The Colombia Purdue Institute (CPI) Presents

The Undergraduate Research Experience Purdue-Colombia (UREP-C)

Final Symposium

December 7-8, 2015

Universidad Nacional- Bogotá, Medellín, Palmira, Manizales

Andrés Nicolás López: Dr. Hyonho Chun, Statistics

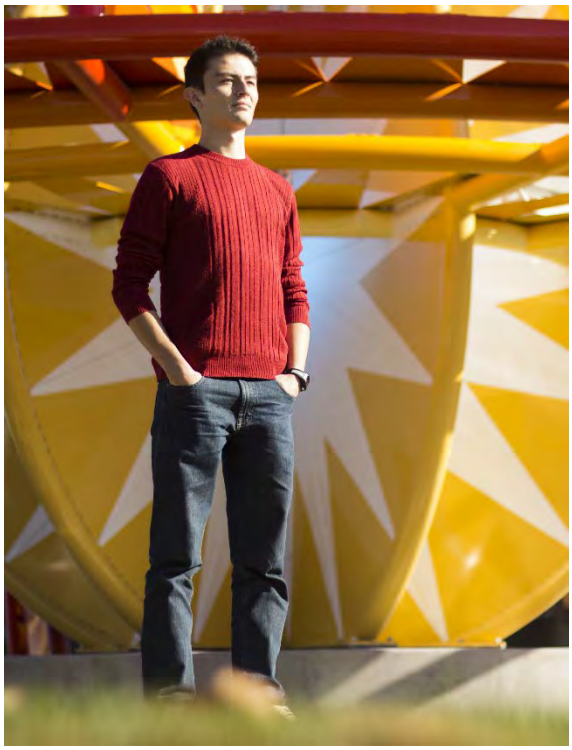
Predictive modeling of anticancer drug sensitivity with the Cancer Cell Line Encyclopedia

In cancer research, genomic data generated by high throughput experiments have been applied in drug sensitivity prediction. Drug sensitivity measurements and genetic features are obtained from a tumor culture with the aim of identifying genetic predictors of drug response. We present a predictive modeling approach of drug sensitivity considering the dependence across the cell lines while capturing its underlying functionality.

Thanks UREPC for giving me the chance to be a part of this invaluable life experience, thanks also for all the personal and academic lessons I'll always take with me. I'll never forget the beauty of the autumn leaves at West Lafayette!

Daniel Ariza Suárez: Dr. Michael Gribskov, Biology

De novo assembly of *Monascus purpureus* NRRL 1596 genome and structural annotation of Polyketide Synthase genes



This fungi is able to produce different pigments and monacolins, which have different anticancer, antimicrobial, antimutagenic and cholesterol-reducing activities. Their production is mainly done by Polyketide synthases (PKSs). Understanding the characteristics of these enzymes from the genetic level could provide new insights to study and take advantage of the compounds they synthesize. This project has introduced me to practical Biocomputing, an an important area that offers many advantages to the development of agricultural systems including many fields like plant physiology or and plant-microbe interactions.

Daniel Henao Arango: Dr. John Mott, Aviation Technology

Development of a scheduling model for the training flights of the Purdue University Airport

I am an Industrial Engineering student and aviation enthusiast since I was a child, worked at the *Advanced Aviation Analytics Institute for Research* in a project called "*Development of a Scheduling Model for the Training Flights of the Purdue University Airport*". The goal was to increase the utilization of the aircraft fleet at the Purdue Airport through a mathematical model. This unforgettable experience let me learn about the aviation industry, understand what it takes to bring a theoretical model to the reality, enjoy the landscapes of the Midwest, and get a better knowledge of myself.

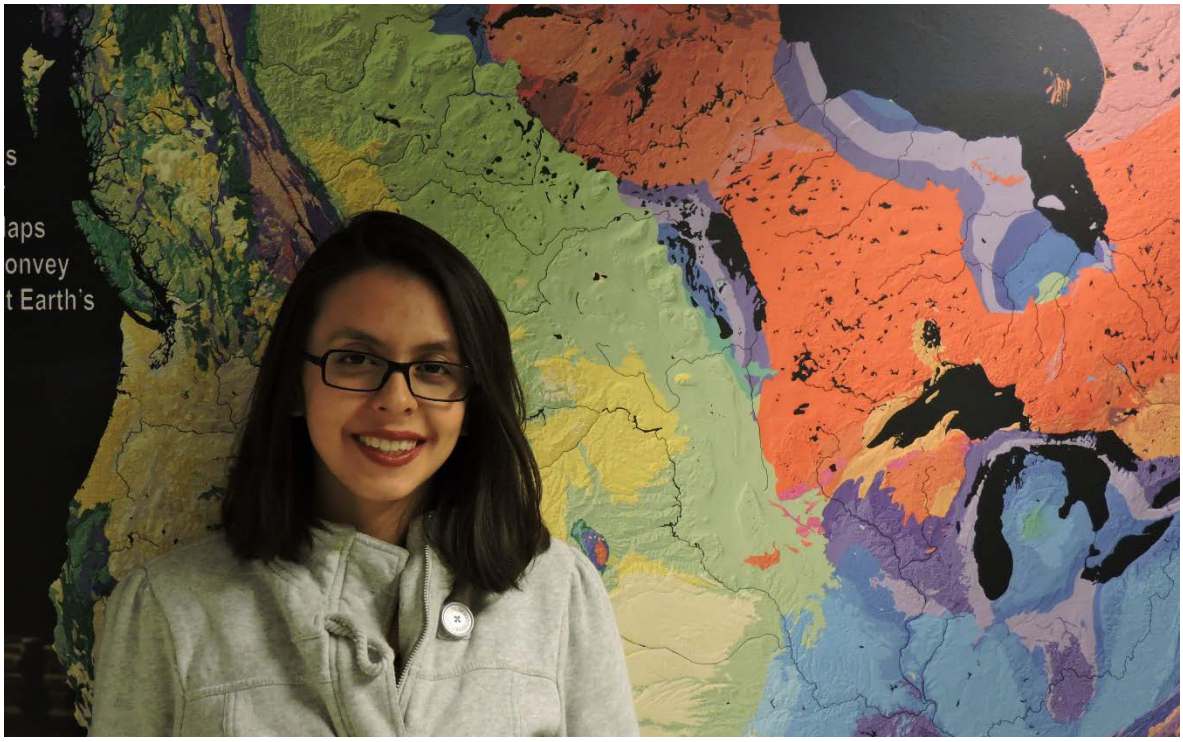
Diego Alejandro Ávila Ruíz: Dr. Rick Foster, Entomology

Predator establishment in a managed high tunnel agroecosystem

I am a student majoring in Agronomy. Here, at Purdue University, my project is called 'Predator establishment in a managed high tunnel agroecosystem. I am examining the efficacy of releasing predators to control insect pests (augmentative biological control). I believe that entomology is not only the study of insects, but also an exploration of unknown creation that I aspire to discover. My experience at Purdue has taught me that the world is full of information to be learned and that perseverance, cooperation and hard work are needed to achieve your goals.

Maria Alejandra Perea Barreto: Dr. Julie Elliott, Earth, Atmospheric and Planetary Science

Modelling the megathrust near Prince William Sound, Alaska



In the subduction zone of SE Alaska the Pacific plate and the Yakutat terrane subduct under North America, both with different angle and at a different rate, resulting in a complex tectonic setting. The aim of the project is to model the megathrust in the vicinity of Prince William Sound, Alaska, implementing a block modelling technique, to estimate long-term tectonic block motion and slip rates along the megathrust, from interseismic velocities derived from GPS data.

“Purdue has opened my mind to a whole new world of possibilities”.

Paula Andrea Navarro Pérez: Dr. Shadi Atallah, Forestry and Natural Resources

Transition from sun-grown to shade-grown coffee systems: Region-specific micro-economic analysis and implications for the coffee sector in Colombia

I am a student in the major of Accounting. My research project, "*Transition from sun-grown to shade-grown coffee systems: Region-specific micro-economic analysis and implications for the coffee sector in Colombia,*" evaluates the effectiveness of new strategies to improve the level of the coffee sector in Colombia facing important issues such as the economic crisis and the climate change. Throughout my stay in Purdue, I have learned that each day offers a new opportunity to learn something new and to do your best. It is important not being afraid of new experiences that improve our progress as professionals and humans.

