



11:30–Noon	Welcome Address: Dean Hey
Noon- 12:20 pm	Lunch Break
12:20-3:00 pm	Honors Thesis and Oral Presentations Presentation

Tyler Brown (Aquaculture - Marine Science)
Vernon Chan (Chemistry & Physics)
Briana Chu (Education)
Karson Couture (Marine Science)
Daniel Crear (Marine Science)

Joseph Gousse (Political Science)
Margaret Hutton (Marine Science)
Ryan Knotek (Marine Science)
Brittany Morley (Psychology)
Casey Toombs (Marine Science)

9:30–11:30 am

13th Annual Undergraduate Research Symposium

Sponsored by the College of Arts and Sciences

PRESENTATION 1

Airbrush, Acrylics, and Abstracts.

Presenter: Gavin Kuns

Advisor: Steven Travis

My display is a compilation of works of varying mediums. The subject matter is meant to be experiential and exploratory with hopes to make the viewer think.

PRESENTATION 2

PRESENTATION 6

Can Art Reduce Stress? A Study of Art Making and Responses to a Stress Induction

PRESENTATION 11

A Comparative Study Between Prey Item Variations in the Diet of Conspecific Great Horned Owls *Bubo virginianus*

PRESENTATION 21

The Effect of Human Activity on the Behavioral Responses of Eastern Gray Squirrels (*Sciurus carolinensis*)

Presenter: Julissa Good

Advisor: Emily Chester

I recorded the distance at which a behavioral response is elicited from squirrels in two different location types; one high human activity level and one low human activity level.

PRESENTATION 22

PRESENTATION 27

Becoming Aware: The Effect of Locus of Environmental Control on Anticipated Environmental Behaviors

Presenters: Lindsey Lavin, Hannah Tavella, Daniel O’Gorman

Advisor: Julie Longua Peterson

This project explored whether participants could be influenced to increase intentions to recycle and to report more control over their recycling behavior. Participants were assigned to one of three conditions (recycling fact sheet, recycling video, or control) and then reported on intentions to recycle and control over recycling behavior.

PRESENTATION 28

Competition Behaviors of Harbor (*Phoca vitulina*) and Grey Seals (*Halichoerus grypus*) during Feeding while in Rehabilitation

Presenter: Lisa Manchen

Advisor:

PRESENTATION 33

Herring Gulls: Does Vigilance Decline with Increasing Group Size?

Presenter: *Samantha Kelly*

Advisor: *Emily Chester*

PRESENTATION 39

Hippocampus Disruption Caused by Lesion, but not Genetic Knockout, Disrupts Contextual Fear Conditioning in Mice

Presenter: Miles Hughes, Rose Jacobson, Cassandra Simmons, Lei Lei, Michael Burman

Advisor: Michael Burman

The goal of this project is to determine the neural substrates involved in the formation of traumatic memories. Conditional knockout mice were created using a dorsal forebrain progenitor cell-specific Cre-lox system to delete the SOX11 or KLF-7 genes. When these conditional knockout mice went through the

PRESENTATION 55

Minor Fitness Benefits for Edge Avoidance in Nesting Grassland Birds in the Northeastern United States

Presenter: David Perkins

Advisor: Noah Perlut

Learn about the effects of edge on the Savannah Sparrow, and Bobolinks.

PRESENTATION 56

Using Stomach Content and Stable Isotope Analysis to Identify Direct and Indirect Co

PRESENTATION 65

The Creation of Two, Stable Plasmid Constructs for Use in Testing the Activity of Thyroid Hormone Alpha

Presenter: Megan Bagdon

Advisor: Deena Small

This research was centered around the creation of two PGL4.17 plasmid constructs, one containing an Osteopontin (OPN) insert with an endogenous thyroid hormone receptor, and the other containing a smaller insert consisting of the thyroid hormone receptor itself and tandem repeats. These constructs will be used to determine the effects of poly-brominated diphenyl ethers on thyroid hormone alpha activity.

PRESENTATION 66

Investigating the Photochromism of Spiroprans in the Ionic Liquid [BMIM][BF₄]

Presenter: Sean Naughton

Advisor: Amy E. Keirstead

Ionic liquids are "green" solvents that may provide applications for molecular electronic devices such as switches. In this project, a spiropran molecule was used as a probe to investigate the properties of the ionic liquid using UV-Vis and emission spectroscopy.

