The Berry Summer Thesis Institute Students would like to thank the following for making this program possible:

**The Berry Family and Berry Family Foundation**

**Summer Thesis Mentors**
Professor Albino Carrillo, Dr. Trevor Collier, Dr. Anne Crecelius, Dr. Roger Crum, Dr. Robert Crutcher, Dr. Marian Diaz, Dr. Matthew Lopper, Dr. Thomas Morgan, Dr. Stephen Richards, Dr. Amit Singh and Dr. Thomas Williams

**Dayton Community Partners in Servant Leadership**
Catholic Social Services Refugee Resettlement, The Dakota Center, The Dayton International Peace Museum, East End Community Services, Five Rivers Metroparks Community Gardens, Good Neighbor House, House of Bread, Reach Out and United Rehabilitation Services

**UD Campus Ministry’s Center for Social Concern**
Nick Cardilino

**Fitz Center**
Kelly Bohrer and Dick Ferguson

**UD Career Services**
Jason Eckert and Elizabeth Seager

**Roesch Library**
Heidi Gauder and Amy Gullen

**UD Student Development: Residence Life**

**UD Administration**
Office of the Provost
Offices of the Deans — College of Arts and Sciences, School of Business Administration, School of Engineering and School of Education and Health Sciences

**University Honors Program Review Committee**

**University Honors Program Staff**

email: honorsinfo@udayton.edu / website: www.udayton.edu/honors
University Honors Program

presents the

Berry Summer Thesis Institute
Symposium 2014

July 31, 2014
1:00 to 5:00 p.m.
Science Center Auditorium SC 114

Reception 5:00 to 6:00 p.m.
Science Center Prefunction Space

Thanks to a recent gift from the Berry Family Foundation and the Berry family, the UHP again offered eleven rising juniors the opportunity to participate in the Berry Summer Thesis Institute. First initiated in the summer of 2012, the institute introduces students with a proven record of academic success and interest in research to intensive research, scholarship opportunities, academic Honors credits and professional development workshops. Students selected for the program were nominated by faculty mentors and competitively selected for participation by the University Honors Program review committee.

Each student pursued a 12-week summer thesis research project under the guidance of a UD faculty mentor. In coordination with the Center for Social Concern, campus ministry and the Fitz Center for Leadership in Community, the students also learned about civic engagement and servant leadership by volunteering with local community partners.

Joseph B. Ferber
Major: English
Mentor: Thomas L. Morgan, Ph.D.
Department: English

Thesis Title
Revising the Lyrical I: Postcolonial Poetry and Subject Formation

Description
Traditional Western poetic conventions of the lyric “I” emphasize the importance of the individual by focusing only on the perspective of the narrative voice. Applying post-colonial theory to the poetry of several Pan-American-Indian authors demonstrates how Western prioritization of the individual is complicit with forcing the indigenous to follow Western ways. In this poetry, authors challenge traditional usages of the lyrical “I” by juxtaposing them alongside collective “we” perspectives in order to critique the Individual’s inability to breach the limits of its own belief system. Identity created by the relational structure between pronouns helps create a revised poetic perspective able to identify ways that indigenous peoples have challenged Western belief patterns. Specifically, interactions between individual and collective identities help reveal the Western tendency to associate sexual promiscuity with skin color. Close attention to the relationship between the lyrical perspectives of “I” and “we” brings to light a failure of the traditional Western “I” to empathize with difference, as seen explicitly in silent perpetuation of Western views uncritically valuing sexual exoticism.

Brian D. Bates
Major: Finance and Operations Management
Mentor: Trevor C. Collier, Ph.D.
Department: Economics and Finance

Thesis Title
The Impact of E-Commerce on Big-Box Retailers

Description
The history of retail has been an evolutionary process of new innovations and transformations. It is possible that we are dawning upon a new revolution of the retail environment as electronic commerce (e-commerce) continues to grow. This study will analyze the impact of e-commerce on retail markets, specifically big-box stores (defined as stores between 50,000 and 200,000 square feet) using financial and real estate data. Two separate models will be utilized to answer the following questions. Has the growth of e-commerce affected the retail real estate market? Which retail submarkets have been affected most by the growth of e-commerce? Are big-box retailers with burgeoning e-commerce programs less at risk to the growth of e-commerce than those with none?
A complete understanding of the genetic basis of the fundamental process of eye development has not yet been fully understood. Recently the homeotic gene defective proventriculus (dve), which has previously been shown to be involved in midgut specification in Drosophila, has been found to be one of the key dorsal eye fate determination genes. We used conventional genetic approaches of tissue/domain specific gain-of-function and loss-of-function to test the interaction of dve with each of the RD genes individually to discern their interactions in eye development. Here we will present the findings of this study to date.
Claire C. Konys
Major: Biology
Mentor: Thomas Williams, Ph.D.
Department: Biology

