8-2-2013

2013 Summer Undergraduate Research Program

University of Northern Iowa. Summer Undergraduate Research Program.

Let us know how access to this document benefits you

Copyright ©2013 Summer Undergraduate Research Program, University of Northern Iowa

Follow this and additional works at: https://scholarworks.uni.edu/surp_programs

Part of the Higher Education Commons

Recommended Citation


This Program is brought to you for free and open access by the CHAS Conferences/Events at UNI ScholarWorks. It has been accepted for inclusion in Summer Undergraduate Research Program (SURP) Symposium Programs by an authorized administrator of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.
A Message from Dr. Joel Haack
Dean of the College of Humanities, Arts and Sciences

There is no substitute for undergraduate research in any undergraduate science major.

In the College of Humanities, Arts and Sciences at the University of Northern Iowa, we encourage undergraduate students to pursue research. Our faculty members are both interested and eager to work with students. In the traditional classroom-based curriculum, there is nothing quite equivalent to these research opportunities. In many classes, students learn the results of scientific disciplines, but have little opportunity to do science themselves. In other classes, instructors have carefully planned assignments to give their students some sense of what it means to do science, to participate in the disciplinary community, but these projects typically have a fixed time frame, often do not begin with questions the students have generated, and may present only limited opportunities to share what is learned with their disciplinary community. Only in a full-scale research opportunity are students able to experience the entire scientific process.

Here at UNI, students experience the entire process of research as it typically occurs—ask a question or formulate a project, apply for support for the funds required to pursue the project, carry out the research, then make a public presentation of the results. I congratulate all those involved with this celebration of the hard work, and of the joy, of doing science.

(Adapted from a column in the American Journal of Undergraduate Research, June 2007.)

Program

11 a.m. Welcome
Dr. Joel Haack
Dean, College of Humanities, Arts and Sciences
Seerley 115

Keynote
“The ABCs of Astrobiochemistry: From Solar Spectrometers to Our Own Backyard”
Dr. Joshua Sebree
UNI/NASA

12-1:30 p.m. Exhibit of Posters
Lunch
Seerley Great Reading Room
1. Allie Simpson and Julie Kang (Biology)  
The role of KNOX genes during simple and compound leaf development in the genus Ampelopsis (Vitaceae)

2. Andrew Ridgway with Dr. Mark Myers and Benjamin Hoksch (Dept. of Biology & Tallgrass Prairie Center)  
Effects of Flooding on the Flora and Fauna of a Reconstructed Tallgrass Prairie, Project supported by University of Northern Iowa, Iowa Power Fund

3. Katherine Thomas (Biology), Melanie J. Hopkins (GeoZentrum Nordbayern, Universitat Erlangen-Nurnberg), Carl Thurman (Biology)  
Latitude and Environmental Pressure: Their Impact on Carapace Shape in Three Species of Fiddler Crabs from Different Regions across the Atlantic Ocean, Project supported by College of Humanities, Arts and Sciences

4. Laura Asprey and Dr. Sarah Boesdorfer (Chemistry & Biochemistry)  
The Effects of Participation in Undergraduate Science Education Research on a Teacher’s Practice

5. Tori Quist and Dr. Dawn Del Carlo (Chemistry & Biochemistry)  
The Influence of Life Experiences on Women’s Science Career Decision-Making Across Generations

6. Chelsea Meier and Dr. Dawn Del Carlo (Chemistry & Biochemistry)  
Use of a New Method for UNI Student Chemistry Demonstration Instruction

7. Jacob Rathmacher, Abby Souhrada and Dr. Laura Strauss (Chemistry & Biochemistry)  
The Synthesis of Intercalated Disulfides

8. Sean Steinke and Dr. Eric Peterson (Chemistry & Biochemistry)  
Characterization of Volume Constrained Protein Folding: The Effects of Water, Confinement, and Salts

9. Heather Wiltse and Dr. Martin Chin (Chemistry & Biochemistry)  
Investigation of Diruthenium Bipyridine Complexes

10. Daniel Evans, Allison Wold and Dr. Melisa M. Cherney (Chemistry & Biochemistry)  
Investigating Redox- and pH-driven Ligand Switches in Met80-to-Cys Variants of Iso-1-cytochrome c

11. Allison Wold, Daniel Evans and Dr. Melisa M. Cherney (Chemistry & Biochemistry)  
Attempts to Tune the Ligand Switch in Type II Heme-thiolate Model Proteins Using Second Sphere Ligand Effects

12. Thomas D. Petersen and Dr. Colin L. Weeks (Chemistry & Biochemistry), Gurusamy Balakrishnan and Thomas G. Spiro (University of Washington Department of Chemistry)  
Raman Spectroscopic Studies of Crystal Framework Growth
13. Cassara J. Higgins and Dr. Colin L. Weeks (Chemistry & Biochemistry)
   Building a Brick Wall: Creating Metal Organic Frameworks

14. Erik Duhn and Dr. Sarah Boesdorfer (Chemistry & Biochemistry)
   Affecting Students’ Conceptual Understanding with Common Misconceptions in General Chemistry

15. Emilie Borde, Tanner Metz, Angela Wrage, Dr. Jeffrey Elbert (Chemistry & Biochemistry)
   Programmed Drug Delivery: Catalyzed Amination Studies

