

## 179 PARTICIPATE IN SUMMER RESEARCH

Summer Undergraduate Research Program at Hope College, 2011  
 Division of Natural and Applied Sciences, Hope Entrepreneurial Institute  
 and Department of Psychology



During the summer 19 students and four area high school teachers participated in Hope's summer research program working on nearly 70 unique projects with over 50 professors in the Natural and Applied Science Division. This is in addition to the nine students in the Hope Entrepreneurial

Institute, and 14 students in the Department of Psychology. Participants are not only Hope's students this summer 31 students from 23 different universities/ colleges or community colleges and 15 area high school students participated in cutting edge original research. The

summer research program was capped off with an annual dinner (SURF) on July 9, where 11 students, selected by the departments shared the research they conducted over the course of the summer with the Hope community and area business leaders.

### VOLUME 1

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## STUDENT AWARDS

### **Barry M Goldwater**

Ann Georges and Colin Rathbun

### **National Science Foundation– Graduate Research Fellowship**

Valerie Winton '11, Shirley Bradley Dean '10, Christopher Ploch '10, Ryan Davis '09, and Jacob Dickinson '09

### **Cancer Federation**

Robert Sjöholm

### **Department of Homeland Security Undergraduate Scholarship**

Eric Dulmes

### **Dean's Summer Research Award**

Joseph Adamson, Erica Jansen, Lien Brusselmans, Matthew Eiles, Hsaing Lin, Andreana Rosnik, Leah LaBarge and Nicolas Hubley

## FACULTY AWARDS



Dr. Jeff Brown has been named the 2011 recipient of the "Peter J. Bosscher Faculty Advisor Award for Outstanding Leadership" by Engineers Without Borders-USA (EWB-USA)

Dr. Jeff Brown



Dr. William Polik was named a 2010 ACS Fellow by the American Chemical Society.

Dr. Will Polik

## FACULTY AND STAFF ADDITIONS

Carlos Penalzo, Biology Post-Doc working with Dr. Maria Hledin beginning January 2012

Dr. Aranh Pen, Chemistry Department

Dr. Wally Fu, Chemistry Department

Ms. Lisa Brink, Nursing Department Lab Director

Dr. Kim Brien, Chemistry Post-Doc working with Dr. Moses Lee

Ms. Tahnee Prokopow, Assistant Professor of Biology and Pre-Health Professions Advisor

Dr. Dan Gerbens, Biology Department

Ms. Anita Esquerro-Zwiers, Nursing Department

## EVIDENCE OF EXCELLENCE

In 2011, two students received a Barry M Goldwater Scholarship: Anne Georges and Colin Rathbun. Nationally, only 278 scholarships and 169 honorable mentions were given. Three Hope College students were awarded Barry M. Goldwater Scholarship honorable mentions in 2010: Valerie Winton, Eric Lunderburg and Robert Sjolholm.

In 2011, five students received the prestigious NSF Graduate Research Fellowships and two received honorable mentions. Nationally, 2,000 fellowships and 2,003 honorable mentions were made. In 2010, four students received NSF Graduate Research Fellowships and three received an honorable mention. Nationally, 2,051 fellowships and 1,906 honorable mentions were made in 2010.

In 2010, students gave the majority of more than 120 presentations in professional conferences. Examples of conferences include the annual meeting of the American Chemical Society, the American Physics Society, the Geological Society of America, the American Society for Biochemistry and Molecular Biology, Experimental Biology Meeting, American Society for Microbiology, International Society for Computational Biology, the Mathematical Association of America, the American Institute of Chemical Engineers, SPIE Defense and Security Symposium and others. These meetings are held in large cities such as Anaheim, San Diego, Los Angeles, San Francisco, New Orleans, Denver, Las Vegas, Chicago, Atlanta, Miami, Orlando, Washington DC, Boston, New York City, Philadelphia and others.

90% of applicants with grade point average of 3.4 or above have been accepted by medical schools over the last ten years.

