

SURF 2014 - Oral Presentations

Presenter: Gregory Carter & Canessa Swanson **Mentor:** Michael Summers
Title: STRUCTURE OF THE CORE ENCAPSIDATION SIGNAL OF HIV-1

Presenter: Lauren Gomez **Mentor:** Nagaraj Neerchal
TITLE: COMPARING OUTPUT FROM SWAT BASED ON OBSERVED AND DOWNSCALED GLOBAL CLIMATE MODEL DATA

Presenter: Megan Hofmann **Mentor:** Amy Hurst
Title: GRIPFAB: A DO-IT-YOURSELF DESIGNER

Presenter: Clarence Pascual **Mentor:** Lasse Lindahl
Title: ELUCIDATING THE ROLE OF L4 EXTENDED LOOP IN RIBOSOME ASSEMBLY AND FUNCTION IN ESCHERICHIA COLI

Presenter: Jack Slettebak & Jordi Wolfson-Pou **Mentor:** Matthias Gobbert
Title: PUSHING THE LIMITS OF THE MAYA CLUSTER

SURF 2014 - Poster Presentations

Presenter: Elise Adamson **Mentor:** Jennie Leach
Title: BASELINE CHARACTERIZATION OF NSC-34 CELL LINE FOR TISSUE ENGINEERING APPLICATION

Presenter: Oluwapelumi Adenikinju **Mentor:** Matthias Gobbert
Title: REAL TIME GLOBAL ILLUMINATION SOLUTIONS TO THE RADIOSITY ALGORITHM USING HYBRID CPU/GPU NODES

Presenter: Ifeolu Akinola **Mentor:** Phyllis Robinson
Title: CHARACTERIZATION OF THE NON-IMAGING FROMING, VISUAL PROTEIN MELANOPSIN IN THE PARLICHTHYS DENTATUS

Presenter: Juan Alvarez **Mentor:** Suzanne Ostrand-Rosenberg
Title: RECOMBINANT PROTEINS AS CANCER THERAPEUTICS TO OVERCOME TUMOR-RELATED IMMUNE SUPPRESSION AND PREVENT ANTIBODY DEPENDENT CELL-MEDIATED CYTOTOXICITY

Presenter: Roy Anderson **Mentor:** Tim Topoleski
Title: THE EFFECTS OF VASCULAR CALCIFICATION ON THE MECHANICAL PROPERTIES OF ELASTIN IN ARTERIES

Presenter: William Angel **Mentor:** Cynthia Wagner
Title: COMPARATIVE ANALYSIS OF GENETICALLY MODIFIED E. COLI AND SHEWANELLA FOR COPPER BIOREMEDIATION

Presenter: Ifemayowa Aworanti

Mentor: Douglas Frey

Title: ION-EXCHANGE AND MIXED-MODE CHROMATOGRAPHY FOR THE OPTIMIZATION OF PROTEIN PURIFICATION

Presenter: Francis Ayehfor

Mentor: Stephen Miller

Title: OVER-EXPRESSION OF A CARBONIC ANHYDRAEASE TRANSPORTER GENE IN CHLAMYDOMONAS REINHARDTII

Presenter: Sagar Bajpai

Mentor: Charles Bieberich

Title: ENHANCING THE INDUCIBLE MOUSE MODEL FOR PROSTATE INFLAMMATION

Presenter: Natithorn Bhusri

Mentor: Cynthia Wagner

Title: COMPARATIVE ANALYSIS OF E.COLI AND SHEWANELLA FOR THE STUDY OF BIOREMEDIATION

Presenter: Tiana Boardley

Mentor: Mauricio Bustos

Title: AN APP THAT ILLUMINATES THE MATHEMATICAL FOUNDATIONS OF NEURON RESTING AND ACTION POTENTIALS

Presenter: Diana Bobb

Mentor: Michael Summers

Title: MODEL MEMBRANES TO PROBE FOR RETROVIRAL GAG MEMBRANE TARGETING

Presenter: Nicholas Bolden

Mentor: Michael Summers

Title: USING GEL CENTRIFUGATION TO DETERMINE THE MONOMER-DIMER EQUILIBRIUM OF THE HIV-1 5'-LEADER

Presenter: Syrena Bracey

Mentor: Songon An

Title: TOWARD UNDERSTANDING CELLULAR LOCALIZATION OF GLYCOLYTIC/GLUCONEOGENIC ENZYMES REGULATING GLUCOSE-DERIVED SIX CARBON METABOLITES

