Integrated Science Research Projects --- Winter 2013

1. Addictive personalities: Examining the relationship between personality types and smoking addiction - Jennifer Stamp, Psychology and Neuroscience

2. Evaluating the effects of prenatal stress and environmental enrichment on seizure vulnerability in rats - Tara Perrott and Lisa Wright, Psychology and Neuroscience

3. Sparsity heuristics and attention - Olav Krigolson and Cameron Hassall, Psychology and Neuroscience

4. Tossing and turning: The effects of overnight sleep restriction on women with unipolar depression - Benjamin Rusak and Denise Bernier, Psychology and Neuroscience

5. Histological changes of the bovine heart during gestation - Sarah Wells and Caitlin Pierlot, Biomedical Engineering

6. Take a deep breath: The results of an altered extracellular matrix on airway smooth muscle - Geoff Maksym and Adrian West, Biomedical Engineering

7. The therapeutic potential of carbon monoxide in Cystic Fibrosis airways - Elizabeth Cowley, Physiology and Biophysics

8. Investigating geographic variation of Canada Warbler song - Cindy Staicer, Biology

9. The immediate effects of hydraulic dredging on benthic species in Banquereau Nova Scotia – Gabrielle Tompkins-MacDonald, Biology

10. Do pond snails use chemical detection to navigate? - Gabrielle Tompkins- MacDonald, Biology

11. Life in a Periwinkle: Documenting symbiotic diversity of intertidal and subtidal *Littorina littorea* - Gabrielle Tompkins- MacDonald, Biology

12. A study of coniferous deadwood and polypores with distance from forest edge - Karen Harper, Biology, and Gavin Kernaghan, Biology, Mount St Vincent

13. The game of heavyweights - Richard Nowakowski, Mathematics and Statistics

14. A vast thin plane of co-rotating dwarf galaxies around M31 - Scott Chapman, Physics and Atmospheric Science

15. Solar irradiance versus solar simulators: Spectral differences and efficiency implications - Ian Hill, Physics and Atmospheric Science

16. Synthesis of silver-gold nanoprobes -Kevin Hewitt, Physics and Atmospheric Science

17. Transition metal oxides as anode material for Na-ion batteries - Mark Obrovac, Chemistry

18. Structure and properties of Sodium Titanate and Corning® Gorilla® glasses: The effects of transition metal oxide doping and ion exchange - Josef Zwanziger, Chemistry

19. The effect of applying electric potential on the adsorption of protein on a platinum electrode - Heather Andreas, Chemistry

20. Protein stabilized red fluorescent gold nanoclusters - Daniel Chevrier and Peng Zhang,Chemistry

Integrated Science Research Projects – Winter 2012

1. An impartial toppling dominos game… Toppling Peaks - Richard Nowakowski, Mathematics and Statistics
2. Modeling of x-ray production for volume-of- interest (VOI) cone beam CT imaging - James Robar & David Parsons, Physics & Atmospheric Science
3. Temperature dependent micro-photoluminescence of a single semiconductor quantum dot - Kimberley Hall, Physics and Atmospheric Science
4. Insight into air quality from satellite remote sensing – Randall Martin, Physics & Atmospheric Science
5. A search for over dense, clustered galaxies when the universe was 3 billion years old - Scott Chapman, Physics and Atmospheric Science
6. Ligand development for metal catalysts involved in carbon-nitrogen cross-coupling reactions -Mark Stradiotto and Craig Wheaton, Chemistry
7. Synthesis of New Bis(phosphino)silyl Group 10 Transition Metal Complexes - Laura Turculet, Erin Morgan & Sam Mitton, Chemistry
8. Effect of storage methods on chlorophyll and protein complexes - Alan Doucette & Dennis Orton, Chemistry
9. Remodeling of elastin in the aorta: is it reversible? - Sarah Wells, Physics & Biomedical Engineering
10. Thermoelastic properties of developing elastic tissue in the fetal aorta- Sarah Wells, Physics & Biomedical Engineering
11. Improving Eustachian Tube sonotubometry - Phil Garland & Manohar Bance , Ear and Auditory Research Lab, Faculty of Medicine
12. Preclinical evaluation of the anti-cancer vaccine Depovax™ using CT and MRI imaging -Kim Brewer & Chris Bowen, Biomedical MRI Research Lab, IWK Health Centre
13. Health of coral reefs in Honduras in 2009 and 2011 - Alan Pinder, Marine Biology
14. The effects of primary production decline on the rock pool ecosystem structure and function - Grace Murphy & Tamara Romanuk , Marine Biology
15. Examination of forest tundra ecotones in northern Manitoba and Siberia using Google Earth™ - Karen Harper, School for Resource & Environmental Studies
16. Singing behaviour of the Hermit Thrush - Sean Roach & Leslie Phillmore, Psychology and Neuroscience
17. Spatial search behaviour of the 5XFAD mouse model of Alzheimer's disease in the Morris Water Maze - Richard Brown & Tim O'Leary, Psychology and Neuroscience
18. Embodied Cognition: Auditory and visual processing of different linguistic stimuli Heath Matheson & Patricia McMullin, Psychology and Neuroscience
19. Olfactory learning: Investigation of the effects of interference on olfactory discrimination learning in C57BL/6J mice - Kyle Roddick & Heather Schellinck, Psychology and Neuroscience
20. Adolescent smoking- Jennifer Stamp, Psychology and Neuroscience
21. Neuronal neighbourliness and synaptic association in *Ciona intestinalis* - Ian Meinertzhagen, Psychology and Neuroscience