PRESENTATION 67

Investigating the Behavior of Siloles in Ionic Liquids and Other Viscous Media

Presenters: Regina E. Scalise, Justin D. Crumrine, Caryn K. Prudente, Henry R. Tracy

Advisors: Jerome L. Mullin, Amy E. Keirstead

Quantifying the characteristics of ionic liquids has been a topic of interest because it will aid in the improvement of their efficiency in applications such as dye-sensitized solar cells. The photoluminescence of siloles is known to be solvent-dependent and the research here aims to use siloles as probe molecules to discover more about the polarity of ionic liquids.

PRESENTATION 68

The Effect of Solute Polarity on Solubility in Polyethylene Glycol with Varying Concentrations of Supercritical Carbon Dioxide

Presenter: Michael T. Huber

Advisor: John M. Stubbs

Molecular simulation was used to calculate the solubility of four different solutes in polyethylene glycol, as a function of supercritical carbon dioxide concentration. Solutes differed in terms of rigidity, polarity, and hydrogen bonding ability.

PRESENTATION 69

Differential Lumbar Spinal Cord Mononuclear Cell Responses Among Wild Type, CD4 Knockout, and CD40 Knockout Mice in Spinal Nerve L5 Transection-Induced Neuropathic Pain

Presenters: Adriana Eurich, Holly Beaulac

Advisor: Ling Cao

We have previously demonstrated that both lumbar spinal cord-infiltrating CD4⁺ T cells and lumbar spinal cord microglial CD40 contribute to the maintenance of mechanical hypersensitivity in the murine model of neuropathic pain spinal nerve L5 transection (L5Tx). To further delineate the CD4 and CD40-mediated mechanisms involved in the development of L5Tx-induced neuropathic pain behaviors, we examined the lumbar spinal cord mononuclear cells of wild type (WT) BALB/c, BALB/c-CD4 knockout (KO), and BALB/c-CD40 KO mice in time course studies via flow cytometry.

PRESENTATION 70

Non-Ventilatory Breathing Maneuvers Generate Error in Estimates of Breathing Parameters using Whole Body Plethysmography

Presenter: Megyn Beyer

Advisors: Renee LeClair, Andrew Binks

Measurement of breathing (rate and tidal volume) in animals can be confounded by behavioral respiratory maneuvers, such as sniffing or vocalization, particularly when automated analysis methods are used. To describe and resolve this problem we have defined the airflow characteristics of a sniff so to distinguish it from a normal tidal breath and consequently demonstrate the significant impact behavior can have on analysis of ventilation.

12:20-3:00 pm
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SCHEDULE OF PRESENTATIONS

	Room 203	Room 205	Room 202	Room 208	Room 212	Room 210	
12:20-12:30	Good, Dvorak, Morley, Hotham Psychology Panel I	Dzis, Malsbury, Panaitiu, Violette English Panel		Faloon Pharmacology		Gildea Political Science	
12:30-12:40							
12:40-12:50				Coutré Thesis Marine	Chretien Environmental	Edwards Chemistry	Khromushki Political Science
12:50- 1:00							
1:00-1:10	Sleboda, Taatjes, Kaulback Psychology Panel II	Glynn English		C. Smith Marine	Brown Thesis Aquaculture /Marine	Leyden Political Science	
1:10-1:20			Crear Thesis Marine				
1:20-1:30				Spillane Marine		Winn Political Science	
1:30-1:40							
1:40-1:50	Barton, Zannoni, Ashner Psychology Panel III	Tetreau History	Knotek Thesis Marine	Thompson Marine	Chan Thesis Chemistry	Sheaff Political Science	
1:50-2:00							
2:00-2:10		Bagdon History	Hutton Thesis Marine	Peterson Marine	Chu Thesis Education	Underwood Political Science	
2:10-2:20							
2:20-2:30		Ferrante History		K. Smith Marine		Mellen Political Science	
2:30-2:40							
2:40-2:50							

PSYCHOLOGY PANEL I: SCHOOL PROJECTS

12:20 – 1:00

Piloting Interventions to Improve Nutrition in Elementary School Students

Presenter: Julissa Good, Jesalyn Dvorak

Advisor: Maryann Corsello

Evaluating pilot interventions used to improve the BMI of students attending Atwood Primary School. Also analyzed results from the Family Nutrition and Physical Activity screening tool distributed to parents at the Second grade health fair at the school.