Presenter: Maurcia Braddy

Mentor: Shawn Bediako

Title: OPTIMISM AND PERCEIVED DISEASE INTERFERENCE AMONG ADULTS LIVING WITH SICKLE CELL DISEASE

Presenter: Robert Breen

Mentor: William LaCourse

Title: STRUCTURAL DIFFERENTIATION OF VARIOUS CARBOHYDRATES USING A BENCH TOP NUCLEAR MAGNETIC RESONANCE (NMR) SPECTROMETER

Presenter: Gabriela Canales

Mentor: Charles Bieberich

Title: CRYOPRESERVATION OF MOUSE OVARIAN TISSUE USING MODIFIED DIRECT COVER VITRIFICATION

Presenter: Grace Chandler

Mentor: Ivan Erill

Title: FINDING THE SWITCHES: IDENTIFYING POTENTIAL TRANSCRIPTION FACTOR BINDING SITES IN SYNTHESIZED DNA

Presenter: Justin Chavez

Mentor: Casey Overby

Title: RETURNING UPDATES TO PARTICIPANTS: A SURVEY TO ASSESS BIOBANK PARTICIPANTS' PREFERENCES

Presenter: Seung Ho Choi

Mentor: Michael Summers

Title: ccmK4 AS A CAPSID ANALOG IN HIV-1 GENOME RECOGNITION STUDIES

Presenter: Adam Cunningham

Mentor: Matthias Gobbert

Title: PUSHING THE LIMITS OF THE MAYA CLUSTER

Presenter: Farrah Daham

Mentor: Ruben Delgado

Title: MEASUREMENTS OF OFFSHORE WIND RESOURCE OVER MARYLAND FOR STRATEGIC PLANNING AND DEVELOPMENT OF OFFSHORE WIND ENERGY PROJECTS

Presenter: Annie Dai

Mentor: Bradford Percy

Title: MODELING THE BUILDING BLOCKS OF THE PANCREATIC ISLET: CONNECTING ALPHA, BETA, AND DELTA CELLS

Presenter: Meghan Dands

Mentor: Zeev Rosenzweig

Title: SYNTHESIS OF GOLD NANOPARTICLES FOR VISUALIZATION OF RNA USING CRYO-EM AND NMR

Presenter: Kendall Dawkins

Mentor: Lee Blaney

Title: OZONATION OF OXYBENZONE IN ALKALINE WATER

Presenter: Andrew DeLaitsch

Mentor: Michael Summers

Title: REV-ING UP THE NMR

Presenter: Dominick DiMercurio

Mentor: Michelle Starz-Gaiano

Title: SIMULATED AND EXPERIMENTAL EFFECTS OF RNA INTERFERENCE ON CELL MOTILITY

Presenter: Nnamdi Edokobi

Mentor: Laundette Jones

Title: EXAMINING THE RANK-L INHIBITOR AS A POTENTIAL TARGETED THERAPY IN BRCA1 MUTANT MOUSE MODELS

Presenter: Christopher Evans

Mentor: Matthias Gobbert

Title: COMPARING CROP AND WATER YIELD OUTPUT FROM SWAT BASED ON OBSERVED AND DOWNSCALED GLOBAL CLIMATE MODEL DATA

Presenter: Joanna Finkelstein

Mentor: Amy Hurst

Title: Are We There Yet? DEVELOPING A DEVICE TO HELP PEOPLE WITH VISION IMPAIRMENTS NAVIGATE INDOOR FACILITIES

Presenter: Robert Flint

Mentor: Shawn Bediako

Title: EMPLOYMENT STATUS AND JOB PERCEPTIONS: TESTING SELF-DISCREPANCY THEORY AMONG ADULTS LIVING WITH SICKLE CELL DISEASE

