

Research in the Capitol

March 10, 2008

Poster Display
11:00 a.m. – 2:00 p.m.

Remarks
11:00 a.m. – 11:15 a.m.

DAVID MILES
President, Board of Regents, State of Iowa

JOHN BRIGHTON
Vice President for Research and Economic Development
Iowa State University

RICHARD HICHWA
Associate Vice President for Research
University of Iowa

JAMES JURGENSON
Professor, Department of Biology
University of Northern Iowa

GARTH STROHBEHN
Undergraduate Student
University of Iowa



IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

The Honors Programs at Iowa State University, The University of Iowa, and University of Northern Iowa have collaborated to create an annual event—Research in the Capitol—dedicated to celebrating student learning through undergraduate research.

The following students from the three Regents universities were chosen to present their research findings, discuss how research has enriched their education, and share with state legislators, state officials, and the public the way in which their investigations contribute to Iowa.

1- Takiyah Abdulmalik, Oxon Hill, Maryland
Iowa State University
Parameters affecting levels of gallicocatechins in oolong teas
Food Science
Mentors: Sean O'Keefe (Virginia Tech), Aubrey Mendonca
takirsoe@iastate.edu

2- Natalie Adams, New Liberty, Iowa
University of Iowa
Constructing a modern performing edition from an original unpublished work by Francois Rene Gebauer (1733-1825)
Music
Mentor: Jeff Agrell
natalie-adams@uiowa.edu

3- Jason Allen, Bussey, Iowa
University of Iowa
Reduced brain pH causes fear and heightens anxiety by activating pH sensitive molecules
Integrative Physiology
Mentor: John Wemmie
jason-allen@uiowa.edu

4- Ashley Andrew, Sioux City, IA
University of Northern Iowa
Attitudes toward abortion and risky behaviors in Midwestern college students
Family Services, Psychology
Mentor: Elaine Eshbaugh
asha05@uni.edu

5- Vinay Bajaj, Mumbai, India
University of Northern Iowa
The modification of human macrophages by green tea: The effects on podosomes and cellular pathways

Biology
Mentor: Bart Bergquist
vinay@uni.edu

6- Kristy Bellinger, Omaha, Nebraska
Iowa State University
Genetic relationships of bobcats in Iowa and surrounding Midwestern states
Biology
Mentors: Bill Clark, Dawn Reding, Anne Bronikowski
kbellin@iastate.edu

7- Kristin Belzung, Ankeny, Iowa
University of Northern Iowa
Presence of phthalate esters in microwaveable meal trays and meals
Health Promotion: Environmental Health
Mentor: Catherine Zeman
kbelzung@uni.edu

8- Lori Neuman-Lee Biggs, Adel, Iowa
Iowa State University
Feeding behavior altered by short-term atrazine exposure during incubation in map turtles (Graptemys)
English, Biology
Mentor: Fredric Janzen
lorin215@iastate.edu

9- Justin Bohnet, Sanborn, Iowa
University of Northern Iowa
The effects of nanoscale disorder on the paramagnetic to ferromagnetic transition in melt-spun gadolinium-iron alloys
Physics
Mentor: Paul Shand
justin44@uni.edu

10- David Brus, Denison, Iowa
University of Northern Iowa
Hydrogen fuel cells and the use of modular
technology
Technology Education and Training
Mentor: Doug Hotek
dbrus@uni.edu

11- Rachel Butterworth, Apple Valley,
Minnesota
Iowa State University
A survey of the public understanding of Doppler
radar
Meteorology
Mentors: Cinzia Cervato, William Gallus, Jr.,
Kevin Kloesel (University of Oklahoma)
rbutter@iastate.edu

12- Lucas Carlstrom, Eldridge, Iowa
Iowa State University
Identification of a novel genetic analysis for
Factor VII deficiency in canines
Animal Science, Microbiology
Mentor: Matthew Ellinwood
luke9575@iastate.edu