Camilo Andrés Quiceno Murillo: Dr. Chantal Levesque-Bristol and Dr. Mike Yough, Center for Instructional Excellence

Relationship between learning climate and knowledge transfer in educational environments

I am a Psychology student that is working at the Center for Instructional Excellence at Discovery Learning Research Center. My study in Educational Psychology aims to find whether there exists a relationship between learning climate and knowledge transfer in educational environments, a project which is supervised by Dr. Chantal Levesque-Bristol, director of the CIE. I want to keep opening doors for my future and keep building personal and academic experiences. The UREPC project is unforgettable and it has been one of the best experiences in my life thus far, now it's time to start a new incredible experience.

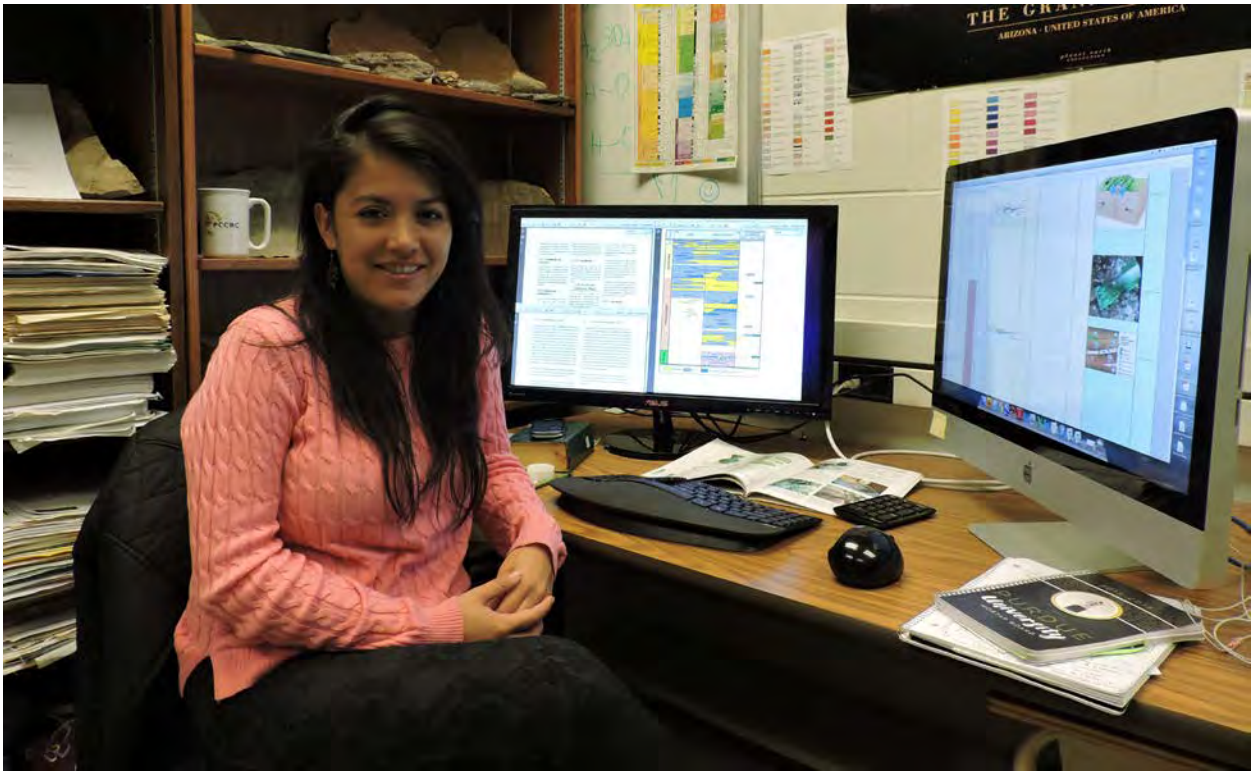
Paula Andrea Gómez Zapata: Dr. Catherine Aime, Botany and Plant Pathology

Hyperparasites attacking Rust Fungi

I am a student in Agronomic Engineering at Universidad Nacional de Colombia. During the last six months, I have had the opportunity to work with Dr. Aime at Purdue University. My project was about Hyperparasites attacking rust fungi. Those hyperparasites are little known and could be useful in devising strategies for biological control. They could also be exploited to reduce the intensity of attack of fungi on crop plants and increase crop productivity. My biggest dream is working as a researcher in Plant Pathology, especially in Biological Control using Fungi. I have appreciated greatly my experiences and time at Purdue.

Estefania Salgado Jauregui: Dr. Jim Ogg, Dr. Larry Braile, and Mr. Steven Smith, Earth, Atmospheric and Planetary Science

Didactic module of Colombian Emeralds, since the perspective of geological heritage. An alternative of conservation and sustainable management for Boyacá, Colombia



Every pebble tells a story. The story of Colombian emeralds. From a geological point of view Colombian emeralds are the **global reference** for a process, which took place million of years ago. However, these are famous around the world for their beauty and their price in the market, not for their scientific relevance. During this research stay I have been working in an outreach strategy, which will enable the non-specialized to realize the spatial and temporal scale of the processes that are registered on a Colombian emerald, on the premise that knowing a territory in its complexity is a necessity to develop sustainable management strategies.

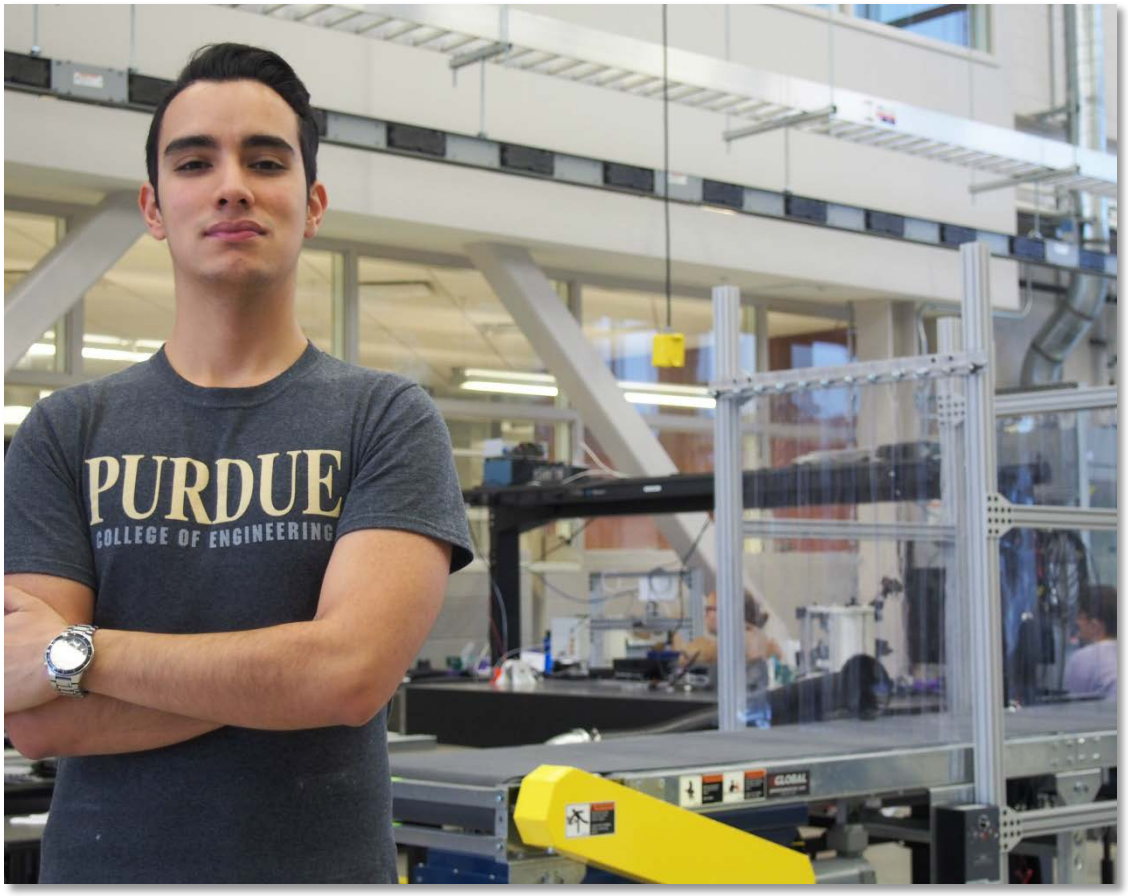
Daniel Martínez Gamboa: Dr. Hamid Piroozi, Purdue Research Foundation

Practical guidelines for the patents of invention

The project is about developing guidelines for the obtaining of invention patents in different scenarios. The exposition will be focused in the evolution of the different understandings of the medical related inventions, between the EP and the USPTO and from there, an explanation of the specifications that must be present in the application, in order to protect through an invention patent a medical related invention under the EP.