Presenter: Alyssa Florwick

Mentor: Michael Summers

Title: STRUCTURAL BASIS OF HIV-1 GENOME RECOGNITION VIA VIRAL RNA-PROTEIN INTERACTION

Presenter: Austin Gabel

Mentor: Rachel Brewster

Title: UNDERSTANDING THE ROLE OF RGMB IN NEURAL TUBE FORMATION UTILIZING CRISPR

Presenter: Abigail Gartrell

Mentor: Nagaraj Neerchal

Title: COMPARING SWAT OUTPUT BASED ON OBSERVED AND DOWNSCALED GLOBAL CLIMATE DATA

Presenter: Abravi Akpedze Rose Gbemafu

Mentor: Stephen Miller

Title: OVEREXPRESSION OF FRUCTOSE BIS-PHOSPHATE ALDOLASE IN CHLAMYDOMONAS

Presenter: Julian Gilyard

Mentor: Matthias Gobbert

Title: REAL TIME GLOBAL ILLUMINATION SOLUTIONS TO THE RADIOSITY ALGORITHM USING HYBRID CPU/GPU NODES

Presenter: Lindsay Glang

Mentor: Michael Summers

Title: REV-ING UP THE NMR

Presenter: Shana Gregory

Mentor: Mauricio Bustos

Title: A METHOD FOR STUDYING DNA BINDING TO HALOTAG-PURIFIED TRANSCRIPTION FACTOR NKX-3.1

Presenter: John Hannegan

Mentor: Michael Hayden

Title: THE FABRICATION OF NON-LINEAR OPTICAL POLYMERS FOR USE IN THZ REGIME

Presenter: Jichele Harris

Mentor: Mark Rogers

Title: CORRELATION OF INITIAL STEPS FOR BALANCE RECOVERY IN A SIMULATED FALL

Presenter: Tarik Hawkins

Mentor: Michael Summers

Title: MODEL MEMBRANES TO PROBE FOR RETROVIRAL GAG MEMBRANE TARGETING

Presenter: Charence Higgins

Mentor: Susan Sonnenschein

Title: THE NATURE OF CHILDREN'S HOME-BASED MATH ENGAGEMENT

Presenter: Nancy Hong

Mentor: Kofi Adragi

Title: NONLINEAR MEASURES OF CORRELATION AND DIMENSIONALITY REDUCTION WITH APPLICATION TO PROTEIN MOTION

Presenter: Emily Jasien

Mentor: Kofi Adragi

Title: NONLINEAR MEASURES OF CORRELATION AND DIMENSIONALITY REDUCTION WITH APPLICATION TO PROTEIN MOTION

Presenter: Da'Kuawn Johnson

Mentor: Jeffrey Gardner

Title: FUNCTIONAL CHARACTERIZATION OF GLYCOSIDE HYDROLASE FAMILY 43 PLANT CELL WALL DEGRADING BACTERIA

Presenter: Alexander Kaiser

Mentor: Michael Hayden

Title: FABRICATION OF NON-LINEAR OPTICAL POLYMERS FOR USE IN THZ REGIME

Presenter: Shamsuddin Khan

Mentor: Lasse Lindahl

Title: EFFECT OF OVER EXPRESSION OF L5 PROTEIN IN CELL GROWTH

Presenter: Daniel Kiang

Mentor: Christopher Geddes

Title: COMPARISON OF MICROBIAL LYSING BY BOILING AND MICROWAVE IRRADIATION

Presenter: Jin Kim

Mentor: Kevin Omland

Title: SPECIATION REVERSAL: THE CASE OF THE COMMON RAVEN

Presenter: Omar Koita

Mentor: Lasse Lindahl

Title: ANALYSIS OF RIBOSOMAL PROTEINS AFTER DISTORTION OF RIBOSOME BIOGENESIS

Presenter: Margaret LaCourse

Mentor: William LaCourse

Title: IMPROVED METHODOLOGY FOR ION PROFILING IN AQUARIUM WATER

Presenter: Alex Mak

Mentor: Cynthia Wagner

Title: COMPARATIVE ANALYSIS STUDY OF COPPER REMEDIATION OF GENETICALLY MODIFIED *E. COLI* AND *S. ONEINDENSIS*

Presenter: Joshua Massey

Mentor: Matthias Gobbert

