27 Yeast prions and lipid profiles: protein-only inheritance and effect on yeast lipid composition.

Quang Bui, Joseph Sherna, Bernard Fried, and Justin Hines

No. 28 Diels-Alder Reactions of Gamma-Hydroxybutenolides

Ryan E Carbone, Samantha M Zeiders, and William H Miles

No. 29 Synthesis of C₃-C₇ fragment of Tylenolide using gamma-hydroxybutenolide chemistry

Cassidy M. Madison and William H. Miles

No. 30 Effect of substituents on through-space shielding of fluorinated organic compounds

George F. Riegel and William H. Miles

No. 31 Synthesis and metallation of tetra-substituted porphyrin complexes for use in catalysis

Lauren Cesanek, Nabeel Chaudary, and Dr. Roxy Swails

No. 32 Organometallic Catalysis of the Reduction of Carbon Dioxide

Nabeel Chaudary, Lauren Cesanek, and Roxy Swails

No. 33 Synthesis of a Water-Soluble Catalyst

Stavros Karioglou and Dr. Roxy Swails

No. 34 Using Tetracycline-Repression to Determine the Role of the β -protein Swaz in [URE⁺] Prion Propagation

Michael E. Rockman, Elizabeth M. Troisi, Emily E. Oliver, and Justin K. Hines

No. 35 Domain and homology studies of the β -protein Sis1 in the curing of [PSI⁺] by overexpression of Hsp104.

Zachary A. Sporn, Michael T. Astor, and Justin K. Hines

No. 36 Titanium Nanoclusters as a Catalyst in the Water-Gas Shift Reaction

Eric West and Kenneth Haug

No. 37 Quantifying the ratios of the donor and the acceptor in blended films.

Enia Xhakaj

No. 38 Preparing a Community-Based Publication: Easton's "Lehigh and Washington Neighborhood"

Walter Burkart and Andrea Smith

No. 39 Vegetables in Community: Building Community Connections through Produce Distribution

Alexa Gatti, Andrew Goldberg, Rachel Leister, Benjamin Cohen, Lawrence Malinconico, and Bonnie Winfield

No. 40 Small Farm Infrastructure

Joseph Ingroo

No. 41 Lafayette College STEAM Camp 2014 - Incorporating the Arts into STEM

Emily McConigle and Nikki Bauer

No. 42 NetFlow Traffic Analysis

Brendan Carroll and Prof. Xiaoyan Li

No. 43 Community Spending Impact On Stock Performance of Fortune 500 Companies

Jawad Awan and Anuradha Chai

No. 44 A Narrative of Oil: The Narrative History of Oil Shocks

Noah Breininger and Dr. Julie Smith

No. 45 Studying Innovation in the Cell Phone Market with Agent-Based Modeling

Professor Samuel Kalra and Christopher Ruebeck

No. 46 Theoretical Questions in the Virtual Corporate Reality Model

Ivan Evtimov and Christopher Ruebeck

No. 47 Easton Weed and Seed's Summer Nights Program: Students' Summer Learning Loss, Family Assets, and the Community

Yanel Itzayana Garcia, Shannon Nitroy, Christopher Ruebeck, Laura Accetto, and Jeffrey Liebner

No. 48 Understanding the pathways of the welfare costs of remoteness: Evidence from a quasi-experimental setting in Ethiopia

David Stifel, Barts Minten, and Carly Trachtman

No. 49 Designing a Baffle-Shroud configuration for Thermal Solar Storage Tanks

David Bedding

No. 50 Mapping Adulteration

Matthew Piskica

No. 51 Implementing Life Cycle Assessment to Understand the Environmental and Energy Implications Associated with Biodiesel

C. B. Carlock

No. 52 Biodiesel Structure Property Correlations for Cold Weather Applications

Rachel Elias, Lindsay Soh, and Michael Senna

No. 53 Cytotoxicity of Thermoresponsive Polymer Coated Silver Nanoparticles

Yehsu Guego, Christopher Anderson, Filippo Gambinossi, James K. Ferri, and Lauren S. Anderson