José Daniel Sánchez Sánchez: Dr. Jim Braun, Mechanical Engineering

Development and Validation of a Radiant Ceiling Panel Model



I am a Senior Mechanical Engineering Student, from Bogota, Colombia. My project is entitled "Development and Validation of a Radiant Ceiling Panel Model" which will be compared with the performance of the modeling of a Passive Chilled Beam. The research is guided by Professor Jim Braun and development by the Ph.D Candidate Janghyum Kim. My desire of growing into a productive member of society, pushed my interest into renewable energies applied to HVAC systems due to the increase of use of this systems, as a result of the energy crisis nowadays.

Helmer Ricardo Cogua Barrera: Dr. Rajamani Gounder, Chemical Engineering

Study of the behavior and structure of sapo-34

The goal of my work have been to synthesize SAPO-34 material with different SDA (Structure Directing Agent) and different silicone content, to figure out how this affect its physical-chemical features. This experience in Purdue university has given me tools for futures studies and work, as now I am interesting to study the natural Colombia zeolites and how give an added value.

Viviana Yepes Hernández: Dr. Atsushi Fukada, Dr. Jessica Sturm, Languages and Culture

The use of the hybrid dictionary format to learn idiomatic expressions while learning a second language

I had the golden opportunity of working in the School of Languages and Cultures. My research project was: *The use of the hybrid dictionary format to learn idiomatic expressions while learning a second language.* It examines the effect of a hybrid dictionary format on learning Colombian cultural expressions on Spanish language learners at Purdue University.

For me, Purdue was not only a research stay. It went beyond academic topics or professional development. It was a life experience, personal growth, self-discovery, and unimaginable friends. Thank you very much Professor Fukada and Professor Sturm, it was an honor to be your advisee.

Karen Lorena Romero Leal: Dr. Laura Zanotti and Dr. Sherrilyn Briller, Anthropology

Social representations in testimonial literature of kidnapping victims in the Colombian Amazon

I am a sociologist and in a few months will be an anthropologist from Universidad Nacional de Colombia. My thesis is regarding testimonial literature written by politicians, Army members and foreigners who were kidnapped in the Colombian Amazon by FARC guerrilla. I analyzed three objects of representation in these narratives: kidnapping witness, FARC organization and Amazon region.

During five years, I have worked on the Amazon in two ways: social projects for indigenous communities and Amazon studies promotion. Thus, being a visiting researcher at Purdue has let me be able to contribute to media projects of Kayapo, a courageous indigenous people.

Marianna Russi Breci: Dr. Elaine Mosakowski, Economics

Designing an incubation, acceleration and networking platform for entrepreneurship aimed for industrial designers at the Universidad Nacional de Colombia

I'm an Industrial Designer in the Krannert School of Management, interested on innovation, branding, corporate strategy and seeing design as a management process. My project consists in designing an incubation, acceleration and networking platform for entrepreneurship aimed for industrial designers at the Universidad Nacional de Colombia, an approach from design management and strategic design. The overall purpose is promoting professional association, making designers take part in the business of creating and adding value, redefining paradigms and strengthening the Colombian industry. Purdue University has broaden my world view and made myself set higher goals, it is one of my greatest achievements.

Ángela Dubois Camacho: Dr. Rakesh Agrawal, Chemical Engineering

Generation and characterization of photosensitive nanoparticles and their application on solar cells

My work consists of synthesizing and characterizing particles with photo sensitive properties, then using them in the fabrication of solar devices with different structures. Being at Purdue not only made my knowledge and academic skills wider, it also helped me to grow in professional and personal ways. Researching by means of hard work led me down paths to being useful as a trained chemical engineer in fields that are not the conventional in my country. I would repeat this experience with no hesitation.

Gabriel Perico Monsalve: Dr. Uli Walther, Mathematics

Enumerative Geometry of some hyperplane arrangements

I am a student of mathematics. I am interested in Algebraic Geometry and Commutative Algebra. My project at Purdue is “Enumerative Geometry of some hyperplane Arrangements” on my work I am understanding and using some tools needed to compute characteristic numbers of sets of generalized lines. Purdue has been my first serious approach to Algebra and Geometry. After UREP-C I am encouraged to research Algebraic Geometry and Commutative Algebra. During my time in Purdue my goals in researching have been enlightened by academic and cultural contact in Purdue University. Thanks all of you.

Daniela Alvarado Rincón: Dr. Zhao Ma, Forestry and Natural Resources

Colombia's government (2010 -2015) discourse on Wasteland (Baldíos): A critical discourse analysis

I am a law student at National University of Colombia. I am working with the Human and Policy dimensions lab of the Forestry and Natural Resources department. My project is about Juan Manuel Santos' government discourse on use and management of wasteland (*baldíos*) and its effects in Colombia's agrarian policy. At Purdue, I have made wonderful friends and broadened my personal and professional horizons. Furthermore, I have deepened her understanding of present political-environmental challenges and realized the necessity of an interdisciplinary approach to face them.

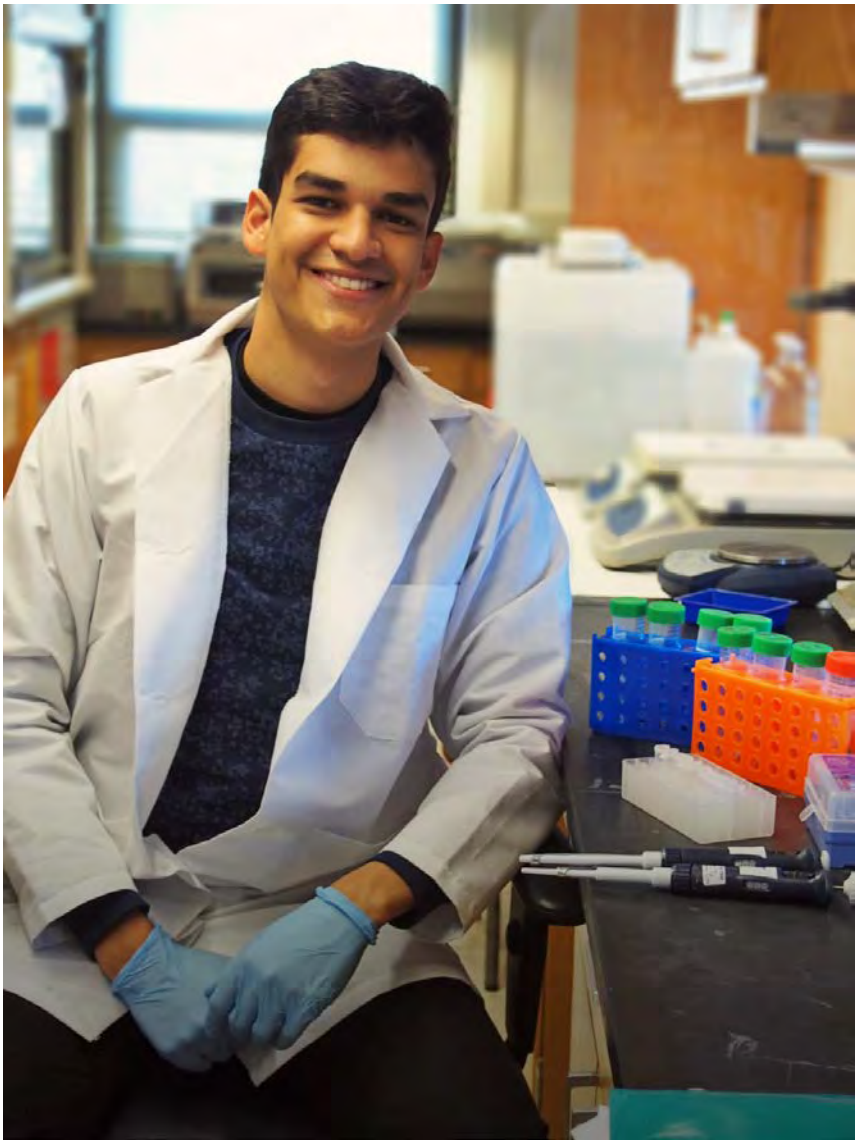
Fabio Andrés Parra Martínez: Dr. Marcia Gentry and Dr. Nielsen Pereira, Gifted Education Resource Institute

Effects of an enrichment summer residential camp on Low-income Colombian Students: A case study of student experiences, challenges and perspectives

I always knew English would open pathways to wonderful experiences. That´s why I enrolled in the English Philology major, where not only did I found one of my greatest passions, but also my lifetime career, teaching. Now in the Gifted Education Resource Institute, GERI, at Purdue, that passion has come to its peak and has given me a clear view of my future plans. Certainly, education has changed my life; with Gifted Education I am positive I will contribute to my country and change other people´s lives. There´s still so much to learn, but with what I have achieved so far I own the basis to make such dreams come true.