During the past ten years, about one-third of Hope science majors pursue Ph.D. degrees at a school of their choice. All these student have received fellowships from graduate schools to pursue their Ph.D. degree. Another third of our science graduates pursue a professional graduate degree in health-connected fields.

The Hope science research program normally has the largest number of students among all undergraduate colleges and universities nationally. Over the past three years, on average 160 students work with 50 science professors during the summer and more than 120 students continue to pursue research throughout the academic year.

In the production of Ph.D.'s in the sciences, Hope ranks in the top six percent in all liberal arts and undergraduate institutions and, in chemistry, the top one percent. 66 faculty authored 95 international peer-reviewed scientific publications in 2010. This level is almost twice the national average among non-Ph.D. granting colleges and universities.

### UPCOMING LECTURES AND EVENTS

**September 30:**

"How Shall We Choose? Making Useful Comparisons Between Petroleum Alternatives" by Prof. Bruce Dale, Michigan State University, Biomass Conversion Research Laboratory  
Winants Auditorium | 3pm

**October 14:**

VanderWerf Renovation Open House  
2:00-5:00pm

## Gentile Lectureship

Speaker: Dr. Joaquin Ruiz, Dean of the College of Science, University of Arizona  
Location TBD | 3pm

## DEPARTMENT HIGHLIGHTS

### GEOLOGICAL AND ENVIRONMENTAL SCIENCES

A group of three Hope College geology students spent part of their summer participating in a research project in Sweden. The students, juniors Nate Erber of Rockford, Dean Hazle of East Grand Rapids, and sophomore Leah LaBarge of Hudsonville, spent three weeks as interns with the Geological Survey of Sweden, making detailed maps of rocks along the coast of the province of Halland.

The creation of the Rex Johnson Student Research Fund. This fund was created in 2011 by Global Remediation Technologies Inc. to honor Rex Johnson, a valued employee. The Rex Johnson Student Research Fund joins three already established funds the Holleman Geology and Environmental Science Student Research Fund the Smies Geology Student Research Fund and the Nicholas VerHey '75 Geology Summer Research Fund, to support summer research for students in geology and environmental science.

### BIOCHEMISTRY AND MOLECULAR BIOLOGY

The Biochemistry and Molecular Biology major has been approved by Hope College as a Bachelor of Science Degree. The major is offered jointly by the Chemistry and Biology departments. It was created using the guidelines developed by the *American Society of Biochemistry and Molecular Biology*. "We are very excited about the new BMB club! Our goal is to make our chapter of the American Society for Biochemistry and Molecular Biology (ASBMB) Undergraduate Affiliate Network (UAN) active by bringing together students interested in the study of biochemistry and molecular biology. To date we have sponsored a biochemistry seminar, hosted a graduate school advising session, invited recent graduates back to give advice about graduate school, and run a biochemistry lab program for 5th grade students in the CASA program. We also plan to hold regular meetings in which we will engage in informal journal club discussions" says Anne Georges, president of the BMB student club.

### NURSING

Nursing graduates (December 2010-May 2011) who took the 2011 NCLEX-RN exam had a pass rate of 100%. This is the highest pass rate in the history of the Hope nursing program with recent pass rates of 97% in 2009-2010 and 95% in 2008-2009. Hope nursing graduates have consistently passed the NCLEX-RN exam at rates above the national average.

In May, two students from the Autonomous University of Queretaro (UAQ) in Mexico participated in an exchange program with Hope College. The Nursing exchange began in 2009 with a visit by seven Hope students and faculty to Mexico and continued this year. A group of seven students and two faculty members from Hope traveled to Queretaro in May to gain insights into nursing practice in Mexico by attending classes, meeting with faculty and students and visiting hospitals and other health-care related settings.

