STUDENT
SUMMER RESEARCH
POSTER SYMPOSIUM

September 24, 2012 | 4:15 p.m – 5:30 p.m.

LA斐耶特
| No. 1 | Measuring Cell Circularity and Spreading on Thermoresponsive Surfaces  
Tyler F. Fruneaux, Ashley J. Kaminski, and Lauren S. Anderson |
| No. 2 | Evaluating Cell Attachment as a Function of Serum Content  
Ashley J. Kaminski, and Lauren S. Anderson |
| No. 3 | Survey of Macroinvertebrate Species as Biological Indicators of Water Quality in the Bushkill Creek Prior to Dam Removal  
Ryan F. Hughes |
| No. 4 | Competitive Feeding Behavior Between The Native Blue Crab, Callinectes sapidus, And The Invasive Asian Shore Crab, Hemigr  
Alex W. Pong and Megan Rothenberger |
| No. 5 | Environmental characteristics and plankton dynamics of Raritan Bay  
Thomas Swaffield, Megan B. Rothenberger, and Carolyn Cabrey |
| No. 6 | Pectin Methylesterase expression in Phytophthora infestans and Phytophthora sojae  
Manuel Ospina-Giraldo, Jason C. Ewer, and Juan Hernandez |
| No. 7 | Transformation of the Chitin Synthase gene in Phytophthora infestans  
Abdul Q. Dobson, Bradford C. Borman, and Manuel Ospina-Giraldo |
| No. 8 | Improving Decision-Making and Performance of Surgical and Obstetrics-Gynecology Residents Under Stress  
Andrew Kamilaris, Leo Spear, Elaine Reynolds, and Bill Boyer |
| No. 9 | Effects of quorum sensing inhibitors on Pseudomonad biofilms in sandy soil  
Tiffany A. Kimmel and Laurie Caslake |
| No. 10 | Pollen tube escape by degradation of the pollen grain wall  
Sumana Rao, Mai Nguyen, Andre Rafizadeh, Lenny Nguyen, and Anna Edlund |
| No. 11 | Survival of Desert Crust Isolates to UV Exposure  
Elizabeth B. Rentschler and Dr. Laurie Caslake |
| No. 12 | The Functionality of Myd88 through siRNA inhibition  
Kyle C. Tucker, Jacob Ricca, and Robert Kurt |
| No. 13 | Peptide Inhibition of MYd88 in 4T1 Cancer Cells  
Jacob Ricca and Robert Kurt |
| No. 14 | Automated Biological Shape Recognition Using Blum’s Medial Axis  
Sean P. Waters and Rob Root |
| No. 15 | Pd/Pt compounds of 1,1'-bis(disubstitutedphosphino)ferrocenes: dative bond formation between the Fe and Pd/Pt atoms  
Chelsea L. Mandell, Margaret A. Tiedemann, Katherine M. Gramigna, William G. Dougherty, W. Scott Kassel, and Chip Nataro |
| No. 16 | Computational Analysis of the Transitional State Theory for a series of SN2 reactions  
Long B. Nguyen and Kenneth Haug |
| No. 17 | Photo-Assisted Degradation of Ibuprofen in the Environment with Natural Organic Matter  
Elise V. Meade and Steve Mylon |
| No. 18 | Thin Film/Membrane Formation in Microfluidic Channels  
Asad Akram and Joshua A. Levinson |
| No. 19 | Kinetics of Dying Cotton Fabric with Fusticwood  
Xingjian Ma and Polly Piergiovani |
| No. 20 | Characterization of Stimulus Responsive Nanomaterials  
Shanjun Qiao, Filippo Gambinosi, and James K. Ferri |
| No. 21 | Modeling and Simulation of Hydrogen Diffusion and Reaction in Semiconductor Materials  
Isaac S. Lavine, Joshua A. Levinson, and Kenneth G. Clogovsky |
| No. 22 | Mixotropic Growth of Microalgae Chlorella Vulgaris and Scenedesmus Obliquus  
Yue Yin and Javad Tavakoli |
| No. 23 | Deconvoluting Cohesion and Adhesion in Glassy Polymer Thin Films  
Nevin W. Whalley, Hallie J. Zeller, and James K. Ferri |
| No. 24 | Reducing the Computational Cost of Indoor Ratio-based Localization  
John F. Keller and Xiaoyan Li |
| No. 25 | C++ Framework for Model Simulation  
Naing Htet |
| No. 26 | Soil Structure Interaction Laboratory  
Martin J. Anderson and Michael J. Hezel |
| No. 27 | Pervious Concrete  
Antonio A. Alves and Stephen D. Berkin |
| No. 28 | Future Worlds: Investigating an Intelligent Cyberlearning System for Interactive Museum-Based Sustainability Modeling  
Rebecca A. Citrin |
| No. 29 | Fate of Estrogenic Compounds in Lehigh Valley’s Wastewater  
Emily M. Crossette |
| No. 30 | Compost Technology, Management, and Nutrient Analysis  
Andrew S. Goldberg, Arthur D. Kney, and Dale Shoemaker |
| No. 31 | Bushkill Creek Watershed: Nutrient Analysis  
Stacey-Ann Y. Pearson and Hannah Griesbach |
| No. 32 | Structural Analysis Using Abaqus  
Michael S. Tsai and Apratim Mukherjee |
| No. 33 | Interaction of a Percutaneous Ventricular Assist Device with the Cardiovascular System  
Yemai Liu |
| No. 34 | Solar at Night: A Thermodynamic and Cost Analysis of Solar Syngas  
Rijan Maharjan and Julia F. Nicodemus (both pictured on cover) |
| No. 35 | Modeling Qualifications Based Selection using Agent Based Modeling in Netlogo  
Lisa M. DeJoseph |
| No. 36 | A NetLogo model of Biological Decision Making  
Ryan C. Himmelwright, Elaine R. Reynolds, and Jeffrey Pfaffmann |
| No. 37 | Visualization of an Agent-Based Model of the U.S. Cellphone Market Through Netlogo’s Java API and Mathematica-Link  
Kevin J. Myers |
| No. 38 | Model Design and Implementation: The U.S. Cell Phone Market  
Andrew J. O’Brien and Christopher Ruebeck |
No. 39 Evolving Recipes: Evolutionary Computation Tracking
Nicholas Orzal, Jeffrey Pfaffmann, and Chris Ruebeck