Camilo Ernesto Toscano Bayona: Dr. Chang Kim, Immunology

Regulation of skin immune system by retinoic acid



I am a Dentistry student interested in basic sciences such as immunology, microbiology and pathology. My research at Purdue is entitled *Regulation of skin immune system by retinoic acid*, which tries to explain the role of this vitamin A metabolite in the immune cells development and response on the skin, the study is guided by Dr. Chang H. Kim. This experience has let me develop research skills and get a closer look to the big and complex world of research.

Lisa Lorena Losada Rojas: Dr. Nadia Gkritza, Civil Engineering

A Study to the Influence of the Implementation of a Mass Transport System on Land Use

A Study to the Influence of the Implementation of a Mass Transport System on Land Use: The implementation of mass transportation systems affects directly the travel behavior of population, and other characteristics in cities. This study will analyze Boston, Washington and Atlanta in terms on their policies and available data about how mass transportation systems as Metro influences in land use and other transportation systems as non-motorized. The goal is to compare with two Colombian cities: Bogota and Medellin and forecast how those cities will change in terms on land use.

Daniel Fernando Madriñan Chiquito: Dr. Brad Duerstock, Biomedical Engineering

Design, Innovation and Development of Devices for Physical Rehabilitation

I am an Industrial Design major working in the Biomedical Engineering Department at the Institute for Accessible Science. My project, *Design, Innovation and Development of Devices for Physical Rehabilitation*, focuses on assistive technologies such as advanced wrist supports for quadriplegics, remotely controlling devices using external muscle sensors, and use of the latest 3D scanning and printing technologies to produce affordable prosthetic limbs. I will be focusing my Master's Degree work on human factors, design, implementing new technologies, market analysis and engineering. I appreciate this opportunity Purdue has given to help me clarify my goals and develop my sense of direction.

Yesid Sánchez Arias: Dr. Edray Goins, Mathematics

Dessins d'Enfants on the torus

I am an undergraduate student of Universidad Nacional de Colombia. My project at Purdue University is entitled "*Dessins d'Enfants on the torus*". This project attains to study the algebraic properties of Riemann surfaces by understanding their topology and the relation they have with the absolute Galois group of the rational numbers. Nevertheless, mathematics has not been the only thing that I have done at Purdue. The fact that I have been living in a new culture gives me a bigger perspective of life and enlightens my thoughts not only about my future, but the future of mathematics.

Jairo Martínez Cediel: Dr. Esteban García, Graphic Art

Voice Colors

A Fine Arts student at the National University of Colombia. My line of work is experimental, breaking free from conventional theory and history, and invites viewers to see and hear the world again without interference. My playful process seeks an intuitive relationship between materials, tools and my own body to find new languages and interpretations of form, seduced by the movement rhythm and color. The medium of my work ranges from video, photography, pottery, drawing and sculpture. In my own words: The most important is not the medium or support, what matters is the idea.

Nathalia Catalina Delgadillo Ordoñez: Dr. Loring Nies, Dr. Ron Turco, and Dr. George Zhou, Environmental Engineering

Effects of Lithium on anaerobic microbial communities of sludge, an exploratory

My project is titled “Effects of Lithium on anaerobic microbial communities of sludge, an exploratory study”. My aim was to determine which are some of the effects that this chemical might cause in the function and composition of anaerobic microorganisms that perform the anaerobic digestion to produce biosolids in Waste water treatment plants. My main interests are bioremediation processes, natural resources management for conservation and environmental education. Purdue was an ineffable experience that allowed me to learn about science, cultures, friendship, and life, but furthermore, to realize that no matter how difficult looks the way, you must never give up!

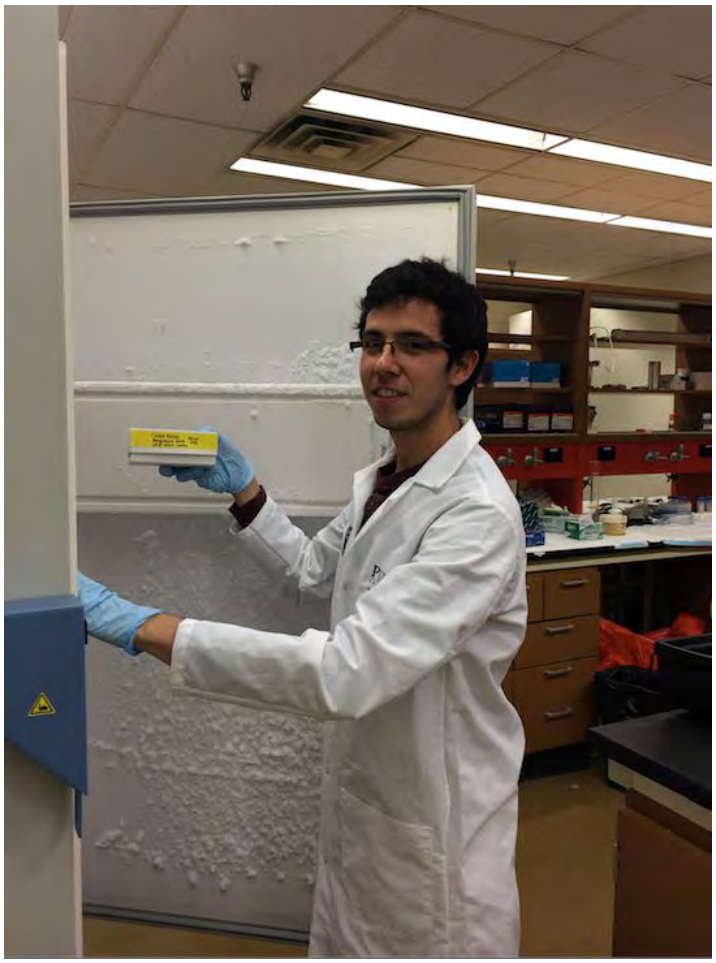
Carlos Andrés Sarmiento Hernández: Elizabeth O'Neill, R.N., and Dr. Vicky Simpson, Nursing

Design of an e-learning program for type 2 diabetes Latino patients

I am a student in the majors of Nursing and Law. My project at Purdue is titled *"Design of an e-Learning Program for Type 2 Diabetes Latino Patients".* My biggest dream is working in the Ministry of Health and Social Protection of Colombia. I truly believe in the capacity of the human race to eradicate inequality and build a society where everybody can create themselves without social, economic, sexual, spiritual, physical or race restrictions. At Purdue, I have learned that nursing deals not only with health, but also and mostly with ignored issues, like poverty, suffering and unawareness of rights.

Carlos Andrés Brito Sierra: Dr. Catherine Hill, Vector Biology

Developing Resistance Breaking Insecticides for Mosquito Control: Molecular Characterization of Novel *Aedes* and *Anopheles* GPCRs



I am a student in the major of Biology. At Purdue, I worked with Dr. Catherine Hill on Vector Biology in the Entomology Department. My research is *"Characterization of Four GPCRs for Disruption of Essential pathways in Aedes aegypti Resistant Strains Attaining Insecticide discovery"*. I aimed to find new potential targets involved in resistant populations of mosquitoes in order to control the spread of vector borne diseases. My stay at Purdue was an important stage for my life because I found research that appeals to me as well as life in the United States as wonderful and unique with astonishing culture.

Diana Milena Ramírez Gutiérrez: Dr. Klein Ileleji, Agriculture Engineering

Use of solar energy as a postharvest technology for conservation of the quality of agricultural products

My project, “Postharvest Technology for Conserving the Quality of Agricultural Products”, involves using solar energy to create technologies that prevent post-harvest losses. Here at Purdue, I collaborated on the design of a multipurpose solar dryer; conducted experiments to study the drying rates of grain and fruits and predict drying performance of a larger scaled dryer. I consider the project to be of great importance to increasing the global food security as it is aimed at reducing significant post-harvest losses of food around the world.

At Purdue I learned a lot about, and contributed to the development of technologies for food preservation.

Andrea Carolina Pérez Silva: Dr. Santiago Pujol, Seismic Studies

Strong ground-motion database

I am a student of ninth semester of geology. My project at Purdue was to build a *Strong ground-motion database,* which aimed to compile the information of the biggest earthquakes to use it as a tool for seismic engineering research. My academic interests are applied geophysics and seismology. Purdue Experience helped me to broaden my scopes of possibilities to develop professionally and, as a person, by knowing different cultures.