Grace Olamijulo ('11) wrote this about her experience "I think that my first week here has taught me just how much I don't know and how much there is to find out. Even what seems like lots of information is only a small drop in the ocean of life. As we go through the hospitals exploring what the 'Mexican Healthcare system' and asking ourselves how it differs from the American system I can't help but ask myself, 'Do I even know a lot about my own system of healthcare?'" J. Hagood (personal communication, May 30, 2011)

### MATHEMATICS

On April 2nd, Hope sent thirty-two students down to Kalamazoo College to participate in the 35th annual Lower Michigan Mathematics Competition. This year, 31 teams from 11 schools competed. The highest finishing Hope team placed ninth. The following students took part in the competition: Eric Hallquist, Timothy Cooke, Emily Krupczak, Eric Greve, Megan Ludwig, Andreana Rosnik, Thomas Smeltzer, Nicholas DeJongh, Joshua Kammeraad, Jacob Byslma, Craig Toren, Daniel Langholz, Steven Higgins, Jessica Frey, Thomas Endean, Lauren Warren, Nicole Zeinstra, Ryan Core, Joshua Zoerhof, Sean Cratty, Christopher Beaudoin, Alexandra Benson, Danielle Mila, Caitlin Ploch, Lauren Aprill, Elliot Barney, Matthew Johnson, Brian Bjerke, John Bain, Josh Grabijas, Gregory Elhart, and Alexander Perkins.

## DEPARTMENT HIGHLIGHTS

### MATHEMATICS

The National Council of Teachers of Mathematics held their annual meeting in Indianapolis, April 13-16. The short 4-hr drive allowed for a number of Hope math geeks to make the road trip to Indy. Seven future math teachers had a fabulous time attending sessions and picking up freebies in the exhibit hall. The group included Morgan Bell, Nicole Fongers, Colleen Getz, Emily Scott, Megan Shima, Kim Slotman, and Nicholle Taurins.

### BIOLOGY

**Jonathan Brooks ('12)** conducted research at Oak Ridge National Laboratory this past summer, working in the lab of **Dr. Colleen Iverson ('01)**, a 2001 Biology alumna who is now a staff scientist at ORNL.

**Danielle Fegan ('11)** was accepted a graduate student position in a dual PhD program in Plant Biology and Ecology, Evolutionary Biology, and Behavior at Michigan State University.

**Jessica Whiton ('96)**, marine mammal trainer for the Shedd Aquarium in Chicago, was recently featured in Chicago magazine. Look for Jessica's photo with a baby beluga whale on p. 154 of the March 2011 issue!

**Tim Laman ('83)**, biologist and world-renowned nature photographer, has published his work in a diverse array of premiere magazines and publications, especially National Geographic. Look for one of Tim's most recent photos on p. 6 of the March 14, 2011 issue of Timemagazine! You can also visit his Wildlife Photojournalist website at: <http://www.timlaman.com/>.

**Bethany Fox ('12)** will be participating in the Fall 2011 Semester program in Global Health in Costa Rica through the Organization for Tropical Studies ([www.ots.ac.cr](http://www.ots.ac.cr)). David Travis Williams ('98) received the Informal Science Educator of the Year award from the Michigan Science Teacher's Association at the association's February 2011 annual meeting. Travis is the Executive Director of the Outdoor Discovery Center Macatawa Greenway of Holland, Michigan. Through the diverse environmental education programs he has developed, Travis and his staff have impacted the lives of thousands of children, teachers, and community members through high quality environmental experiences. Travis helps provide numerous opportunities through Hope student internships each year.

**Hilary Bultman ('12)** conducted summer research with a research team from the University of Wisconsin (which includes **Jamin Dreyer ('06)**); the team has been studying the ecosystem-level impact of midge pulses in Iceland.

**Jessica Howe ('10)** was recently accepted to the Veterinary School at the University of Edinburgh!

**Avril Wiers ('09)** is currently enrolled at Alaska Pacific University Master of Science in Outdoor and Environmental education program.

**Alexa Jansma ('08)** just finished her "in class" classes at vet school and is moving on to a year of clinical rotations at Iowa State University.

