



College of Science & Engineering

14th annual

**STUDENT PROJECT
SHOWCASE**

2012 WINNERS



Thank you for your generous financial support toward the
2012 Student Project Showcase!

Kenson Ventures
Robert W. Maxwell



Graduate Behavioral Science Division

FIRST PLACE

Entry Number: 5 GB

**HOW DID YOU CHOOSE YOUR MAJOR?: A CROSS-CULTURAL STUDY OF INTEREST, EMPLOYMENT OPPORTUNITIES,
AND MOTIVATION AMONG COLLEGE STUDENTS**

By: Toi Sin Arvidsson

Developmental Psychology

Faculty Advisor: Dr. Jeffrey Cookston

SECOND PLACE

Entry Number: 15 GB

**EVIDENCE FOR CROSS-GENDER EFFECTS ON ATTENTIONAL AND
CATEGORICAL PROCESSING OF FACES**

By: Robin I. Goodrich, Jason Samaha,

Lars F. Hedin, Darwin Guevarra,

and Sierra P. Niblett

Psychology

Faculty Advisors: Dr. Avi Ben-Zeev and Dr. Mark W. Geisler

THIRD PLACE

Entry Number: 1 GB

TERROR MANAGEMENT: UPWARD AND DOWNWARD MENTAL SIMULATIONS OF MORTALITY

By: Patrick Edward Kraus Boyd

Social Psychology

Faculty Advisor: Dr. Charlotte Chuck Tate

FOURTH PLACE

Entry Number: 11 GB

**WHEN IGNORANCE IS BLISS: KNOWLEDGE OF STEREOTYPE THREAT HEIGHTENS
ENDORSEMENT OF GENDER ESSENTIALISM**

By: Erica Duggan, Liz Scharnetzki, and William Krenzer

Psychology

Faculty Advisor: Dr. Avi Ben-Zeev

FIFTH PLACE

Entry Number: 8 GB

**CONFLICT BEHAVIOR IN ROMANTIC RELATIONSHIPS:
THE ROLE OF SELF-COMPASSION AND SELF-ESTEEM**

By: Alison Wu

Psychology

Faculty Advisor: Dr. Seung Hee Yoo

Graduate Biological Science Division

FIRST PLACE

(KENSON VENTURES EXCELLENCE AWARDS)

Entry Number: 19 GL

**SPHINGOSINE-1-PHOSPHATE LYASE IS REQUIRED FOR MYOGENIC
DIFFERENTIATION AND MYOGENIC MICRORNA
EXPRESSION IN C2C12 CELLS**

By: Dianna Baldwin
Stem Cell Science

Faculty Advisor: Dr. Carmen Domingo

SECOND PLACE

Entry Number: 43 GL

**MARINE ACTINOMYCETES: THE SEARCH FOR
NOVEL SECONDARY METABOLITES WITH SIR2P INHIBITION**

By: Nicole Noel Chaffe
Biochemistry

Faculty Advisor: Dr. Taro Amagata

THIRD PLACE

Entry Number: 34 GL

**PHYSIOLOGICAL PERFORMANCE OF LOTTIA DIGITALIS:
THERMAL SENSITIVITY AND LIMITS TO INTERTIDAL CONDITIONS**

By: Brittany E. Bjelde and Dr. Jonathon H. Stillman
Marine Biology

Faculty Advisor: Dr. Anne Todgham

FOURTH PLACE

Entry Number: 31 GL

UNDERSTANDING ENIGMA: THE EFFECTS OF A FUNGAL PATHOGEN ON WILD YOSEMITE TOAD POPULATIONS

By: Celeste Dodge
Ecology and Systematic Biology
Faculty Advisor: Dr. Vance T. Vredenburg

FIFTH PLACE

Entry Number: 35 GL

**OCEAN ACIDIFICATION IMPACTS ON THE METABOLISM AND
ENERGETICS OF INTERTIDAL PORCELAIN CRAB (GENUS: PETROLISTHES)
EARLY LIFE HISTORY STAGES**

By: Hayley Anne Carter

Marine Biology

Faculty Advisor: Dr. Jonathon Stillman

HONORABLE MENTIONS

Entry Number: 25 GL

**IDENTIFICATION OF A SECOND SITE SUPPRESSOR OF
CDC24 IN SCHIZOSACCHAROMYCES POMBE**

By: Shani M.C. Chapman

Cell and Molecular Biology

Faculty Advisor: Dr. Sally G. Pasion

Entry Number: 33 GL

**METABOLIC COSTS OF OCEAN ACIDIFICATION ON GROWTH AND
DEVELOPMENT OF THE NATIVE OLYMPIA OYSTER, OSTREA LURIDA**
By: Sara Boles, Annaliese Hettinger, Dr. Brian Gaylord, and Eric Sanford

Physiology and Behavioral Biology

Faculty Advisor: Dr. Anne Todgham

Entry Number: 39 GL

**PROBING FIRST & SECOND SHELL PRIME SIDE INTERACTION IN TRYPSIN-FOLD
SERINE PROTEASE FUNCTION**

By: Anna Batt

Biochemistry

Faculty Advisor: Dr. Teaster Baird Jr.