No. 54 Effect of Solvent Chain Length on Crystallization and Gelation of Long Chain n-Alkanes in Solution

M. Gregory Grewal, John H. Jarboe, and Michael J. Senra

No. 55 Constituent Separation of Biodiesel and Optimization of the Biodiesel Reaction

Bach Nguyen, Peter Koval, and Lindsay Soh

No. 56 Testing and Experimental Data Processing Optimization of a Frequency Response Function-Based Structural Damage Identification Method

Leikune Aragow

No. 57 Recovery of Iron Oxide Pigments from Acid Mine Drainage

Michael Ryan

No. 58 Seismic Analysis of Base-Isolated Structures

Zili Wang

No. 59 Is dust production reduced following algae treatment of unbound road material?

Erika Hernandez, Hailey Vosta, Brian Skalla, Prof. Laurie Caslake, and Prof. Mike McGuire

No. 60 Bird Window Strikes- A Clear Killer

Daniel W. Vincent, Michael W. Butler, and David Brandes

No. 61 Exposing the Secrets Hidden Within Images and Signals: ICA and Machine Learning

Ollie Fosu and Kyle Phillips

No. 62 The Processing of Flow Visualization Images and Particle Image Velocimetry Data

James Erario and Professor Daniel Sabatino, PhD

No. 63 Modelling Lymphedematous Tissue Under Compression

Kevin Fasano and Joshua H. Smith, PhD

No. 64 Bushkill Township Invasive Species Management Project: Invasive Species Identification and Mapping

Leah Hayden and John Wilson

No. 65 Expansion Tube Design

Ray Sanzi III and Helen Hutchers

No. 66 The lithologic control on differential weathering and topography in the reading prong basement blocks

Dr. Germanoski and Matthew Morris

No. 67 Development of the Eastern Equatorial Cold Tongue

Caroline Ladow, Kira Lawrence, and Laura Peterson

No. 68 Life Cycle Analysis of Nitrogen Oxide Emissions As A Result of Shale Gas Production in Colorado

Allie Nagurney and Dr. Jana Milford

No. 69 Nuclear Power Politics in East Asia

Il Hyun Cho and Julia Bruckner

No. 70 Mapping and Analysis of The Events and Images of the Postcommunist Midwifery/Home-Birth Movements: The Case of The Czech Republic

Katalin Fabian and Devan Clifton

No. 71 The Supreme City & the Siege of Vicksburg

Elizabeth M. Lucy, Jason C. Hill, and Donald L. Miller

No. 72 Indigenous Modernity: A Two-Part Invention

Ian Morse

No. 73 An Introduction to Pulsars, NANOGraV, and Gravitational Waves

Sarah Henderson and Hao Lu

No. 74 Measuring the heat production of magnetic nanoparticles in an alternating magnetic field for cancer therapy

Shannon Hartzell, Zainab Hussain, and Zoe Boekelheide

No. 75 An Analysis of Pulsar Shape and Evolution

Hao Lu and Sarah Henderson

No. 76 Baby Skype Expectations: FaceTimes

Lauren Myers, Claire Murphy, and Emily Crawford

No. 77 Predicting Sociocultural Adjustment of U.S. College Students Studying Abroad

Katie Craziano and Susan Basow

No. 78 Baby Skype Expectations: Lab Visits

Lauren Myers, Emily Crawford, and Claire Murphy

No. 79 Structural homology analyses of the tetracysteine repeat region of the yeast axulin homolog Swaz reveal considerable structural conservation with human HOP1

Elizabeth E. Oliver, Michael E. Rockman, and Justin K. Hines

No. 80 M-M interactions in compounds containing 1,1'-bis(phosphino)ferrocene ligands

Brittany L. Blas, Victoria A. Desker, Kathryn M. Garmign, Chelsea L. Mandell, Christine N. McCarthy, Margaret A. Tiedemann, Eugene P. Warnick and Chip Nataro