**Jeffrey Vredenburg ('11)** was recently awarded a Fulbright Fellowship! The Fulbright Grant to Ecuador that he received gives him the opportunity to teach English part-time as well as the freedom to work with local conservation and sustainability organizations.

### ENGINEERING

Eight chemical engineering option students presented undergraduate research posters at the national AIChE conference last November in Salt Lake City. This was more than double the combined total of all other colleges and universities in Michigan (total of 3). Howie Dobbs (soph) won 2nd place in the "General Papers" category and Lucas Johnson (sr) won 3rd place in the "Environmental 1" category.

Dr. Jeff Brown, assistant professor of engineering at Hope College, has been named the 2011 recipient of the "Peter J. Bosscher Faculty Advisor Award for Outstanding Leadership" by Engineers Without Borders-USA (EWB-USA). The award one faculty advisor within EWB-USA who provide outstanding leadership and mentorship to their student chapter. Brown has been an advisor of the Hope chapter of EWB-USA since joining the faculty in 2005. He has played a leadership role in guiding the chapter's on-going interdisciplinary service and research project focused on improving water quality and hygiene education in the village of Nkuv in Cameroon.

## DEPARTMENT HIGHLIGHTS

### PHYSICS

Thanks to the efforts of Cathy Mader, with the assistance of many others, the research spaces for physics have been renovated with funds from a significant NSF ARI grant and the college. Steve Remillard's lab was expanded and now has areas specific to each of his subprojects. The Nuclear Group room was modernized with better layout for analysis stations. Jennifer Hampton's surface lab now has an efficient layout and chemical fume hood. The accelerator lab was updated with a radiological fume hood and sample storage space. The low-background radioactive counting equipment has now been moved to a dedicated space that will shortly have sample preparation and storage spaces. The astrophysics research students, directed by Peter Gonthier, have a common place to work and study. Lastly, there is now a wonderful home for interdisciplinary research based on the scanning electron microscope, the soon to be purchased atomic force microscope (funded by a new NSF-MRI grant), and the cathodoluminescence equipment. Because of new and ongoing research grants, equipment grants, and the renovation, research is flourishing.

Education and Outreach are also seeing exciting developments. Cathy Mader is continuing to grow the outreach initiatives and the department is very active in developing new ways of delivering course content. This includes blended approaches to teaching labs as well as work on summer online courses that include laboratory experiences. These new ways of teaching are still under development but show great promise.

### CHEMISTRY

In May 2011, 45 students graduated from the Chemistry Department, of which ten earned the ACS-certified degree and two earned the new Biochemistry and Molecular Biology degree. Valerie Winton '11 was the recipient of a National Science Foundation Graduate Research Fellowship, and Anne Georges '12 and Colin Rathbun '12 were awarded Goldwater Scholarship. John Donkersloot '11 was awarded an NCAA Postgraduate Scholarship for his accomplishments as a scholar-athlete. Eight chemistry graduates were elected to Phi Beta Kappa.

The external recognition of the Hope College chemistry Department is once again exceptional. Every full-time faculty member is included at least once as an author of a publication or grant and proposal, with most of them appearing in both lists or multiple times. The department produced 17 publications, 14 of which with 27 undergraduate student co-authors. There are very few institutions in the US (of any size) that could claim that 27 undergraduate chemistry students had appeared on publications in a single year. In addition to the 13 ongoing grants with an estimated value of \$3 million, six newly funded award to the chemistry faculty during 2010 totaled approximately \$1.2million. And this was the year after stimulus money was available! As further evidence of Hope's external recognition Will Polik was named as a fellow of the American Chemical Society in 2010 for his national service and research accomplishments. The impressive amounts of scholarship, teaching and service of department members combine to make the Chemistry Department a leader in undergraduate chemistry education at the national level.

### COMPUTER SCIENCE

Our research summer just ended with 15 students engaged in 6 different projects with 5 faculty members. Five students were from off-campus: Emory University, St. Norbert's College, Oberlin College, and Grand Valley. Our research program is supported by an NSF Research Experiences for Undergraduates grant.