Graduate Physical Science Division

FIRST PLACE

Entry Number: 72 GP

MOLECULAR DYNAMICS SIMULATIONS OF TRYPSIN ACTIVE SITE VARIANTS

By: Trevor Gokey and Dr. Anton Guliaev

Computing for Life Sciences

Faculty Advisor: Dr. Anton Guliaev

SECOND PLACE

Entry Number: 69 GP

USING SUPPORT VECTOR MACHINE CLASSIFICATION WITH FEATURE

By: Lorenzo Flores, Mike Wong, and Grace Tang

Computer Science

Faculty Advisors: Dr. Dragutin Petkovic, Ljubomir Buturovi,
and Dr. Russ Altman (Stanford University)

THIRD PLACES

Entry Number: 61 GP

**MICROARRAY DATA IMPUTATION USING
LOCAL SINGULAR VALUE DECOMPOSITION**

By: Lisa Clayton

Mathematics

Faculty Advisor: Dr. Rahul Singh

FOURTH PLACE

Entry Number: 65 GP

RECONFIGURABLE SYSTEMS AND THE FIBONACCI SNAKE

By: Rika Yatchak

Mathematics

Faculty Advisor: Dr. Federico Ardila

FIFTH PLACE

Entry Number: 53 GP

**OBSERVATION OF SELF-INDUCED TRANSPARENCY IN
NANO-SUSPENSIONS WITH NEGATIVE POLARIZABILITY**

By: Michael Lau

Physics

Faculty Advisor: Dr. Weining Man

HONORABLE MENTIONS

Entry Number: 51 GP

**A SEARCH FOR HELIUM WHITE DWARFS AND THEIR ROLE IN
THE GLOBULAR STAR CLUSTER NGC 6752**

By: Carlos Hernandez
Physics

Faculty Advisor: Dr. Adrienne Cool

Entry Number: 56 GP

**INVESTIGATING DNA KNOTTING IN BACTERIOPHAGES
USING STOCHASTIC METHODS**

By: Brian Cruz
Mathematics

Faculty Advisor: Dr. Mariel Vazquez

Entry Number: 80 GP

**SEISMIC PERFORMANCE OF A 3-STORY MOMENT FRAME BUILDING USING RECYCLED POLYSTYRENE CON-
CRETE**

By: Sarah Kayfetz Outzen
Civil Engineering

Faculty Advisor: Dr. Cheng Chen

Entry Number: 82 GP

**A COMPARATIVE STUDY OF STEEL COLUMNS UNDER FIRE USING BOTH ASCE 29-05 FIRE STANDARD AND FI-
NITE ELEMENT ANALYSIS**

By: Samuel Fitzer
Structural/Earthquake Engineering

Faculty Advisor: Dr. Cheng Chen

Undergraduate Behavioral Science Division

FIRST PLACE

Entry Number: 92 UB

**THE SUBJECTIVE ASPECTS OF PROCESSING INCOMPATIBLE SPEECH
INTENTIONS: EVIDENCE FROM THE STROOP TASK**

By: Zachary I. Greenberg

Psychology

Faculty Advisor: Dr. Ezequiel Morsella and Dr. Ken Paap

SECOND PLACE

Entry Number: 88 UB

SOCIAL PERCEPTION OF MOTIVATIONS AND HAPPINESS FOR PURCHASES

By: Lea M. Lunden and Darwin A. Guevarra

Psychology

Faculty Advisor: Dr. Ryan T. Howell

THIRD PLACE

Entry Number: 87 UB

**PARTICIPANT-STIMULUS GENDER CONGRUENCY INFLUENCES
THE CATEGORIZATION OF FACES**

By: Lars F. Hedin and Robin I. Goodrich

Psychology

Faculty Advisors: Dr. Mark W. Geisler and Dr. Avi Ben-Zeev

Undergraduate Biological Science Division

FIRST PLACE

(*KENSON VENTURES FONG EXCELLENCE AWARD*)