No. 40 Model Implied Measures of Risk-Adjusted Returns in Stochastic Volatility Models
Qin Lu, Joshua Cape, William Dearden, William Gamber, and Linh Nguyen

No. 41 Long-term Financial Needs of Charity-Funded Rural Water Systems: A Case Study in Uganda
Kelsey Lantz

No. 42 Pakistan Floods: Response and Rehabilitation
Hassaan F. Khan and Amira S. Ahsan

No. 43 Plowing Food Deserts in the West Ward
Julia Seidenstein

No. 44 LVRC: Economic Variables for the Lehigh Valley
Patrick J. Pozzi and Chris Ruebeck

No. 45 An Analysis of Lafayette Alcohol Use Data
Laura Brontzman, Emily Landau, and Charles Vincent

No. 46 Supportive Housing for Young Parents
Kristin Anderson and Dr. Debbie Byrd

No. 47 Constructing a Database of Easton’s Library Records, 1811-1862
Christopher N. Phillips and Gavin Jones

No. 48 The Generational Mentality Changes through Historical Transformations of State in The Upper Lusatia Region and Eisenhütt
Tia J. Siebold

No. 49 Howard Buffet is the ‘spawn of Jabba the Hutt’: Negative Social Judgment in On-Line Comments about Occupy Wall Street
Cameron Roche and Luc Bruggeman

No. 50 Responding to Domestic Violence: Why Estonia, Latvia, and Lithuania have long avoided establishing comprehensive legislation on domestic violence
Heather M. Hughes

No. 51 Federalism in Supreme Court Rulings
Sarah Shahmirzadi and John Kincaid

No. 52 East Asia Image Collection: Building a Digital Repository for History Research and Teaching
Li Guo

No. 53 The ‘Hope of Our Nation’: Youth, Propaganda, and Gendered Power Plays in Peronist Argentina, 1946-1955
Thomas Brinkerhoff

No. 54 Social networks: How to spread a virus?
Gary Gordon and Dorde Rakic

No. 55 Intrinsically Linked Graphs
Joel Foisy, Cara Nickolaus, Justin Raimondi, Josh Wilson, and Liang Zhang

No. 56 Sculptural Processes: From Ideas to the Exhibition
Nestor Armando Gil and Mark Adams Tajzler

No. 57 Behavioral Analysis Approaches to Art Creation
Henry Lam and Luis F. Schettino

No. 58 Lafayette Brain-Computer Interface Research: Past, Present, Future
Victoria L. Corbit, Jessica F. Cysner, and Sicheng Wang

No. 59 How Does Education Affect the Problem Solving Abilities of Older Adults Under the Influence of Stereotype Threat?
Taylor J. Brown, Diana Zamora, Lina S. Bajuwa, Samantha S. Garcon, and Peter J. Donovick, Ph.D

No. 60 Bryostatin-1 Improves the Spatial Learning In a Transgenic Mouse Model of Alzheimer’s Disease.
Morgan Q. Oskutis, Gabriel S. Johnson, Ashley D. Peairs, and Ping Yi