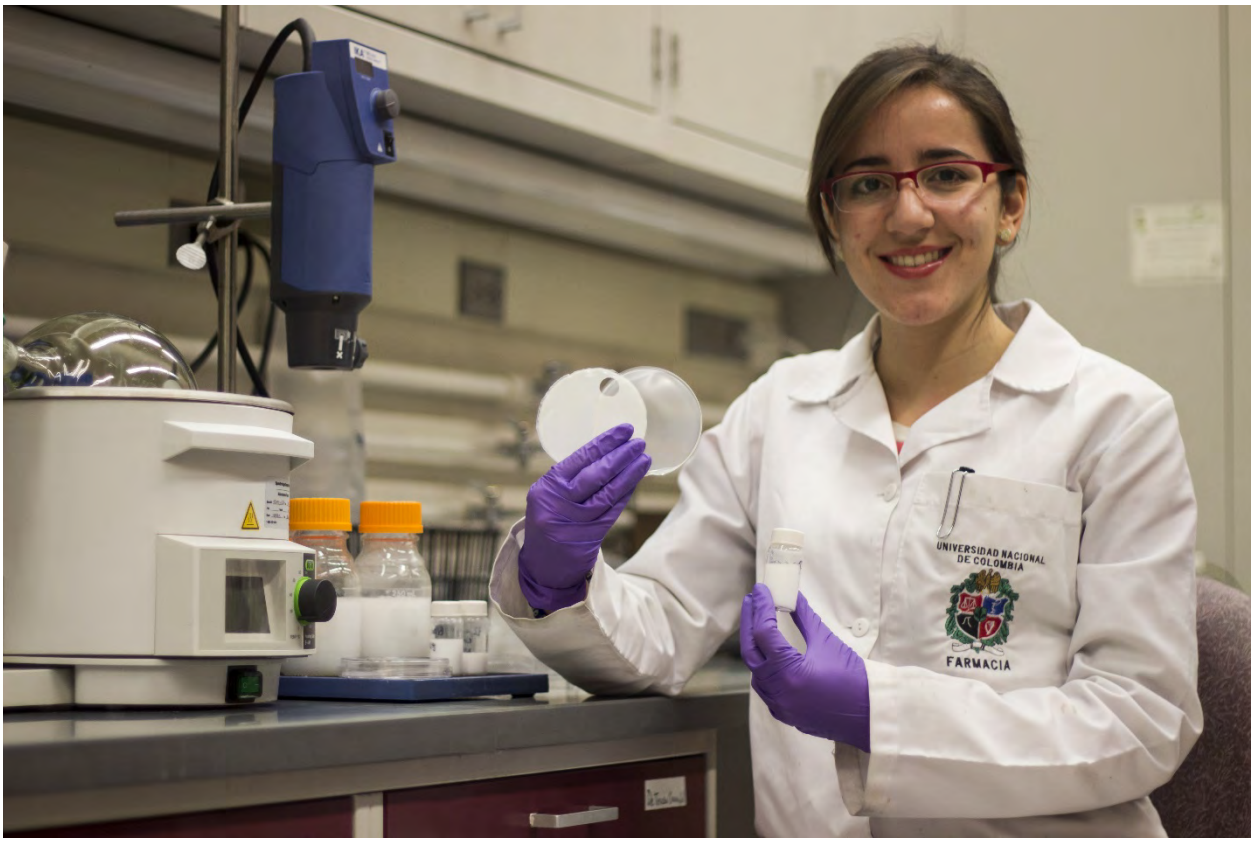
Yinneth Lorena León Velasco: Dr. Bruce Craig, Statistics

Application of mixed models effects in the studies: a) Semantic Richness and Word Learning in Children with Autism Spectrum Disorder, and b) Feed Intakes of Sows Lactation

One of the things I feel most passionate about my profession in Statistics is the opportunity of interacting with different disciplines. During the Fall semester, I worked as an statistical consultant at the Purdue University, Statistics department. Throughout this experience I became involved in the data analysis of two research projects: (a) Semantic Richness and Word Learning in Children with Autism Spectrum Disorder, and (b) Feed Intakes of Sows Lactation. I learned that statistics has a major impact on society by guiding different disciplines in the selection of optimal decisions.

Catalina Azcárate Mejía: Dr. Rodolfo Pinal, Pharmacy

Biopolymer-based films as a novel drug delivery system containing Griseofulvin-loaded nanocapsules



Nanoparticles are known as solid colloidal particles including both nanocapsules and nanospheres. Nanocapsules are composed of an oil core surrounded by a polymeric membrane. In the pharmaceutical field, there is an agreement that particle size should be in submicronic range (100 to 500 nm). Stability of nanosuspensions could become challenging and consequently solid dosage forms are preferred. For this reason, in this work, composite films were chosen to load nanoparticles into them. A number of biopolymers have a potential for obtaining films for medical and pharmacy applications. Gelatin is one of the most accurate proteins for making films, due to it good film forming qualities and cheap cost.

Héctor Lozano Pérez: Dr. Teresa Carvajal, Pharmacy

Understanding the behavior of powders-A case study for the food industry

I am a student of Pharmacy. Universidad Nacional de Colombia offered me a cross-disciplinary education. At Purdue University, I have been working on the project: Understanding the behaviour of powders-A case study for the food industry. “The most rewarding aspect of my research experience which sets it apart in encouraging interdisciplinary research and clearly demonstrated the value of fundamental understanding in chemistry, engineering, and pharmaceutical principles”. For me, the Purdue Research Experience has provided the opportunity to learn every day and enhance the necessary skills through interaction with diverse students; I am convinced of the value of a Colombian public education.

María Elquer Montoya Pizarro: Dr. Michael Mickelbart, Mr. Michael Gosney, Botany and Plant Pathology

Changes in stomatal density in response to water deficit in *Arabidopsis Thaliana* accessions adapted to different precipitation levels

I'm a student of agronomic engineering. I've worked on project called "Changes in stomatal density in response to water deficit in *Arabidopsis Thaliana* accessions adapted to different precipitation levels". The Lord listens to one's heart longing, He has allowed me to have such a meaningful experience in my life. The value of time, hard work, and especially our meaning as people have been strengthened here, Purdue has changed my perspective on these values, and that's what really matters. At the end of the day, it's change what keeps you going, I'm grateful for I've been allowed to stay on this road.

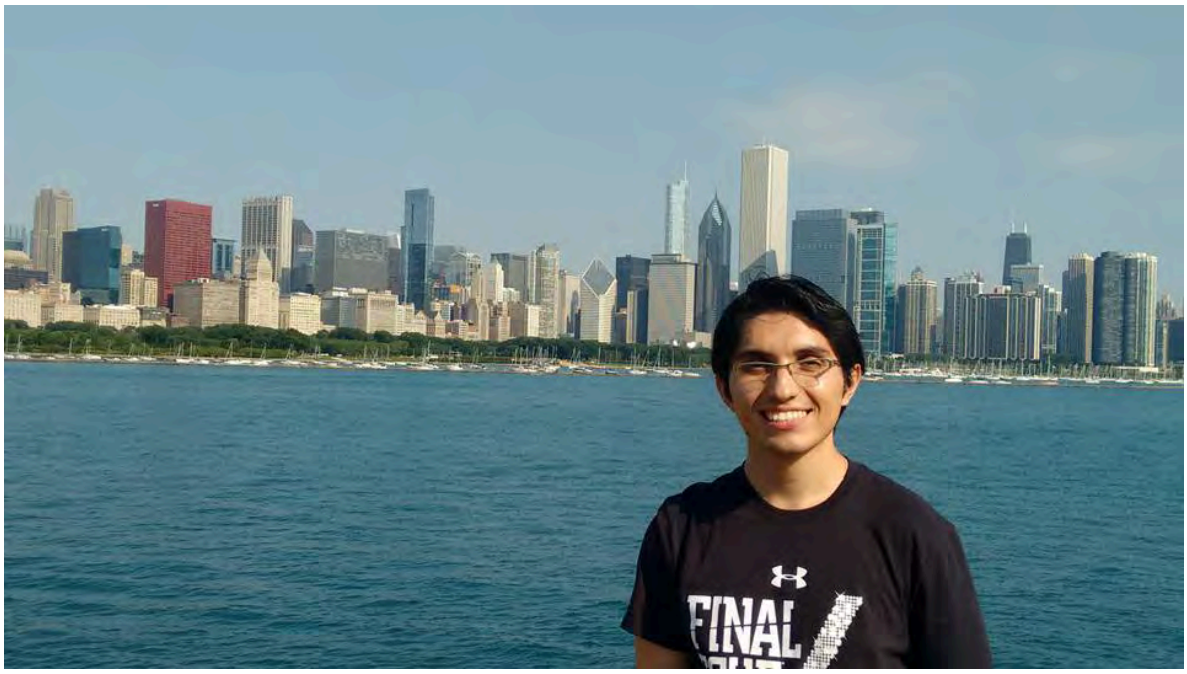
Jhon Felipe Sandoval Pineda: Dr. Michael Mickelbart, Mr. Michael Gosney, Botany and Plant Pathology

Closed growing system for efficient analysis of plant water use

I am a senior in Agronomic engineering and worked at Purdue University in the project “Closed growing system for efficient analysis of plant water use”. The UREP-C has given me a priceless experience in which I have learned about how science is built and its importance in order to face the current challenges of our society. The whole learning process has made me improve not only as a student but also as a person. I have really appreciated to have had such an unique opportunity and I hope to use and share all the learned lessons.