Matt DeJongh has received a grant from the Department of Energy in cooperation with Argonne National Labs. The grant, entitled "Computational Biology and Bioinformatic Methods to Enable a Systems Biology Knowledgebase", will support Matt for 5 years at \$100,000 per year to continue his work in bioinformatics.

## FACULTY GRANTS

**Dr. Leah Chase** “Faculty for Undergraduate Neuroscience (FUN) Equipment Loan for a Kindler Scientific Startle System”

**Ms. Suzanne DeVries-Zimmerman** “Using Plan Macrofossils to Determine aleoenvironmental Conditions in an Allegan County Michigan Peat Bog”

**Dr. Greg Fraley** “Resveratrol Reduces Cell Injury Caused by Surgery Mimicking Deep Brain Stimulation”

**Dr. Peter Gonthier** “RUI: Collaboration: Radio and Gamma-ray Non-Thermal Emission from Neutron Stars”

**Dr. Jenny Hampton** “RUI: Microstructuring and Catalytic Behavior of Electrodeposited Nanoporous Alloys”

**Dr. Jenny Hampton** “MRI: Acquisition of an Atomic Force Microscope at Hope College”

**Dr. Ed Hansen** “The Integration of Structural Geology and Metamorphic Petrology in the Context of a Multinational Undergraduate Research: A New Directions Grant to Ed Hansen”

**Dr. Vicki-Lynn Holmes** “Teaching Algebra Concepts through Technology”

**Dr. Mike Jipping** “Supporting Assistive Technology on Android Smartphones”

**Dr. Jeff Johnson** “The Role of Fluorine in the Stabilization of Pd-Aryl Intermediates”

**Dr. Brent Krueger** “MRI: Acquisition of a Computer Cluster for Undergraduate Chemistry Research and Teaching by the Midwest Undergraduate Computational Chemistry Consortium (MU3C)”

**Dr. Brent Krueger** “Implementation and Ongoing Support for Computational-based Investigative Lessons in High School Classrooms”

**Dr. Brent Krueger** “RUI: Quantifying Fluorescent Probe Dynamics in FRET Experiments by Combining Single-Molecule and Bulk Spectroscopies with Molecular Dynamics and Quantum”

**Dr. Cathy Mader** “Providing STEM Research infrastructure for VanderWerf Hall at Hope College”

**Dr. Ginny McDonough** “Making the Case for Critical Analysis in Molecular Biology”

**Dr. Mark Pearson** “Applied Topology: The Shape of Things to Come”

**Dr. Graham Peaslee** “Project to Investigate Water Quality Problems in Lake Macatawa Part 1 and 2”

**Dr. Graham Peaslee** “Sediment Fingerprinting in the Macatawa Watershed”

**Dr. Darin Stephenson** “Exploring the Theory and Applications of Graphs”

**Dr. Kathy Winnett-Murray** “Fish on Rails: Building an Ecological Learning Web with Rudy on Rails”

**Dr. Brian Yurk** “Mathematical Modeling and Field Studies on Burial and Erosion-dependent Plant Population Dynamics in coastal Sand Dunes”

## GRANT TOTALS FOR 2009-2011

**2009**—4.5 Million

**2010** — 2.9 Million

**2011**— 2.38+ Million

# REACH

## Research Across Cultures at Hope

2011 marks the sixth summer of the Research Experiences Across Cultures at Hope (REACH) Program. Fifteen high school students and three high school teachers participated in 10 research projects with 14 Hope faculty and staff mentors during the 6-week summer research program. REACH participants were hosted in the biology, chemistry, environmental sciences, geology, mathematics, and physics departments working on projects from characterizing pharmaceutical molecules adsorbed on nanoparticles to using calculus to model the life cycles of bean beetles.