The 'Go Grrrls' Program: A Look at Findings from a Local Female Empowerment Group

Presenter: Brittany Morley

Advisor: Maryann Corsello

This presentation reports findings from a six-week female empowerment program within a local middle school. The program was aimed at at-risk 8th grade females to build social competencies and positive identity.

Analysis of the Maine Integrated Youth Health Survey (2009 and 2011) and its Use and Implications for a Maine High School

Presenter: Brandon Hotham

Advisor: Maryann Corsello

This project assisted in the analysis of data from the Maine Integrated Youth Health Survey (MIYHS) from the years of 2009 and 2011 for a Maine high school. The project aims to make use of this data in a functional way for the community members.

PSYCHOLOGY PANEL II: UNITED WAY PROJECTS

1:00 – 1:40

Toxic Stress and School-based Programs in York County

Presenter: Krystal-Kalene Sleboda

Advisor: Maryann Corsello

A review of the prevalence and effects of Toxic Stress in Maine and what school-based programs are being offered in York County to address these effects.

Child Abuse Prevention Programs in Maine

Presenter: Andrea Taatjes

Advisor: Maryann Corsello

This project focused on child prevention programs in the state of Maine and the effectiveness of these programs.

Evaluating Parent Education Programs in York County

Presenter: Katelyn Kaulback

Advisor: Maryann Corsello

Survey of Parent Engagement

Presenter: Lauryn Barton

Advisor: Maryann Corsello

Evaluation of Parent survey data for the Greater Waterville Communities for Children and Youth (Youth Matter) for insight on how to achieve better parental communication and attendance.

Evaluating and Addressing Substance Abuse in a Diversion Program for Maine at-risk Youth

Presenter: Amanda Zannoni

Advisor: Maryann Corsello, Ph.D.

Identified a “medium” drug use in juvenile diversion programs (has used drugs before but is not a severe user or addict). Problem is prevalent and unaddressed. Created a research based program to address this issue, as well as the tools to evaluate the program’s effectiveness.

Parent Resource Center: Preparing People for the Most Important Job They Will Ever Have

Presenter: Rose Ashner

Advisor: Maryann Corsello

This project examined an already designed parent education program, the Parent Resource Center Inc. A weekly evaluation form was created and implemented along with evidence based pre and post test surveys

The Economist and Masculinity

Presenter: Ioana D. Panaitiu

Advisors: Michael Cripps, Eric Drown, Joseph Hessert, Joshua Pahigian

Psychological Control: The Implications of Differences in Parent and Child Perceptions for Adolescent Adjustment

Presenter: Katelyn Kaulback

Advisor: Amanda Hare

This longitudinal, multi-reporter study examines how differences in perceptions of student and parent behaviors of psychological control affect student emotional adjustment during their first year in college. Implications for academic success will also be discussed.

ROOM 202 *Listed in order of appearance.*

Differential Stress Tolerance of the Color Morphs in the Green Crab, *Carcinus*
Maenas

Presenter: Casey Toombs

Advisor:

Computational Investigation and Nuclear Magnetic Resonance Spectroscopy

Analysis of 6! -Naltrexol Derivatives

Presenter: Vernon Chan

Advisors: Amy Deveau, John Stubbs

In a previous attempt to synthesize derivatives of the mu opioid receptor antagonist naltrexol, an unexpected

ORAL PRESENTATION

12:40 – 1:00

The Struggle over Ukraine's Future: The Question of Integration with Russian Federation and the European Union

Presenter: Roman Khromushkin

Advisor: Ali Ahmida

Analysis of particular events and forces which influence the political, social, and economic life of Ukrainian people as well as attempting to answer the meaning of Ukrainian national identity

ORAL PRESENTATION

1:00 – 1:20

James Scott, Social Media and the Politics of Mobilization: The 25th