No. 61 Individual differences in the open field test predict the outcome of behavioral battery on CB57-Bl mice
Larry Z. Sanchez, Ricardo Cosio, Carol Vasquez, and Gabrielle Britton

No. 62 Effects of diet on seizure behavior in a Drosophila model of epilepsy
Blaine Caslin, Andrew Kamilaris, and Elaine Reynolds

No. 63 Understanding Truancy: Predictors and Intervention Programs
Jaqueline Bible

No. 64 Procrastination and the post-reinforcement pause in variable ratio schedules
Julia Brodsky and Robert W. Allan

No. 65 Can infants learn novel words, actions, and patterns from contingent FaceTime interactions?
Rachel B. LeWitt and Renee E. Gallo

No. 66 Chaotic Wall Pinning and Melting in Xenon Adsorbed on Pt(111)
Jessica Bavaresco and Anthony D. Novaco

No. 67 Growth Patterns of Dendritic Side Branches
Ian S. Crawley and Andrew Dougherty

No. 68 A Tale of Two Groups: USGS 562 and 579
Jeremy J. Schwed

No. 69 Polarizability measurements of laser excited atomic cesium
Hannah Weaver and Andrew Kortyna

No. 70 Introduction to Pulsars, the Interstellar Medium, and NANOGrav
Joseph Tumulty and Anthony Post

No. 71 Probing the Interstellar Medium with Pulsars
Anthony Post and Joey Tumulty

No. 72 Advances to a Biomechanical Model of Hydrocephalus
William R. Hendra and Joshua H. Smith

No. 73 Simulation of Fluid Flow Using Computational Fluid Dynamics
Boyang Qin and Daniel R. Sabatino

No. 74 Experimental and Numerical Study of High Thermal Conductivity Materials for Electronics Cooling
Katheryn Yoder and Daniel R. Sabatino

No. 75 Design and Control of Automated Fluid Injection System
Andrew D. Sanders and Daniel R. Sabatino

No. 76 Optimizing Seismic Performance of Houses in Haiti
Ninh Pham and Anne Raich
Welcome to the 2012 Student Summer Research Poster Symposium

This annual event highlights many of the research projects that Lafayette students were engaged in during the summer of 2012. The depth of the work and the diversity of topics being presented is a testament to the imaginative and productive scholars—both students and faculty—at Lafayette.

This event also testifies to Lafayette’s long history of supporting research with undergraduates. Our Excel Scholars program began in 1986 with 14 students and has grown dramatically over the past twenty-seven years. In the Summer of 2012 there were well over 140 Lafayette students working on research projects. Most of them were Excel Scholars who were mentored by over seventy members of the faculty, representing many departments and programs, including: Art, Biology, Chemistry, Economics, all four departments in Engineering, English, Film and Media Studies, Philosophy, Psychology, Religious Studies, and many more. There were a number of other avenues for Lafayette students to explore research questions, in addition to the Excel Scholars program. Some students were LEARN Scholars, who worked on neuroscience projects in off-campus locations, including one student who worked in a laboratory in Panama. Lafayette students worked side-by-side with talented students from other colleges and universities in the Research Experiences for Undergraduates program organized by the Department of Mathematics. Lafayette students participated in the Grand Challenges Scholars Program, which provided funding for student projects based in Haiti, Pakistan, and Uganda. Other students received external support for their summer research projects from the National Science Foundation, and the Davis Projects for Peace program supported Lafayette students working in Bangladesh.

Lafayette continues to provide significant support for research with undergraduates. The annual expenditures for student salaries and housing are in excess of $700,000, including money coming from faculty and institutional grants, income from gifts, and Lafayette’s operating budget. This is an excellent investment of our resources, as these research projects produce high-impact scholarship and foster the sort of student-faculty engagement that is the hallmark of a liberal arts education.

The research on display in this poster session is new and much of it is still work in progress. Based on past performance I am quite sure that the scholarship on display today will be disseminated in research journals, artistic exhibitions, and at professional conferences. In particular, Lafayette has a twenty-year history of bringing one of the largest contingents of student scholars to the National Conference for Undergraduate Research. The reach and influence of Lafayette student scholarship has a long and rich history that supports our current efforts.

You can see for yourself that Lafayette is a national leader in student research. We provide university-sized resources in the context of a student-centered liberal arts college. This combination allows our students to produce exceptional creative work and forge lifelong connections with talented faculty mentors. As you walk through the session, I encourage you to ask questions, participate in conversations, learn, and add to the joy in the room.

—John Meier
Associate Provost for Faculty Development and Research Services