DISP Research Projects – Winter 2011

1. The Euler Characteristic of a Fractal - Dorette Pronk, Mathematics
2. Developing Two-photon Chemistry of Organic Compounds: Effect of Media - Norm Schepp & Fran Cozens, Chemistry
3. Developing Metal Catalysts for Chemical Synthesis - Ben Tardiff & Mark Stradiotto, Chemistry
4. Effect of trypsin storage & preparation on mass spectrometry-based proteomics - Alan Doucette & Mark Wall, Chemistry
5. Thermomechanical properties of heart valve chordae tendinae - Sarah M. Wells, Biomedical Engineering
6. Yava Technologies Battery Project - Jeff Dahn & Trevor Byrne, Physics & Atmospheric Science
7. Pattern formation during surface reactions under the influence of increased reaction pressures - Harm Rotermund & Parissa Sadeghi, Physics & Atmospheric Science
8. The evolution of our brains - Ian Meinertzhagen & Nancy Butcher, Psych
9. Anxiety & Locomotor Activity in a Mouse Model of Alzheimer's Disease - Richard Brown & Tim O'Leary, Psychology
10. Olfactory Learning - Heather Schellinck, Psychology
11. Sugar Addiction - Jennifer Stamp, Psychology
12. Embodied Cognition - Heath Matheson, Psychology
13. Re-examining the timing of the evolution of Dengue Fever Virus - Joseph Bielawski & Katherine Dunn, Biology & Statistics
14. Early evolution of the nervous system - Roger Croll, Physiology & Biophysics
15. Assessing Burrowing Success of Clams Following Dredge-like Disturbance – Gabrielle Tompkins MacDonald, Biology
16. Quantifying bycatch from offshore softshell clam harvest sites - Gabrielle Tompkins MacDonald, Biology
17. Duetting behaviour in tropical Flycatchers - Cindy Staicer, Biology
18. Efficiency of composts & biosolids in land remediation - Sina Adl, Biology
19. Lichen response to air pollution – Cindy Staicer, Biology
20. Urban Weathering Rates - Milton Graves, Earth Science
21. Teaching Integrated Science - Milton Graves, Earth Science