Title: REAL TIME GLOBAL ILLUMINATION SOLUTIONS TO THE RADIOSITY ALGORITHM USING HYBRID CPU/GPU NODES

Presenter: Sayo McCowin

Mentor: Michael Summers

Title: MECHANISM OF HIV-1 CAPSID-NUCLEOCAPSID POLYPROTEIN IN GENOME RECOGNITION

Presenter: Brianna Minor

Mentor: Michael Summers

Title: ccmK4 AS A CAPSID ANALOG IN HIV-1 GENOME RECOGNITION STUDIES

Presenter: Mark Moretto

Mentor: Susan Hoban

Title: NATURALLY OCCURRING MINI-OUTBURSTS AT COMET TEMPEL 1

Presenter: Brianna Morgan

Mentor: Shawn Bediako

Title: ARE STIGMA CONSCIOUSNESS AND SELF-ESTEEM RELATED TO EDUCATIONAL ATTAINMENT AMONG ADULTS WITH SICKLE CELL DISEASE?

Presenter: Larry Morton

Mentor: Gymama Slaughter

Title: GOLD-TIP NANOPROBE ARRAY FABRICATION FOR BRAIN CHARACTERIZATION

Presenter: Morgan Moser

Mentor: Michael Summers

Title: TARGETING AND BINDING OF THE FELINE IMMUNODEFICIENCY VIRUS MATRIX PROTEIN TO PLASMA MEMBRANE ASSEMBLY SITES

Presenter: Moise Mouyebe

Mentor: Nagaraj Neerchal

Title: COMPARING CROP AND WATER YIELD OUTPUT FROM SWAT BASED ON OBSERVED AND DOWNSCALED GLOBAL CLIMATE MODEL DATA

Presenter: Shadia Musa

Mentor: Susan Hoban

Title: COMPOSITION OF COMETS

Presenter: Nisha Naik

Mentor: Mark Marten

Title: CHARACTERIZATION OF HIGH-SECRETION A. NIDULANS MUTANTS THROUGH CHEMICAL GENETIC PROFILING

Presenter: Nkemdilim Ndubuizu

Mentor: Laura M Rowland

Title: Cannabis Use in Relation to GABA and Glutamate Levels in Schizophrenia

Presenter: Anthony Nguyen

Mentor: Mark Marten

Title: MORPHOLOGICAL ANALYSIS OF ASPERGILLUS NIDULANS MUTANTS

Presenter: Jaocb O'Bott

Mentor: DoHwan Park

Title: Finding the Switches

Presenter: Nicholas Often

Mentor: Stephen Miller

Title: OVEREXPRESSION OF CAH1 IN CHLAMYDOMONAS REINHARDTII

Presenter: Elelbin Ortiz

Mentor: Phyllis Robinson

Title: DETERMINING THE ROLE OF MELANOPSIN C-TAIL IN DEACTIVATION AND TRAFFICKING

Presenter: Darius Ivan Oxley

Mentor: Nagaraj Neerchal

Title: COMPARING OUTPUT FROM SWAT BASED ON OBSERVED AND DOWNSCALED GLOBAL CLIMATE MODEL DATA

Presenter: Christopher Pagan

Mentor: Kofi Adragi

Title: NONLINEAR MEASURES OF CORRELATION AND DIMENSIONALITY REDUCTION WITH APPLICATION TO PROTEIN MOTION

Presenter: Jeremiah Paige

Mentor: Zeev Rosenzweig

Title: SILICON NANOPARTICLE-FLUORESCEIN DONOR ACCEPTOR CONJUGATE FOR FRET

Presenter: David Palensky

Mentor: Bradford Percy

Title: MODELING A PANCREATIC ISLET: CONNECTING ALPHA, BETA AND DELTA CELLS

Presenter: Gerald Payton

Mentor: Matthias Gobbert

Title: PUSHING THE LIMITS OF THE MAYA CLUSTER

Presenter: Alexander Piatski

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Presenter: Kendall Queen

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Title: MODELING THE BUILDING BLOCKS OF THE PANCREATIC ISLET: CONNECTING ALPHA, BETA, AND DELTA CELLS