“This experience was an eye opener. I found out what it meant to be independent and confident in my work. Thanks for this opportunity” **Monica Munoz 2011 REACH Participant**

“The Hope College REACH Program was truly a most enriching learning experience. Through this program I was given the opportunity to gain knowledge about the sciences and has prepared me for a future job perhaps in the science field.” **Yadah Ramirez 2011 REACH Participant**

“I felt like a grad student. I had the chance to talk with and learn from other college students as well as the post-docs I was working with. I had a wonderful one-on-one experience with my mentors! I felt like I was contributing to real science data that would be used to improve medicine. I never dreamed that high school students could do the same thing as experienced scientists.”

**Zachary DeBruine**

**2011 REACH Participant**



2011 REACH participants and mentors

# PRE-HEALTH PROFESSIONS

Tahnee C. H. Prokopow, Pre-Health Professions Advisor, and Assistant Professor of Biology, joined the staff at Hope College on a full time basis in Mid June. Tahnee comes to Hope College from the University of Michigan– Ann Arbor; where she served as Pre-Med Advisor, Evaluation Specialist and Business Manager in the Diversity and Career Development Office. Her areas of expertise include pre-health professions advising and career coaching; diversity in higher education, program management and evaluation. Tahnee earned a Master of Public Health (MPH) in Health Behavior & Health Education from the University of Michigan School of Public Health in 1996 and a Bachelor of Science in Biology from Hope College in 1992.

Hope College has an excellent pre-health professions advising (Pre-HPA) program, and Tahnee is excited to further develop the Pre-HPA program. From her former advising experience along with the time she has been here working with Hope students, she uses key principals that serve as the three pillars of success for students. First, a student must achieve academic excellence because all health professions schools expect a love of learning of their incoming trainees. Second, a student needs to get experience and exposure to their health professions career interest early and often as possible in order to really understand the profession they are considering. Finally, a student needs to know themselves honestly and reflectively using their experiences and academic knowledge to figure out what their personal mission in life is and how they see being a health professional will help them reach this mission.



Tahnee C. H. Prokopow with Joe Habbouche '12 discuss options for studying for the MCAT

## **Mission:**

Provide excellent guidance, advising and coaching to prepare students for the next stages of their education and career in the health professions.

## **Objectives:**

1. Assist students with making informed decisions about their choice of a health profession for their future by assisting them in getting clinical shadowing opportunities.
2. Promote academic excellence by providing accurate guidelines and advice for completing pre-health coursework, for understanding admission requirements, and for using all available resources to study and prepare for exams
3. Encourage involvement in the health care community, primarily through clinical work, service, and research occurring at Hope College, locally, nationally and internationally.

# FACES

For those of you who are not aware, the HHMI Mentoring Program has a new name! FACES at Hope. **Fostering A Community of Excellence in Science (at Hope)**. We have had a wonderful first year and are looking towards next year with excitement! If anyone has suggestions for mentors for the program next year please send names to me by the end of the week. Potential mentors should be in the STEM fields, preferably be a junior/senior, preferably be from an under represented minority (URM), and be a strong leader with a great personality and solid work ethic.

**Mission Statement:** The mission of the Hope College STEM (Science Technology Engineering and Math) mentoring program is to support and retain URM pursuing degrees in the STEM fields. The mentoring program will serve Hope College by promoting academic success, retention, and successful graduation of URM students through mentoring activities and support programs that encourage academic excellence, goal setting and career planning, and sense of belonging and personal growth of participating students.

**Examples of Events from 2010:** Leadership talk by Dr. Fred Johnson, Cover letters, Resumes and Careers workshop featuring a representative from the academic support center and two local Hope College Science Alumni, Study Skills and Time Management , Science Demonstration at the Boys and Girls Club of Holland.