13- Peter Choi, Ames, Iowa
Iowa State University
Unable to focus: negative affect in proactive and
reactive control
Psychology
Mentors: Robert West, Stephanie Travers
(Luther College)
choip@iastate.edu

14- Zenab Chowdhry, Independence, Iowa
University of Northern Iowa
Militarization vs. democratization: A case study
of Pakistan and India's divergent political paths
since independence
Political Science
Mentor: Dhirendra Vajpeyi
chowdhry@uni.edu

15- Elise Cochrane, Swisher, Iowa
University of Northern Iowa

Special housing for freshman students:
Beneficial or not?
Psychology
Mentor: Helen Harton
cochrane@uni.edu

16- Courtney Cornick, Bolingbrook, Illinois
Iowa State University
Diversity and group counseling
Psychology
Mentor: Nathaniel Wade
cornick@iastate.edu

17- Andrew Cyr, Cedar Rapids, Iowa
University of Northern Iowa
Effects of egg-incubation and acclimation
temperature on selected temperature by painted
turtles (*Chrysemys picta*) from Grundy County,
Iowa
Biology
Mentor: Jeff Tamplin
acyr@uni.edu

18- Priscilla Delgado, Des Moines, Iowa
Iowa State University
Soybean Sudden Death Syndrome: Temperature
effects on the fungal pathogen
Microbiology
Mentors: Leonor Leandro, Gladys Mbofung
pretzel@iastate.edu

19- Andrew Dust, Waterloo, Iowa
Iowa State University
Immigration in rural counties from 1950-2000:
Waves or ripples?
Economics, Mathematics
Mentor: Peter Orazem
asdust@iastate.edu

20- Jeremiah Feltz, Beaman, Iowa
University of Northern Iowa
Conservation genetics of the Redside dace
(*Clinostomus elongatus*)
Biology: Ecology & Systematics
Mentor: Peter Berendzen
jjfeltz@uni.edu

21- Jason Fries, Ames, Iowa
University of Iowa
Mobile sensor instrumentation of contact graphs
for epidemiological models
Computer Science
Mentor: Ted Herman
jason-fries@uiowa.edu

22- Ryan Gerling, Columbus Junction, Iowa
University of Iowa
Academic acceleration: Current practices and a
policy template
History, Secondary Education
Mentor: David Lohman
ryan-gerling@uiowa.edu

23- Matthew Graaf, Humboldt, Iowa
University of Northern Iowa
Surface chemistry of benzene, ethylene and
acetylene on porous glass
Chemistry, Physics
Mentor: Shoshanna Coon
mgraaf@uni.edu

24- Tyler Gunn, Iowa City, Iowa
University of Iowa
Spatial variability of particle air contaminants in
swine concentrated animal feeding operations
Chemical Engineering
Mentor: Thomas Peters
tgunn@engineering.uiowa.edu

25- Thomas Heineman, Grinnell, Iowa
University of Iowa
Membrane Introduction Mass Spectrometric
(MIMS) techniques applied to the photochemical
activity of chromophores in Iowa's surface
waters
Chemistry
Mentor: Mark Young
thomas-heineman@uiowa.edu

26- Isaac Hinton, Coralville, Iowa
Iowa State University
Forces experienced on the hamstring
Biology
Mentor: Tim Derrick
jordan23@iastate.edu

27- Atulya Iyengar, Waterloo, Iowa
University of Iowa
Imaginal conditioning affects olfactory receptor
neuron (ab2A) odor coding in *Drosophila*
Melanogaster
Biomedical Engineering
Mentor: Chun-Fang Wu
iyengar@engineering.uiowa.edu

28- Brian Kaplinger, Omaha, Nebraska
Iowa State University
Asteroid Deflection Research Initiative (ADRI):
A comparison of low, medium, and high energy
methods
Aerospace Engineering
Mentors: Bong Wie, John Basart
bdkaplin@iastate.edu