Andrés Mauricio Peña Lozano: Dr. Fabio Ribeiro, Chemical Engineering

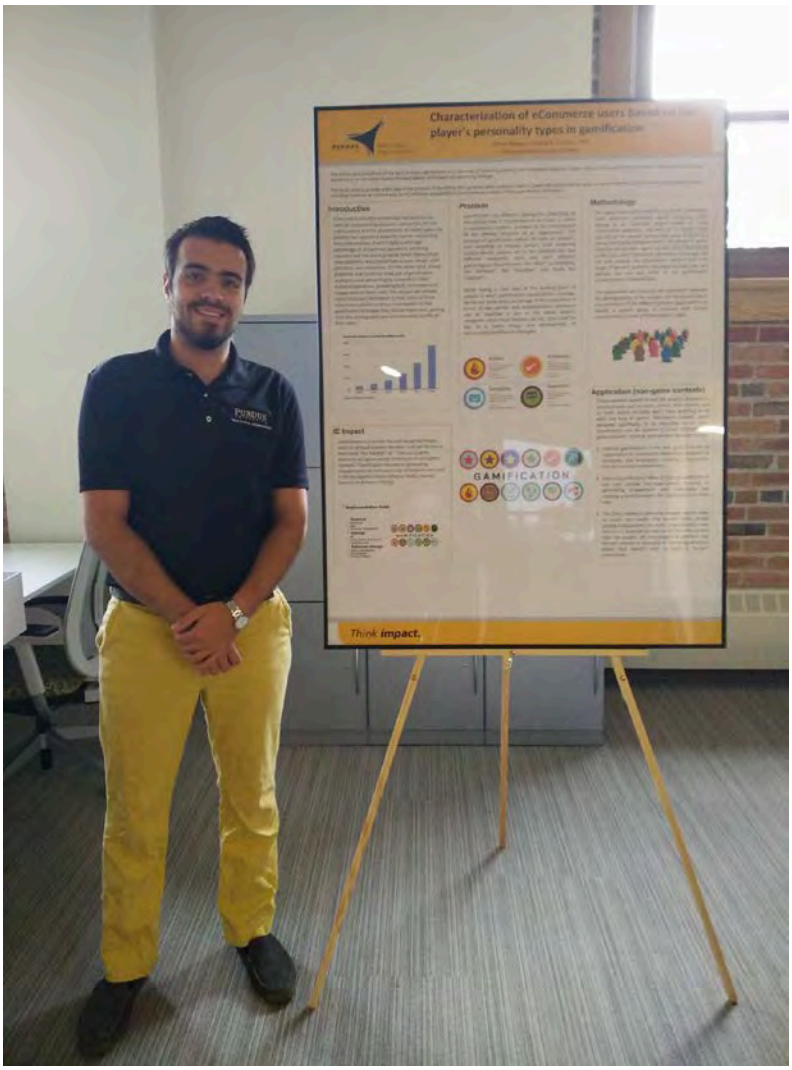
Selective Catalytic Reduction on Copper-Exchanged Zeolites



I am a Chemical Engineering student, and have been working on the development of catalyst for Automotive NOx Abatement “Selective Catalytic Reduction on Copper-Exchanged Zeolites” in Ribeiro´s group, NOx emissions are a major issue for the environment, and regulations are stricter every day. The goal of the research is the understanding of catalyst behavior under different conditions. This internship has been my best experience by far, I love to be working at Purdue Catalyst Center with Professor Ribeiro, I have learned too much about research and human share. The Purdue experience will be ever in my heart!

Simón Duque Echeverri: Dr. Abhi Deshmukh, Industrial Engineering

Characterization of eCommerce users based on the player's personality types in Gamification



The experiment will be tested on a specific population: Latin American University students, which currently stand as an important target market of many eCommerce platforms, and will try to classify them into any of the players' personality types in Gamification based on their demographics, if there is a strong correlation between them. The UREP-C experience was a way to open new doors towards my future, meet new people and interact with the Purdue community. It has been a memorable experience in a whole new level. From now on, I will always encourage other students to participate in any international experience.

Edgar Leandro Jiménez Jaimes: Dr. Abhi Deshmukh, Industrial Engineering

Construction of future scenarios for demand and energy prices in the state of Indiana

I am a management engineering student. My project at Purdue is titled ***"Construction of future scenarios for demand and energy prices in the state of Indiana"***. My academic interests are quantitative finance models and time series forecasts. Currently I am working on the development of artificial intelligence models for forecasting time series and writing an article in this topic with my tutor in Colombia. At Purdue, I have learned about the energy market and the different forecasting methods used and what kind of variables must be taken into account in an economic and financial context.

Rafael Alejandro Páez Villate: Dr. Matthew Hoelle, Economics

Term Structure Targeting, Price Level Indeterminacy and Taylor Rules

I am a student of economics at National University of Colombia, I worked at Purdue with Dr. Matthew Hoelle in a project called “Term Structure Targeting, Price Level Indeterminacy and Taylor Rules”. The experience at Purdue has given me a real approach to the way research in economics is written and developed nowadays, an awesome academic and personal network and a new vision of the world. This has been the opportunity to believe that dreams come true and that I can achieve the goals I trace in my life. The best is yet to come.

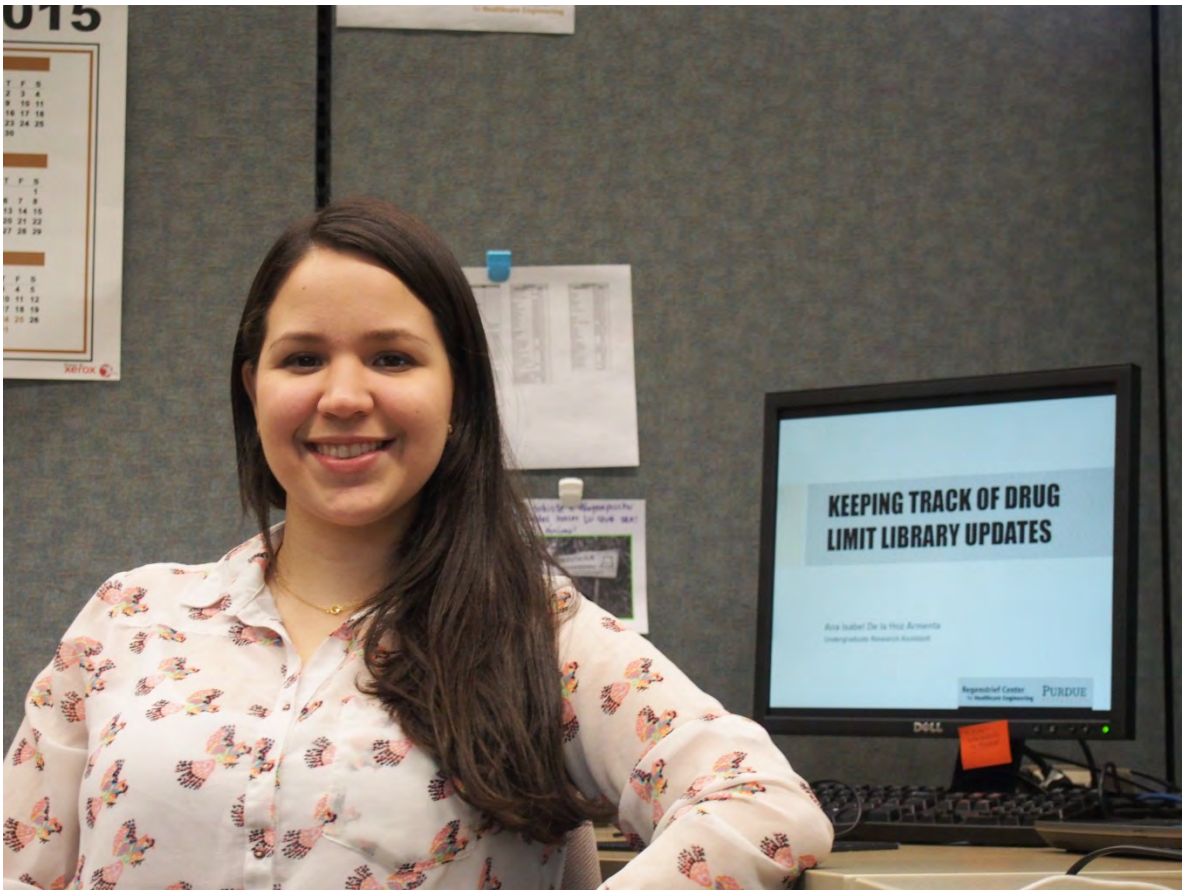
Roxana Andrea Lozano Mahecha: Dr. Bruce Applegate, Microbiology