Entry Number: 96 UL

CHARACTERIZING PORCUPINE EFFECTS ON NEURAL TUBE CLOSURE

By: Gina Pay

Cell and Molecular Biology

Faculty Advisor: Dr. Laura Burrus

SECOND PLACE

Entry Number: 109 UL

GENERATING NOVEL ARYL THIAZOLE BASED INHIBITORS OF TMEM-16A

By: Kashif Javed

Biochemistry

Faculty Advisor: Dr. Marc Anderson

THIRD PLACE

Entry Number: 110 UL

MECHANISTIC STUDIES OF OROTIDINE DECARBOXYLASE

By: Nicholas Andrew Senger

Biochemistry

Faculty Advisor: Dr. Weiming Wu

FOURTH PLACE

Entry Number: 104 UL

DETERMINATION OF LEAD IN BALSAMIC VINEGAR VIA X-RAY FLUORESCENCE SPECTROMETRY: A SIMPLE AND RAPID METHOD FOR QUANTIFICATION DOWN TO LOW PPB LEVELS USING SELECTIVE ION EXCHANGE

By: Bryce Riegel

Biochemistry

Faculty Advisor: Dr. Peter T. Palmer

FIFTH PLACE

Entry Number: 95 UL

MIR-206 IS IMPORTANT FOR PROPER DEVELOPMENT OF THE NOTOCHORD-SOMITE BOUNDARY IN *XENOPUS LAEVIS*

By: Ceazar Nave, Hernando Martinez, Daniel Saw, and Dr. Julio Ramirez

Cell and Molecular Biology

Faculty Advisor: Dr. Carmen Domingo

HONORABLE MENTIONS

Entry Number: 100 UL

THE NEUROENDOCRINE REGULATION OF ECDYSIS-TRIGGERING HORMONE ON ECDYSIS BEHAVIOR OF DECEREBRATED *MANDUCA SEXTA*

By: Vyron Tayag and David Canio

Physiology

Faculty Advisor: Dr. Megumi Fuse

Undergraduate Physical Science Division

FIRST PLACE

Entry Number: 120 UP

OPTICAL TRAPPING AND MANIPULATION

By: Drake Cannan

Physics

Faculty Advisor: Dr. Zhigang Chen

SECOND PLACE

Entry Number: 117 UP

USING CURVES TO APPROACH THE PACKING OF THE HUMAN GENOME

By: Bradley McAuley

Mathematics

Faculty Advisor: Dr. Javier Arsuaga

Undergraduate Engineering Division

FIRST PLACE

Entry Number: 152 UE

CONCRETE CANOE

By: Watt Lei, Jasmine Williams, Jose Ronses, Kara Tremblay, Hao Lac, Brian Villamor, Jordan Wolfe, and Calvin Tam

Civil Engineering

Faculty Advisor: Dr. Tim D'Orazio

SECOND PLACE

Entry Number: 128 UE

COUPLING ENHANCEMENT OF PLANAR SPIRAL COILS USING PLANAR FERRITE FOR BIOMEDICAL IMPLANTS

By: Marcella Ysidra Ramirez

Electrical Engineering

Faculty Advisor: Dr. Hao Jiang

THIRD PLACE

Entry Number: 146 UE

AUTOMATIC MEDICATION DISPENSER

By: Lucas Cooter and Arjun Tejaswi

Mechanical Engineering

Faculty Advisor: Dr. George Anwar

FOURTH PLACE

Entry Number: 137 UE

ROBOTIC QUADROTOR AERIAL SENSOR PLATFORM

By: T. Craig Brinton, George Bainbridge, and Luke Moselle

Mechanical and Electrical Engineering

Faculty Advisor: Dr. Kwok-Siong Teh

FIFTH PLACE

Entry Number: 155 UE

Steel Bridge Team 2012

By: Thomas Chau, Joyce Edey, Jonathan Li, Luke Roy, and Sonny Sunak

Civil Engineering

Faculty Advisor: Dr. Tim D'Orazio

HONORABLE MENTIONS

Entry Number: 124 UE

SENIOR CITIZEN EMERGENCY RESPONSE DEVICE

By: Daniel Catalan, Luis Bill, Sam Goldsby, and Sonny Lu
Electrical Engineering
Faculty Advisor: Dr. Hao Jiang

Entry Number: 130 UE

BEAR WITH ME

By: Nami Gheidar, Nick Weil, and Michelle Mason
Electrical Engineering and Mechanical Engineering
Faculty Advisor: Dr. George Anwar

Entry Number: 132 UE

TWO-WHEELED SELF BALANCING SKATEBOARD

By: Raffy Tan Jr., Mike Shahindoust, Hamlet Orloski, and Abraham Zepeda
Mechanical and Electrical Engineering
Faculty Advisor: Dr. Hao Jiang

Entry Number: 142 UE

DESIGN OF A FOAM-CORE TRI-COPTER WITH CLOSED LOOP YAW CONTROL

By: Mark Giannini
Mechanical Engineering
Faculty Advisor: Dr. Kwok-Siong The

Entry Number: 148 UE

CAM-DRIVEN RATCHET

By: Nick Foster
Mechanical Engineering
Faculty Advisors: Joachim Pederson and Dr. Kwok-Siong Teh