Presenter: Omer Qureshi

Mentor: Lynn Sparling

Title: RESEARCH ON LOWER LEVEL ATMOSPHERIC AIR QUALITY & EFFECT ON POLICY

Presenter: Vani Ravichandran

Mentor: Jennie Leach

Title: USING A MICROELECTRODE ARRAY PLATE TO INDUCE ACTION POTENTIALS IN NEURAL CELLS AFFECTED BY ALZHEIMER'S DISEASE

Presenter: Hayley Richardson

Mentor: Matthias Gobbert

Title: SPECIATION REVERSAL: THE CASE OF THE COMMON RAVEN

Presenter: Roxana Rodriguez

Mentor: Michelle Starz-Gaiano

Title: THE ROLE OF THE GENE SHEP IN CELL MIGRATION

Presenter: Maria Rodriguez-Castro

Mentor: Ruben Delgado

Title: IMPLEMENTATION OF WIND ENERGY RESEARCH PROJECTS AT THE HIGH SCHOOL LEVEL

Presenter: Nicholas Rogers

Mentor: Lee Blaney

Title: FEEM CHARACTERIZATION OF SURFACE WATERS ALONG A RURAL-TO-URBAN GRADIENT IN BALTIMORE

Presenter: Catherine Rossbach

Mentor: Michael Hayden

Title: TERAHERTZ GENERATION IN HYBRID PLASMONIC WAVEGUIDES

Presenter: John Ruth

Mentor: Mark Marten

Title: CHARACTERIZATION OF HIGH-SECRETION A. NIDULANS MUTANTS THROUGH CHEMICAL GENETIC PROFILING

Presenter: Dinara Sagitova

Mentor: Ivan Erill

Title: COLLECTF: A DATABASE OF EXPERIMENTALLY-VALIDATED TRANSCRIPTION FACTOR BINDING SITES IN BACTERIA

Presenter: Justin Santos

Mentor: Michael Summers

Title: EXPLORING THE CONFORMATION OF THE DIMERIC HIV-1 5'UTR

Presenter: Michelle Seu

Mentor: Michael Summers

Title: INVESTIGATION OF NUCLEOCAPSID PROTEIN IN SIMIAN IMMUNODEFICIENCY VIRUS

Presenter: Damilola Shabi

Mentor: William LaCourse

Title: EVALUATION OF CARBOHYDRATES USING MALDI-TOF

Presenter: Rupini Shukla

Mentor: Lasse Lindahl

Title: THE EFFECT OF PHOSPHORYLATION ON RIBOSOMAL PROTEIN BIOGENESIS

Presenter: Sadjo Sidikou

Mentor: Jeff Leips

Title: AGE-SPECIFIC IMMUNE RESPONSE IN D. MELANOGASTER

Presenter: Jazmin Simmons

Mentor: Mauricio Bustos

Title: COMPARING MATHEMATICAL MODELING SYSTEMS TO ACCURATELY COMPUTE CELL MIGRATION PATTERNS

Presenter: Pranjal Singh

Mentor: Bradford Percy

Title: SIMULATED AND EXPERIMENTAL EFFECTS OF RNA INTERFERENCE ON CELL MOTILITY

Presenter: Taylor Smith

Mentor: William LaCourse

Title: DETECTION OF GLYCOPROTEINS BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY- MASS SPECTROMETRY (HPLC-MS)

Presenter: Jessica Smith

Mentor: Michael Summers

Title: CHARACTERIZING THE HIV-1 5'-UTR MONOMERIC STRUCTURE THROUGH MUTAGENESIS AND NMR

Presenter: Thomas Stitt

Mentor: Matthias Gobbert

Title: REAL TIME GLOBAL ILLUMINATION SOLUTIONS TO THE RADIOSITY ALGORITHM USING HYBRID CPU/GPU NODE

Presenter: Stephanie Stookey

Mentor: Charles Bieberich

Title: EXAMINING THE ROLE OF CYTOKINE IL-1 β PROMOTING PELVIC HYPERSENSITIVITY IN A MOUSE MODEL OF CHRONIC PROSTATITIS/CHRONIC PELVIC PAIN SYNDROME