Detection of Naphthalene and Toluene using genetically engineered microorganisms

I am R. Andrea Lozano Mahecha, I am environmental engineer at Universidad Nacional de Colombia Palmira Campus. Since my days in high school, I have thought that one has a mission in this world, not only that one of pursuing happiness, but also one of greater transcendence, a contribution to its people and my surroundings. My work at Purdue “Detection of Naphthalene and Toluene using genetically engineered microorganisms” has enabled me to bring that thought into reality.

Ana Isabel de la Hoz: Dr. Richard Zink, Healthcare Engineering

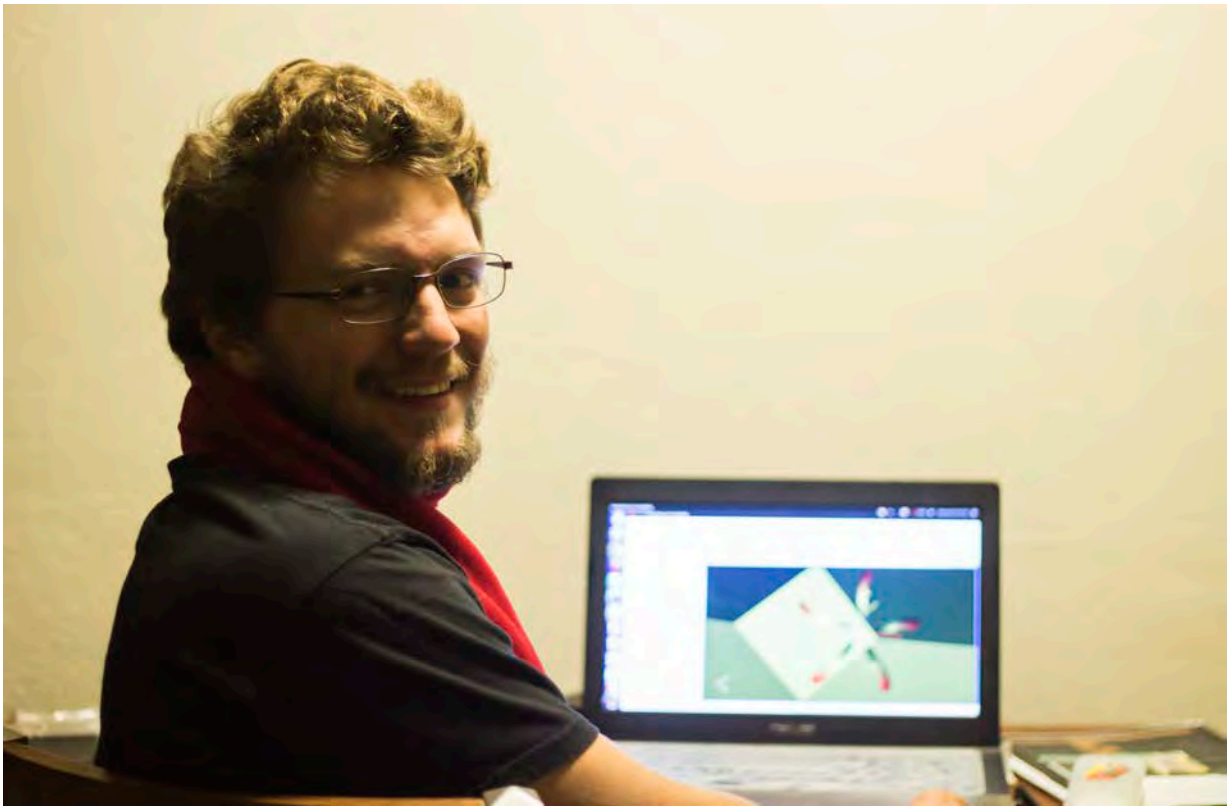
Keeping track of the drug limit library updates of smart infusion pumps in a hospital



During my experience at Purdue, I worked in a project called “Keeping track of Drug Limit Library Updates” aiming to learn from the update process in Smart Infusion Pumps to inform the future of medical device interoperability in the healthcare environment while I was working in the Regenstrief Center for Healthcare Engineering. Through this unique and amazing experience, I learned about different cultures, showed people how proud I am to be Colombian and found inspiration to work in healthcare environments to improve the service quality and population health, discovering a new application for my career in Industrial Engineering.

Werner Wahanik: Dr. Jun Chen, Mechanical Engineering

Computational fluid dynamics' simulation of a bio-inspired wind turbine



I am a mechanical engineering student from Bogotá and I am concerned about big issues such as climate change, destruction of the environment, economic inequality and poverty and the desire to help solving them motivates me to develop and build technology for a sustainable future. Out of my strong interest for clean energy generation, fluid mechanics and product development I worked under Prof. Jun Chen on the project “Computational fluid dynamics' simulation of a bio-inspired wind turbine” during my visit at Purdue University. The wonderful time spent at Purdue has helped me reassure my goals, enhance my professional skills and gain deep insights of the world.

Juan Felipe Pinto Castelblanco: Dr. Jiqin Ni, Environmental Engineering

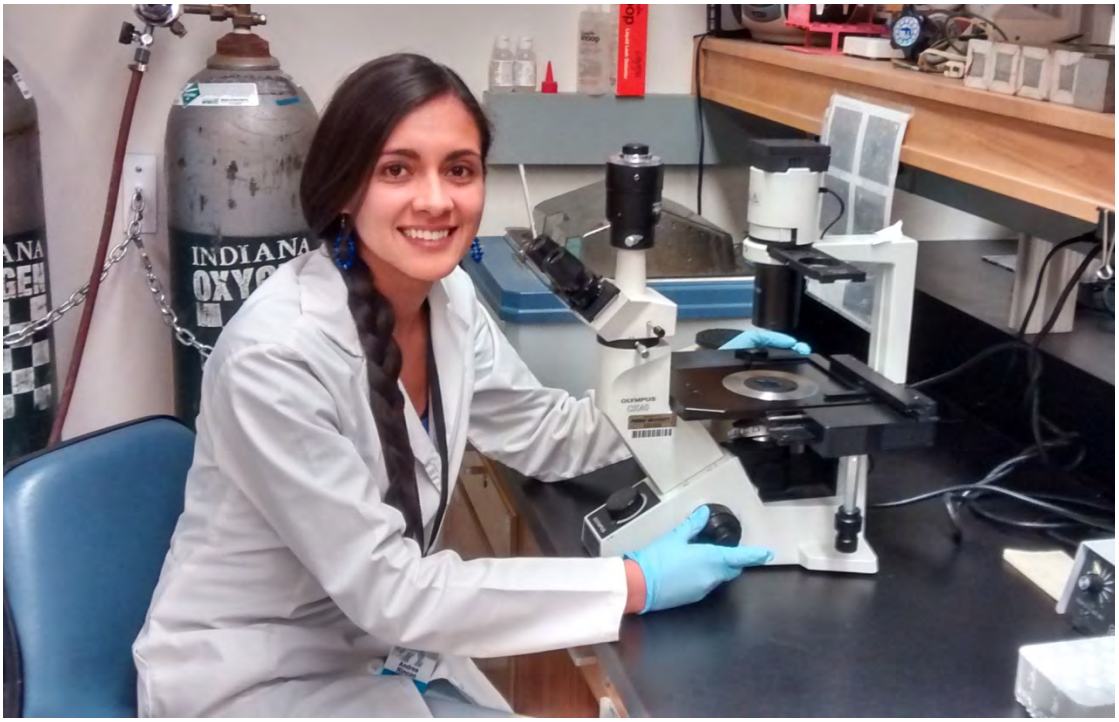
Feasibility study for biogas recovery from a liquid digestate

“Be brave and strong, it is worth taking the risk, because life only live once and your ideas too”

I am a student in the major of Environmental Engineering. My project at Purdue is titled “**Feasibility study for biogas recovery from a liquid digestate**” Study with laboratory scale digesters to determine the feasibility of recovering biogas from a digester effluent of a commercial digester from a company that currently is stored in different lagoons. I enjoyed my stay at Purdue and wants to continue my studies focused on sustainable development and social entrepreneurship.

