Faculty Research Profiles

Rowan University

About the College

The College of Science & Mathematics and School of Health Professions aspire to be leaders in student-centered science and math higher education, recognized nationwide as one of the best among its peers. We promote a student-centered approach to learning in a research-rich environment both inside and outside of the classroom. We are committed to providing our students with outstanding degree programs in basic, applied, and health sciences and mathematics and preparing them to function in a multi-cultural and economically interdependent world. Our students will prosper in the global community through our international partnerships and global engagement. We aim to provide model preparation for continuing scholarship in the students' chosen careers in industry, research, education, health care, and public service.

CSM/SHP also plays an essential role in educating non-science majors. For these majors, we provide a sound grounding in the essentials of science and mathematics that will enable them to better understand the world in which they live and the role of science and scientific thinking in their society.
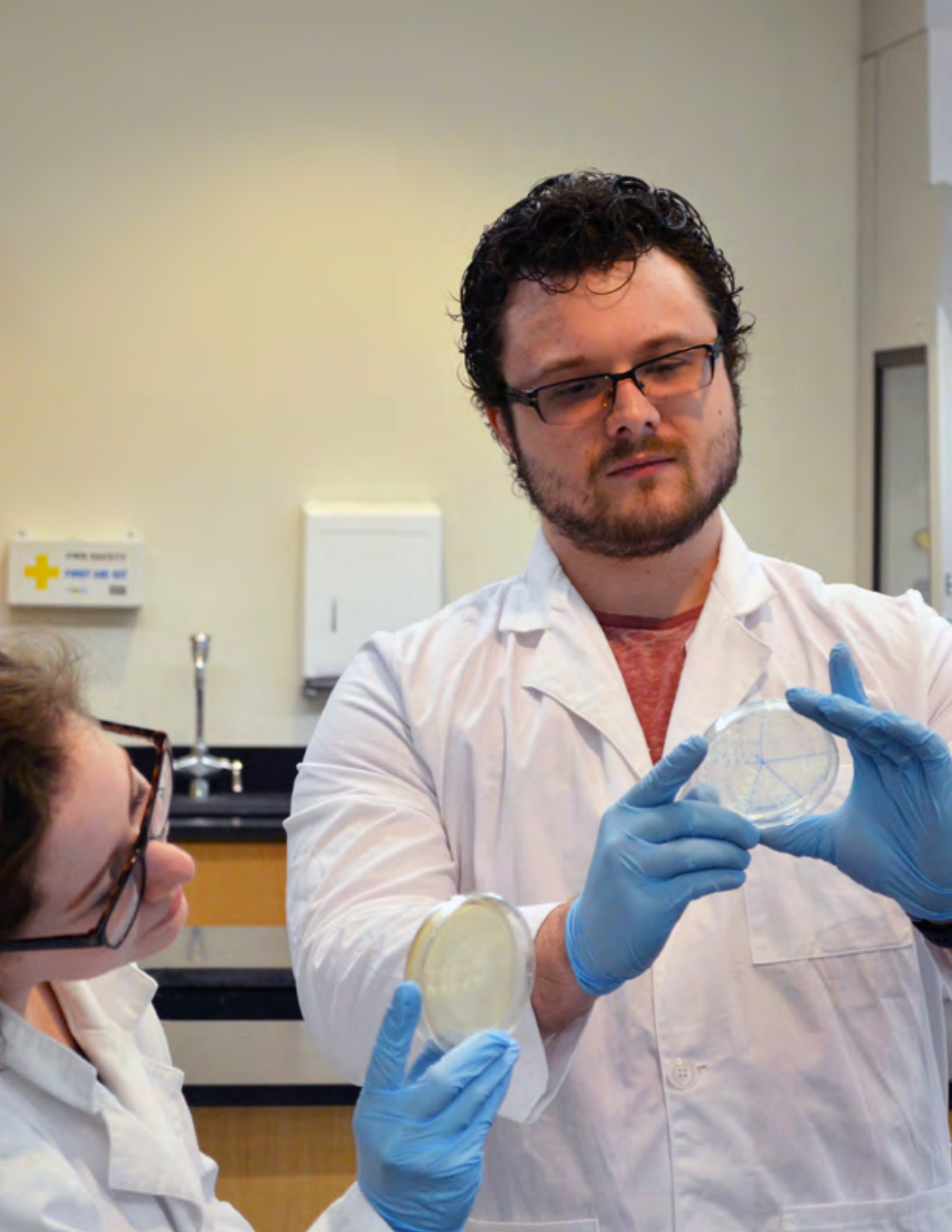
College of Science & Mathematics and School of Health Professions Core Values
- Dedication to quality undergraduate and graduate education with student-centered curriculum
- High quality research and scholarship that includes close interaction between faculty and students
- Assist students in establishing and refining their career or professional perspectives through individualized advising
- Create and support new opportunities for STEM education in the region
- Develop a technically skilled and scientifically literate population in the Delaware Valley
- Commitment to diversity
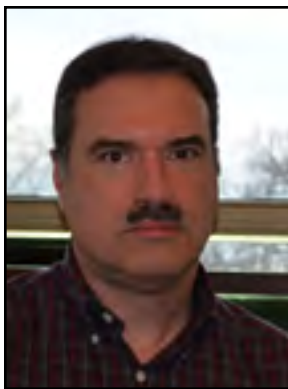- Serve the science and math needs of the Delaware Valley