DISP Research Projects – Winter 2010

1. Developing Metal Catalysts for Chemical Synthesis: Understanding How Catalyst Structure Influences Reactivity – Mark Stradiotto & Kevin Hesp, Chemistry
2. Two-photon Photochemistry of N-oxide-2-pyridinethione – Norman Schepp & Dr. Frances Cozens, Chemistry
3. The Physical Properties of Hair following Chemotherapy – Mary Anne White & Kimberly Miller, Chemistry
4. Modeling Noble Metal Nanoclusters – Peng Zhang, Chemsitry
5. Electochemically Produced Copper Nanostructures – Laurent Kreplak, Physics & Atmospheric Science
6. Particle Size Analysis of Ball-milled Cobalt Ferrites – R.A. Dunlap, Physics & Atmospheric Science
7. Counteracting the Effects of Acid Rain Using Native Rocks – Anne Marie Ryan, Earth Sciences
8. (U-Th-Sm)/He Dating of the Haughton Crater; Devon Island, Canadian Arctic – John Gosse, Earth Sciences
9. Wavelet Analysis – Josh MacArthur, Mathematics
10. Large-Scale Evolution of the Universe – Josh MacArthur, Mathematics
11. Coral Reef Ecology: An Anaysis of Species Diversity & Percent Cover on Coral Heads on Honduras – Alan Pinder, Biology
12. Mutant Suppressors in Myxococcus xanthus – Laura Grogono, Biology
13. The Antimicrobial Zone – Laura Grogono, Biology
14. Bacterial evolution in a heterogeneous environment – Sina Adl, Biology
15. Composts and Biosolids: May the Best Soil Win – Sina Adl, Biology
16. The Effect of Temperature Variation on Food Web Structure of Rock Pool Communities – Tamara Romanuk & Connie Tuck, Biology
17. Evolution of the Chordate Nervous System: A Quantitative Analysis of Ciona intestinalis – Ian Meinertzhagen, Psychology
18. Embodied Cognition: Association between Motor Programming and Organic Object Recognition – Heath Matheson, Psychology
19. Embodied Cognition: Association between Motor Programming and Inorganic Object Recognition– Heath Matheson, Psychology
20. Online vs. Offline Poker Players: Is There Really a Difference? – Dr. Sean Barrett, Psychology
21. Responses of Black-capped Chickadees to Normal and Altered Conspecific Songs – Sean Roach, Psychology
22. The Effect of Directed and Undirected Song on Zebra Finches – Sean Roach, Psychology
23. Swim Patterns in Sighted Transgenetic and Wildtype Mice – Leanne Fraser, Psychology
24. Swim Patterns in Transgenic Mice – Leanne Fraser, Psychology

DISP Research Projects - Winter 2009

1. Neuronal Reconstruction in *Drosophila melanogaster* - Ian Meinertzhagen, Psychology
2. Cognitive Development in Infants - Stephanie Collins, Psychology
3. Folk Physics in Dogs - Stephanie Collins, Psychology
4. The Link between Empathy and Contagious Yawning - Sean Roach, Psychology
5. Own-race and other-race face perception - Heath Matheson, Psychology
6. Song perception in the Black-capped Chickadee - Sean Roach, Psychology
7. Drosophila Model of Alzheimer's Disease - Ian Meinertzhagen and Nancy Butcher, Psychology
8. Cerebellar Size and Function in the STOP Null Mouse Model of Schizophrenia – Tim O'Leary and H. Schellinck, Psychology
9. Interaction of Organic Ligands with Gold Nanoparticles - Peng Zhang, Chemistry
10. Protein Separation with Polyacrylamide Gel Electrophoresis -Alan Doucette, Chemistry
11. Physical Properties of Hair - MA White and Kim Miller, Chemistry
12. Detecting Cancerous Cells Using Gold Nanoparticles and Raman Spectroscopy - Kevin Hewitt, Physics and Peng Zhang, Chemistry
13. Synthesis and Magnetic Study of Nanocrystalline Ferrites - Rich Dunlap, Physics
14. Self-Assembly and Mechanics of Hagfish Slime Threads – Lawrence Kreplak, Physics
15. Wave Phenomena in Ultrasound Imaging - Ted Monchesky and Stephen Payne, Physics
16. The Haughton Crater - John Gosse and Milton Graves, Earth Science
17. Effects of Raw Sewage on *Mytilus edulis* - Milton Graves, Earth Science
18. Testing for KEG Protein Interactors using the Yeast 2-hybrid Analysis – Sophia Stone, Biology
19. Comparative Analysis of Skeletal Development in Mutant and Normal Tadpoles – Cory Bishop, Biology
20. Analysis of Chondrocyte and Osteocyte Lacunae Sizes of Polyploid Frogs - Cory Bishop, Biology