2010 Participants: Olajide Banks, Sasha Balcazar Mike Sit, Howie H Rodriguez, Mazi Condelee, Jeffrey V Ornopia, Sheri M McCormack, Monica Chhum, Victor Kanyi, Luis A Marin, Kanwinder Gill, Gerry J Ochoa, Esther Moon, Divya R Dhaliwal, Whitney Askew, Sabrina D Hakim, Courtney Long, Amanda R Palomino, Katherine Garcia, Ashley R Smith, Elliott Barney, Chrissla C Boyea, Danielle Mila, Alecia Ivery, Andrea Rosnik

# SUMMER RESEARCH HIGHLIGHTS

"The best thing about summer research is the relationships that are formed between students and professors. The second best thing is the ice cream every Thursday." **Nathan Erber**

"The highlight of my summer was going to Sweden with Dr. Hansen and two other geology students. We had a great time immersing ourselves in the culture, as well as hiking around the area to do our research. This was my second year going, and it's exciting to get to see even more of the country. We worked on a 5 mile stretch of coast, and I'm proud to be able to say that I know those 5 miles better than almost anybody else in the world." **LEAH LABARGE**

Hope College summer research allowed me to travel to Halland, Sweden with GES Professor Ed Hansen. Our research project involved three weeks field geology, mapping complex metamorphic rocks on the western coast of Sweden. Our research collaborates with geologists from the Swedish Geological Survey, as well as Lund University. During our time abroad, my research experience was truly international, working beside and learning from experienced geologists from Canada and Sweden. **Dean Hazle**

Working with Dr. Dunn has been an incredible opportunity for me. It is a very rare chance to be able to work on undergraduate nursing research and is even more rare to be able to participate in such a hands-on manner. For example, we are enrolling patients into the study at the bedside in a hospital setting as well as working on-campus through entering data and following up with other aspects of the study. Through this position I've been able to see exactly how an interdisciplinary research study is performed and have been given a valuable perspective on nursing research. **Michael Sit**

"On June 23, Hope College Admissions Office teamed up with faculty, staff and current Hope students to host the **first annual Research Day**. 50 prospective students and families spent the day on campus -- hearing first hand from Hope students and professors about current research projects, viewing the labs to see research taking place, attending a student panel to learn about other aspects of the Hope experience, and touring campus. Over 60 projects were showcased, and a variety of departments were represented, including Biology, Chemistry, Computer Science, Engineering, Geology and Environmental Science, Mathematics, Nursing, Physics, and Psychology." **Jessica Root, Admission Representative**



Admissions Summer Research Day, June 23, 2011





HOPE COLLEGE

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[http://www.hope.edu/  
academic/natsci/](http://www.hope.edu/academic/natsci/)

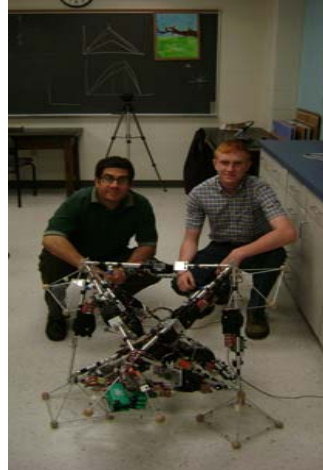
# SUMMER RESEARCH



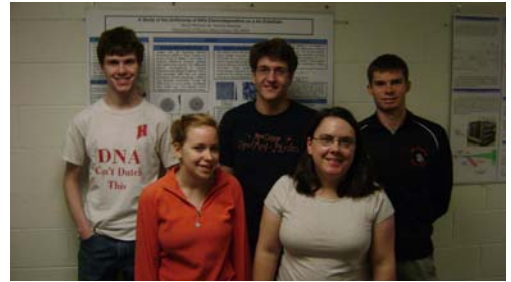
Pennings Research  
Group



Dr. DeJong with research students



Dr. Abrahantes with student Cornelius  
Smits



Hampton Research Group



Cassandra Cramer '13



Research Students Kyle Alexander and  
Lauren Zandstra



Kyle Brubaker and Xisen Hou



Nursing students Mike Sit and  
Lien Brusselmsman

REACH Student Rose Emilia Rayas works in  
Dr. Pikaarts lab



Research Student Alexis Beatles



Dr. Hansen and Dr. Yurk with research  
students Leah LaBarge and