Thesis Title
The Role of Polycomb and Trithorax Group Genes in the Development and Evolution of an Animal Trait

Description
Differences in gene expression are a prominent cause for variation in form and behavior among organisms. In eukaryotes, gene expression is regulated through the compaction of DNA sequence into chromatin. Gene expression is by default “OFF” due to a repressive compact chromatin state. Expression can be switched “ON” through the modification of histone proteins and by histone repositioning. In the fruit fly species *Drosophila melanogaster*, the Polycomb Group of genes can induce the formation of repressive chromatin and the Trithorax Group of genes can induce permissive chromatin. How these Polycomb and Trithorax genes collectively regulate the development of a trait and their contribution to the evolution of a trait remains poorly understood. My thesis focuses on answering which genes shape a *Drosophila melanogaster* pigmentation trait, when they are needed during this trait’s formation, and whether the uses of these genes have evolved to shape evolutionary changes in pigmentation.

Maxwell J. Roeske
Major: Biology and Psychology
Mentor: Thomas M. Williams, Ph.D.
Department: Biology

Thesis Title
Tracing the Role of bab Gene Duplication and Divergence Events in the Evolution of a Fruit Fly Pigmentation Trait

Description
Mutation events can duplicate a gene, creating a pair of paralogous genes. Such increases in number are thought to open additional paths of evolution. This includes coding evolution, in which exons code for proteins, regulatory evolution, in which a gene is expressed by cis-regulatory elements, most often located in introns, or rather a blended path of both coding and regulatory evolution. *Drosophila melanogaster* possesses paralogous *bab1* and *bab2* genes that resulted from an ancestral duplication and control abdominal pigmentation. My thesis will use these genes as a model to investigate whether and when *bab* coding sequence evolution contributed to this trait’s origin that might complement the known cis-regulatory evolution. This involves testing whether the protein coding sequences of these *bab* paralogs are functionally equivalent through loss-of-function and gain-of-function methods. Collectively, this work will demonstrate how the historical changes to an animal gene made possible the origin of a novel trait.

Krista E. Bondi
Major: American Studies and History of Art
Mentor: Roger Crum, Ph.D.
Department: Visual Arts
Mentor: Marian K. Diaz, D.Min.
Department: Religious Studies, Loyola University

Thesis Title
The Interfaith Campus: The University of Dayton and the Question of Diverse Sacred Spaces in Catholic Higher Education

Description
In today’s globalized society, Catholic universities like the University of Dayton must consider the well-being of their diverse student communities. Recently, the University of Dayton — like other Catholic universities—has seen a growth in international students and, consequently, students of different faiths. As a result, the University is experiencing the reality of — or need for — interfaith dialogue, even as the evidence of the renovation of the Immaculate Conception Chapel underscores the continued need to emphasize UD’s traditional Catholic identity and mission. This research examines the availability, or lack thereof, of sacred spaces for students of all faiths at Dayton. Looking at existing spaces at sample Catholic universities, this research explores the potential for interfaith dialogue at the University of Dayton with its intended as well as possible creation or renovation of multi-faith spaces.

Riley C. Weber
Major: Intervention Specialist Education
Mentor: Stephen Richards, Ed.D.
Department: Teacher Education

Thesis Title
Identification of English Language Learners as Gifted Students

Description
United States school systems have a growing population of students from immigrant families who require new programs and policies to ensure their academic needs are met. Typically, these students speak a native language other than English and, therefore, must learn English as a second language while simultaneously working to learn the same material as their peers. These English Language Learners (ELL) may not receive an appropriate education due to their language differences, cultural biases found in assessments, and the identification process for exceptional students. Gifted and talented programs in public schools have served an essential purpose for educating and preparing exceptional students for success, but a significantly small number of ELL are represented in these programs nationally. This Honors thesis explores the issues with and the effectiveness of current assessment strategies, and procedures and instruments used in the identification and instruction of ELL in gifted and talented programs.