Presenter: Victoria Taylor

Mentor: Mark Marten

Title: CHARACTERIZATION OF HIGH-SECRETION A. NIDULANS MUTANTS THROUGH CHEMICAL GENETIC PROFILING

Presenter: Doris Taylor

Mentor: Mark Marten

Title: MORPHOLOGICAL ANALYSIS OF ASPERGILLUS NIDULANS MUTANTS

Presenter: Roald Teuben

Mentor: Michael Summers

Title: USING NMR SPECTROSCOPY TO RESOLVE THE STRUCTURE OF HIV-1 RRE

Presenter: Jorel Torres

Mentor: Ali Tokay

Title: SNOWFALL OBSERVATIONS AT NASA WOLLOPS FLIGHT FACILITY

Presenter: Nicholas Trotman

Mentor: Zeev Rosenzweig

Title: MICROWAVE SYNTHESIS OF WATER SOLUBLE CDSE/ZNS AND CDSE/ZNS/SI QUANTUM DOTS

Presenter: Robert Usab

Mentor: Charles Bieberich

Title: DETERMINING THE CONTRIBUTION OF THE ENVIRONMENT ON THE B-MYC/P TEN MODEL OF METASTATIC PROSTATE CANCER

Presenter: Michael Valerino

Mentor: Christopher Hennigan

Title: DEVELOPMENT OF A HIGH TIME RESOLUTION ATMOSPHERIC pH MEASUREMENT SYSTEM

Presenter: Verna Van

Mentor: Michael Summers

Title: CHARACTERIZATION OF THE MONOMERIC HIV-1 5'-UTR

Presenter: Gina Vockeroth

Mentor: Bradford Percy

Title: MODELING THE BUILDING BLOCKS OF THE PANCREATIC ISLET: CONNECTING ALPHA, BETA, AND DELTA CELLS

Presenter: Faith Watkins

Mentor: William LaCourse

Title: DETECTION OF GLUCOSE IN FRESH WATER USING HPAE-PAD

Presenter: Marc Webb

Mentor: Marcin Ptaszek

Title: THE EFFECT OF METALLATION ON PHOTOPHYSICAL PROPERTIES OF PORPHYRIN AND CHLORIN DYADS

Presenter: Daniel Wesloh

Mentor: Ruben Delgado

Title: COMPARISON OF RAP FORECAST WIND DATA WITH LIDAR MEASUREMENTS IN THE MARYLAND WIND ENERGY AREA

Presenter: Aron Winton

Mentor: Michael Summers

Title: USING NMR SPECTROSCOPY TO RESOLVE THE STRUCTURE OF HIV-1 RRE

Presenter: Daniel Xie

Mentor: Kofi Adragi

Title: NONLINEAR MEASURES OF CORRELATION AND DIMENSIONALITY REDUCTION WITH APPLICATIONS TO PROTEIN MOTION

Presenter: Ae Lim Yang

Mentor: Michael Summers

Title: INVESTIGATION OF DIMERIZATION MECHANISMS IN THE 5'-UNTRANSLATED REGION IN SIMIAN IMMUNODEFICIENCY VIRUS IN CHIMPANZEES

Presenter: Saiah Yates

Mentor: Jeff Leips

Title: THE GREAT ESCAPE: THE EFFECTS OF MEDICATION AND AGE ON DROSOPHILA STRENGTH

Presenter: Jessica Zaki

Mentor: Michael Summers

Title: COMPARISON OF DIMER INITIATION SITE RNA ACTIVITY BETWEEN SIMIAN IMMUNODEFICIENCY VIRUS AND HUMAN IMMUNODEFICIENCY VIRUS TYPE 1

Presenter: Aviva Zapinsky

Mentor: Lasse Lindahl

Title: RIBOSOMAL BIOSYNTHESIS AFTER REPRESSION OF SPECIFIC RIBOSOMAL PROTEIN GENES