DISP Research Projects -Winter 2008

1. Body Recognition - Chris Moore and Stephanie Collins, Psychology
2. Face Perception: Influenced of Race - Patricia MacMullen and Heath Matheson, Psychology
3. Neuronal Reconstruction - Ian Meinertzhagen and Jane Anne Horne, Psychology
4. Olfactory Learning in Mice - Heather Schellinck, Psychology
5. Reading orientation: Pattern recognition - Georg Hofmann, Mathematics, and Jennifer Stamp, Psychology
6. Sensation Seeking in Mice - Jennifer Stamp, Psychology
7. Growth of Bismuth Crystals - Mary Anne White and Andrew Ritchie, Chemistry
8. NMR Characterization of Main Group Compounds - Neil Burford, Cheryl Saunders, Yeun Ying Carpenter, Chemistry
9. NMR Characterization of New Phosphino(silyl) Ligands and the Corresponding TM Complexes - Laura Turculet, Chemistry
10. Synthesis of Gemini Surfactants having Fixed Geometrical Relationships between Tails - Bruce Grindley, Chemistry
11. Advanced, Inexpensive Negative Electrodes for Li-ion Batteries - Jeff Dahn, Pierre Ferguson and Andrew Todd, Physics
12. Building Laser Tweasers - Daniel LeBrie, Physics
13. Neuron mechanics at the nanoscale - Laurent Kreplak, Physics
14. Non Platinum Catalysts for Fuel Cells – Jeff Dahn and Gary Liu, Physics
15. Optical fluorescence microscopy -How to see the invisible - Manfre Jericho, Physics
16. Mathematics anyone? - Georg Hofmann, Mathematics
17. Folded Hands: Which hand goes on Top? - Richard Wassersug, Anatomy and Neurobiology
18. Bioinformatics of the Listeria genome - Joseph Bielawski, Biology
19. Programmed Cell Death in Plants - Arunika Gunawardena, Biology
20. The Human Food Web Tamara Romanuk - Tamara Romanuk, Biology
21. Ubiquitination and DNA damage repair - Sophia Stone, Biology
22. Growth rates of *Mya arenaria* - Milton Graves, Earth Sciences
23. The sound of the City: Seismometer signals in an urban environment - Milton Graves, Earth Sciences

DISP Research Projects – Winter 2007

1. Finding the cells in the neuronal jungle - Ian Meinertzhagen and Jane Anne Horne, Psychology

2. "I feel the same way": Recognizing facial emotion as appropriate to context - Cindy Hamon-Hill and John Barresi, Psychology

3. STOP mice: A putative animal model of schizophrenia - Heather Schellinck and Elizabeth Seary, Psychology

4. Memory deficits in a mouse model of Alzheimer's disease - Richard Brown and Ashley Whittaker, Psychology

5. Fear conditioning: Can it lead to PTSD? - Richard Brown and Rhian Gunn, Psychology

6. Why does sensation seeking predispose an individual to drug addiction? - Jennifer Stamp, Psychology

7. What influences attractiveness of a human face? - Jennifer Stamp and Sean Roach, Psychology

8. Self-Discharge in Supercapacitors - Heather Andreas, Chemistry

9. Synthesis & Characterization of New Inorganic Polymers - Neil Burford, Chemistry

10. Synthesis & Characterization of New Inorganic Compounds - Alison Thompson, Chemistry

11. Organic Photochemistry: Sigma Bond Cleavage Reactions - James Pincock, Chemistry

12. Game Theory, ESS & Prisoner's Dilemma - Georg Hofmann, Mathematics

13. Chaotic Bouncing Balls - Barry Ruddick, Oceanography

14. Nanomaterials - Jeff Dahn, Physics

15. Clams as Marine Indicators - Milton Graves, Earth Science

16. Urban Weathering - Milton Graves, Earth Science

17. Control of Urinary Bladder Function in Rats - Gary Allen and John Downie, Anatomy and Neurobiology

18. Ubiquitination & DNA damage repair - Sophia Stone, Biology

19. The Human Food-Web - Tamara Romanuk, Biology