16. Tanner Metz, Angela Wrage, Emilie Borde, Dr. Jeffrey Elbert (Chemistry & Biochemistry)
   Programmed Drug Delivery: Linker Scale Up Studies

17. Angela Wrage, Emilie Borde, Tanner Metz, Dr. Jeffrey Elbert (Chemistry & Biochemistry)
   Programmed Drug Delivery: Model Compounds for Hydrolysis Studies

18. Katie Wilford, Dr. Jihwa Noh and Dr. Karen Sabey (Mathematics)
   Assessing Understanding of Fraction Multiplication through Problem-Posing and Models

19. Corbyn Mellinger, Paul M. Shand, Tim Kidd, Kayla Boyle, and Laura Strauss (Physics, Chemistry & Biochemistry)
   Magnetic Phase Transitions in Intercalated Dichalcogenide Nanostructures

20. Virginia McCall and Dr. Syed Kirmani (Mathematics)
   Mathematical Modeling of Epidemics

21. Abigail Lee, Bryan Hendrickson, and Julie Kang (Biology)
   Development of Leaf Shape and Vein Homology in Morning Glory (Ipomoea)

22. Jordyn A. Tobin and Nilda E. Rodríguez (Biology)
   Host-pathogen interactions between macrophages and the parasitic protozoan Leishmania chagasi: What factors influence infection levels? Project supported by Dr. Robert & Brenda Good Undergraduate Research Assistantship (JAT)

23. Victoria Arreola and Dr. C. Elliott Heinzel (Dept. of Earth and Environmental Science)
   Exploring Western Sicily’s Prehistoric Transition into Agriculture through Geoarchaeology

24. John Chesley and Dr. C. Elliott Heinzel (Dept. of Earth & Environmental Science)
   Delineating the Interrelationships between Naturally Occurring Resources and Western Sicily’s Prehistoric Settlement Patterns

25. Kyle Spurgeon and Tim Kidd (Physics)
   Effects of Impurities on Nanostructures Formation

26. Eric Clausen, Connor Delaney, Rui He, and Tim Kidd (Physics)
   Optical Properties of MoS2 Nanostructures
27. Shawn Poellet, Andrew Folken, and Tim Kidd (Physics)
   Incorporation of Carbon Nanotubes into Nanocellulose Solids

28. Alex Corker, Shawn Poellet, Andrew Stollenwerk, and Tim Kidd (Physics)
   Building a Real World Mario Kart

29. Andrew Folke and Tim Kidd (Physics)
   Synthesis of Nanocellulose Solids of Varying Density

30. Zhipeng Ye and Tim Kidd (Physics)
   Incorporating 3-D First Person View onto a Quadrotor

31. Ben Castle and Dr. Adrienne Stanley (Mathematics)
   Elementary Submodels, Trees and Linear Orders

32. Conor Delaney and Rui He (Physics)
   Probing Phase Transition and Surface Properties of Topological Insulator Nanostructures by Raman Spectroscopy

33. Jordyn A. Tobin and Nilda E. Rodríguez (Biology)
   Host-pathogen interactions between macrophages and the parasitic protozoan Leishmania chagasi: What factors influence infection levels?

34. Kyle Dvorak and Mark Sherrard
   Selection on Physiology in Three Tallgrass Prairie Species, with Contrasting Flowering Times

35. Paige Leytem and Dr. Laura Jacson (Biology, Tallgrass Prairie Center)
   Using Seedling Recovery Methods to Determine Causes of Failed Germination in the Seedlings of Four Native Prairie Species

36. Tasha Hancock (Biology), Mark Jacobson (Mathematics), and Carl Thurman (Biology)
   Phenotypic Variation: Morphological Differences among Populations of the Fiddler Crab Uca rapax from the Western Atlantic Ocean
   Support provided by a McNair Fellowship and the College of Humanities, Arts and Sciences

37. Ryan Lockard and Dr. Marek Sliwinski (Biology)
   A Study of TFL1 and LFY as Agents in the Divergent Evolution of Arabidopsis thaliana and Carica papaya
Funding Agencies

Special thanks to these groups who support undergraduate research with gifts of $1000 or more.

UNI Summer Undergraduate Research Program
UNI Intercollegiate Academics Research Fund
National Science Foundation Award no. DMR-1206530
Iowa EPSCoR under grant number EPS-1101284
Dr. Robert & Brenda Good Undergraduate Research Assistantship (JAT)
Dean’s Fund College of Humanities, Arts and Sciences
National Science Foundation Mini Grant
Alumend/Avera Research
National Science Foundation
Regents Innovation Fund
Physics Department

Funding Sources

Special thanks to these individuals who support undergraduate research with gifts of $1000 or more.

Melvin Dostal
Clark and Helga Fensterman
Dr. Gary and Myrna Floyd
Dr. Robert and Brenda Good
Dr. Gerald and Christine Intemann
Dr. Guang Jin and Dr. Frank Ju
Dr. Alan and Karen Orr
Dr. Brian Raue
Dr. Cliff Chancey
Frances Jourdan
Richard Jourdan
Ed and Ann Strickland
Carl and Wanda Wehner
C. Gayl and Katherine Hopkins
Mark and Sharon Butterworth
Drs. David and Cathy Swanson
Dr. Virginia Weimar-Mutters
Dr. Steve and Merry Heilmann
Dr. Becky and Danny Rose
David and Lois Kail