Angie Andrea Rincón Cardona: Dr. Deborah Knapp, Veterinary Medicine

Effects of vemurafenib on the proliferation of canine bladder cancer cells and human melanoma cells harboring a BRAFV600E mutation



I am a senior Veterinary Medical student from Universidad Nacional de Colombia at Bogotá, Colombia. My project at Purdue is titled “Comparison between responses of K9TCC cell lines with BRAF V595 mutation and human melanoma cell lines harboring the homologous BRAF V600E mutation under vemurafenib exposure”. The aim of the project is to collaborate with the development of important clinical information to improve the treatment of some cancers in humans and dogs. My research experience at Purdue University has been crucial in my professional growth pushing me to new fields of knowledge and into new personal goals.

Juan Sebastian Páez Páez: Dr. Andy Tao, Biochemistry

Substrate identification of CDKL5

The protein CDKL5 is essential for normal brain development. It is known that this protein changes the activity of other proteins by adding phosphorous and oxygen to them, regardless it is not clear which proteins are modified by CDKL5. In this project we made use of in-vitro assays and shotgun proteomics to identify proteins as potential substrates of CDKL5. My time in Purdue has been an invaluable experience, both personally and professionally, which has strengthened my aptitudes and desire to pursue graduate education.

Juan David Hernández Montenegro: Dr. Chris Andronicos, Earth, Atmospheric, and Planetary Science

Petrology and geochemistry of metamorphic rocks in the Wet Mountains in Colorado

I am a student of geology. I have been working with Professor Chris Andronicos on petrology and geochemistry of metamorphic rocks in the Wet Mountains in Colorado. My main interests are petrology and geochemistry, and their contribution to the understanding of Earth evolution and tectonic processes. I love nature, and am curious about how things work and how the universe was formed; so I consider geology not only as my career, but also as one of my passions. I am really grateful with Purdue, since it has offered me the opportunity to get to know amazing places and good people.

Alfred Steven Saavedra Jiménez: Dr. Enrique Martínez, Chemical Engineering

Use of Catalysts in Delayed Coking Process

Chemical Engineering student of tenth semester of the Universidad Nacional de Colombia, Bogota branch, currently working in Purdue University with the professor Enrico Martinez and Universidad Nacional de Colombia with the professor Gerardo Rodriguez. Nowadays works in the project called Use of catalysts in delayed coking process that try to upgrade and improve this process using catalyst to decrease the heavy residues and improve the supply of fuels from refineries. The UREP-C experience represents to me the possibility to learn about multiple cultures, state-of-the-art technology, high education, know people from all the globe, grow like person and professional, etcetera. My academic interests are focused primarily on catalytic, petrochemical and polymer processes, industrial sectors in which he would like to work later. My personal interest are traveling, sharing with family and friends, and ONG support.

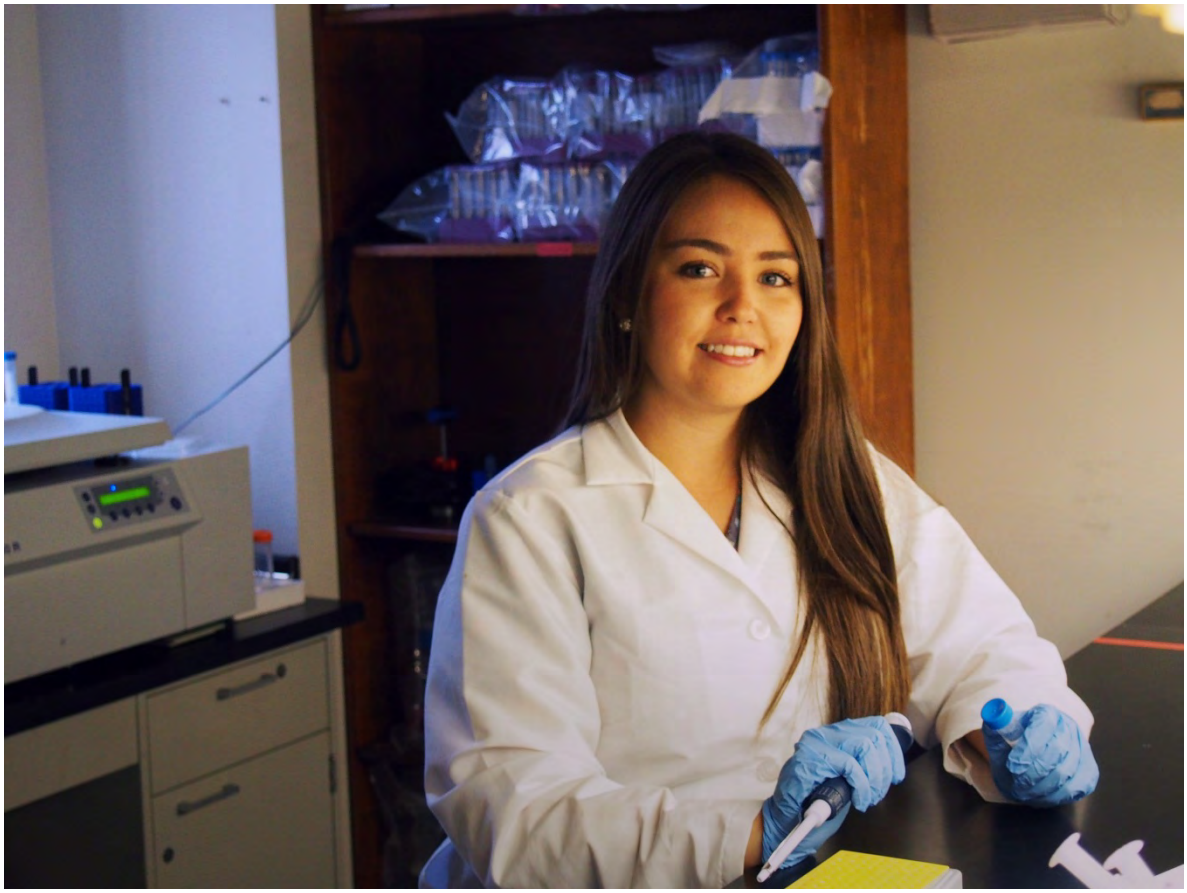
Diego Fernando Vásquez Mendieta: Dr. Sue Loesch-Fries, Botany and Plant Pathology

Role of PsbP in signaling pathway against *Alfalfa mosaic virus* infection in tobacco

I am studying Agronomy. My project title is "Role of PsbP in signaling pathway against *Alfalfa mosaic virus* infection in tobacco" in which I sought to identify as affected signaling pathways the wild type and mutant plants are infected with the virus. My experience at Purdue University has allowed me to develop communication skills, and organizational learning abilities. My experiences during my stay in the United States has taught me more about other cultures, while creating high expectations for further work and living life to the limit. My dream is to contribute to the growth of my country in agricultural field and education.

María José García Niño: Dr. Keke Fairfax, Pathobiology

What induces CXCR6 expression on B cells during *S. mansoni* infection?



I am a senior student in the major of dentistry at the Universidad Nacional de Colombia, but at Purdue I work in the Pathobiology Department, which is part of the Veterinary Medicine School. I am enrolled in a project related with B cell trafficking during S. mansoni chronic infection. I decided to get involved in this experience because I wanted to make my professional curriculum wider (beyond the dental clinical practice), and strengthen my skills as a researcher and student.

Luisa Estefania Cataño Echavarría: Dr. Luna Lu, Civil Engineering

Thermoelectric Behavior of Carbon Fiber Reinforced Cement with ZnO Nanoparticles

I am a Chemical Engineer and senior student of Petroleum Engineering at Universidad Nacional de Colombia, Medellin. At Purdue, I have learned that cultural diversity and knowledge from interdisciplinary workteams are important for the generation of ideas and solutions to the world's challenges. My project at Purdue is: *Thermoelectric Behavior of Carbon Fiber Reinforced Cement with ZnO Nanoparticles*. Its goal is to study the harvesting of electricity using thermoelectric (TE) technology and its role in civil engineering infrastructure. Myrole in this project has been working with Dr. Luna Lu in the Lyles School of Civil Engineering on the development of a TE concrete through incorporation of semiconductor *ZnO* nanoparticles.