29- Alexandra Keenan, Urbandale, Iowa
University of Iowa
Cervical cancer screening and treatment
strategies in Tamil Nadu, India
Biomedical Engineering
Mentor: Rangaswamy Rajagopal
abkeenan@engineering.uiowa.edu

30- Philip Kennedy, Cedar Rapids, Iowa
University of Iowa
Conditional same-different discrimination in
pigeons
Psychology
Mentor: Ed Wasserman
philip-kennedy@uiowa.edu

31- Adam Lee, Elma, Iowa
University of Northern Iowa
Effects of spatial resolution of digital elevation
models on watershed erosion modeling
Geology, Geography: GIS
Mentor: Ramanathan Sugumara
blakhak@uni.edu

32- Ashley Leyda, Bloomfield, Iowa
University of Iowa
Sex offender recidivism in Minnesota and the
importance of news and legal coverage
Sociology
Mentor: Robert Baller
ashley-leyda@uiowa.edu

33- Kok Keong Lim, Selayang Baru, Selangor,
Malaysia
Iowa State University
Understanding root health to improve soybean
productivity in Iowa
Microbiology
Mentors: Leonor Leandro, Carlos Gongora-
Canul
ronkklim@iastate.edu

34- Lipin Loo, Prai, Malaysia
University of Northern Iowa
Genetic alignment of the genomic sequence of
Fusarium verticillioides
Biotechnology
Mentor: James Jurgenson
loolipin@uni.edu

35- Francisco Lovan, Clear Lake, Iowa
University of Iowa
p53-dependent and -independent roles of tumor
suppressor DDB2 in tumorigenesis
Biology
Mentor: Toshiki Itoh
francisco-lovan@uiowa.edu

36- Rebecca Luchtel, Spirit Lake, Iowa
Iowa State University
Dietary egg white protein diets reduce
cardiovascular disease biomarkers in rats
Nutritional Sciences
Mentor: Kevin Schalinske
rluchtel@iastate.edu

37- Katie Lutz, Ames, Iowa
Iowa State University
RecA targeted homologous recombination in
zebrafish
Genetics
Mentors: Jeff Essner, Hsin-Kai Liao
klutz@iastate.edu

38- Hoang Mai, Iowa City, Iowa
University of Iowa
Enhancement of transfection by zeolites in
human embryonic kidney cells
Chemical Engineering
Mentor: Aliasger Salem
ben-mai@uiowa.edu

39- Matt Martin, Rochester, Minnesota
Iowa State University
Imaging airflow over an airfoil near stall
Aerospace Engineering
Mentors: Hui Hu, Hirofumi Igarashi
mdmart1@iastate.edu

40- Megan Mathews, Bettendorf, Iowa
University of Iowa
How hard is it to learn words? A statistical
learning paradigm for word acquisition
Psychology, Fine Art
Mentors: Bob McMurray, Larissa Samuelson
megan-mathews@uiowa.edu

41- Christina McClelland, Ames, Iowa
University of Iowa
The Daily Palette
Studio Art
Mentor: Jon Winet
christina-mcclelland@uiowa.edu

42- Sarah McConnell, Cedar Rapids, Iowa
University of Northern Iowa
Analysis of echoic properties in vocalizations of
preverbal children on the autistic spectrum
Communicative Disorders
Mentor: Theresa Kouri
smcconn@un.edu

43- Brandon Menke, Clive, Iowa
University of Iowa
PPAR γ activation through eiconsanoid
metabolism
Biochemistry
Mentor: Andrew Norris
bmenke17@mchsi.com

44- Randyl Meyer, Muscatine, Iowa
& Kayla Ferguson, Marquette, Iowa (*coauthors*)
University of Northern Iowa
Ice bath immersion of the hand alters continuous
pressure sensory threshold
Athletic Training; Athletic Training
Mentor: Todd Evans
rbmeyer@uni.edu; kf0515@uni.edu

45- Andrew Morse, Akron, Iowa
University of Northern Iowa
Children's occupational preferences regarding
status and gender
Psychology
Mentor: Joshua Susskind
morse@uni.edu

46- Jacob Reed, Muscatine, Iowa
University of Northern Iowa
The comparison of two strategies on recovery
after exhausting exercise
Physical Education: Exercise Science
Mentor: Robin Lund
reedj52@uni.edu

47- Stacey Reisdorph, Cedar Rapids, Iowa
University of Northern Iowa
Morphometry and rates of evolution within the
Pennsylvanian fusulinid *Beedeina* (Ardmore
Basin, Oklahoma)
Geology, Earth Science
Mentor: John Groves
sreis@uni.edu

48- Kayla Resnick, Anchorage, Alaska
University of Iowa
Mill Creek archaeological artifact analysis
Anthropology
Mentor: Steve Lensink
kayla-resnick@uiowa.edu

49- Mark Rosmann, Harlan, Iowa
Iowa State University
Improving soil quality in Iowa organic farming
systems
Agronomy, History
Mentor: Kathleen Delate
bobbrkr@iastate.edu

50- Mileka Scurlock, Omaha, Nebraska
Iowa State University
Perceptions and attitudes toward physical
activity of postmenopausal African American
women
Kinesiology
Mentor: Panteleimon Ekkekakis
mscur@iastate.edu

51- Brian Sellers, Cedar Falls, Iowa
University of Northern Iowa
Design and conversion for an electric plug-in
vehicle
Electrical and Information Engineering
Technology
Mentor: Reg Pecan
brian154@uni.edu

52- Vanessa Sheppard, Cedar Rapids, Iowa
University of Northern Iowa
Scenic designs and design research for "Pillar of Society" (Ibsen) and "Midsummer Night's Dream"
Theatre
Mentor: Jay Edelnant
vttheatre@uni.edu

53- Garth Strohbehn, Boone, Iowa
University of Iowa
Trans-endothelial migration selects for prostate cancer cells with a mesenchymal phenotype
Biochemistry, Chemistry
Mentor: Michael Henry
garth-strohbehn@uiowa.edu

54- Lindsay Thompson, Huxley, Iowa
Iowa State University
The effect of task complexity on walking in young adults
Kinesiology and Health (Pre-Physical Therapy)
Mentors: Kristin Lowry, Ann Smiley-Oyen
lindsayt@iastate.edu

55- Joe Thorngren, Moline, Illinois
University of Iowa
A universal health care system in the United States: Just not practical
Political Science
Mentor: Robert Baller
joseph-thorngren@uiowa.edu

56- Robert Tuttle, Des Moines, Iowa
University of Iowa
Rural development: Cultivating sustainable development
International Studies

Mentor: Rangaswamy Rajagopal
robert-tuttle@uiowa.edu

57- Annie Twohig, Sioux City, Iowa
University of Iowa
The effect of *Botulinum* toxin as a function of the extent of vocal tremor
Speech and Hearing Science, Psychology
Mentor: Eileen Finnegan
ann-twohig@uiowa.edu

58- Andrea VanWaardhuizen, Ames, Iowa
University of Northern Iowa
Effects performing authentic research has on secondary science educators' classroom practices: Year two
Chemistry Teaching
Mentor: Dawn Del Carlo
andreaiv@uni.edu

59- Bethany Wilcoxon, Atlantic, Iowa
Iowa State University
The Corn Belt's ethanol plants: Do locational factors matter?
Community & Regional Planning
Mentors: Monica Haddad, Francis Owusu, Gary Taylor
bethanyw@iastate.edu

60- Nathan Willis, Omaha, Nebraska
& Sam Wagner, Webster City, Iowa (*coauthors*)
Iowa State University
Student design of a satellite for lunar surface analysis and solar sailcraft demonstration
Aerospace Engineering; Aerospace Engineering, Mathematics
Mentors: Bong Wie, Matthew Nelson
nwillis@iastate.edu; thewags@iastate.edu

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