Table of Contents

Biological Sciences

Gregory Hecht

Associate Professor
Biological Sciences

hecht@rowan.edu

Education:
BS (Molecular Genetics), University of Rochester
MA (Molecular Biology), Princeton University
PhD (Molecular Biology), Princeton University

Research Expertise:
Microbial genetics | Applied microbiology | Biology education

My laboratory research interests focus on the use of both modern and "classical" genetic methods to address questions in applied microbiology. The primary project is the development and analysis of bacterial strains with the ability to immobilize soluble lead. We are using the freshwater oligotroph Caulobacter crescentus as a model organism to identify the genes and cellular components that are responsible for the biosorption of lead via a biologically mediated precipitation. We are using so-called classical genetic techniques coupled with whole genome sequence analysis. Our work has demonstrated that cysteine metabolism and enzymatic phosphatase activity are two of the key players in the biosorption of lead.

We also conduct biofuels research. To make biofuel fermentations economical, the biocatalyst must have significant tolerance to the biofuel product. We have isolated ethanol-tolerant mutants of Escherichia coli FBR5 and carried out physiological and genomic analyses of these strains, demonstrating that the iron import gene fecA is important in determining the ethanol tolerance of the organism. Other previous applied microbiology projects in my laboratory have included industrial partnerships to study the enhancement of microbial activity in commercial grease traps and an analysis of microbial contamination of rice flour.

Recent Academic Projects: My other area of interest is in the retention and education outcomes of students in the biology curriculum. I am currently involved in the Cumberland College Bridges to Rowan University, which focuses on improving the degree completion success rate of minority and disadvantaged students from Cumberland County College who transfer to Rowan University. In particular, I am developing primary research activities for students at Cumberland County College that focus on the the discovery and analysis of novel Caulobacter bacteriophages in a project modeled after the SEA-PHAGES initiative (https://seaphages.org).

Honors and Awards:
Rowan University Faculty Center Wall of Fame Award (1999, 2001, 2003, 2017)

Member of:
American Society for Microbiology (http://www.asm.org)
American Association for the Advancement of Sciences (http://aaas.org)
New Jersey Water Environment Association (http://www.njwea.org)

Recent Publications:
Mosto P, Savelski MJ, Farrell SH, Hecht GB (2007) Future of Chemical Engineering: Integrating Biology into the Undergraduate Curriculum. Chemical Engineering Education. 41:43-50.

Mire CE, Tourjee JA, O'Brien WF, Ramanujachary KV, Hecht GB (2004) Lead precipitation by Vibrio harveyi: Evidence for novel quorum sensing interactions. Applied & Environmental Microbiology. 70:855-864.

Luke Holbrook

Professor
Biological Sciences

holbrook@rowan.edu
http://users.rowan.edu/~holbrook

Education:
BS (Biology), Fordham University
MS (Biology), University of Massachusetts
PhD (Biology), University of Massachusetts
Postdoctoral (Anatomy), New York College of Osteopathic Medicine

Research Expertise:
Phylogeny and evolution of mammals | Vertebrate morphology | Vertebrate paleontology

I study the phylogeny and diversification of mammals. I use data from fossils, morphology, and DNA sequences to determine relationships among different mammal lineages, and to estimate the timing of when different groups split from one another.

Member of:
Society of Vertebrate Paleontology
Paleontological Society
Society of Systematic Biologists
Society for the Study of Mammalian Evolution
Willi Hennig Society
Society of Integrative and Comparative Biology

Recent Publications:
Rose KD, Holbrook LT, Luckett WP (2017) Deciduous premolars of Eocene Equidae and their phylogenetic significance. Histor Biol. DOI: 10.1080/08912963.2017.1291637 Epub ahead of print.

Jones KE, Holbrook LT (2016) The evolution of lateral accessory articulations in the lumbar region of perissodactyls. J Vert Paleontol. 36 DOI: 10.1080/02724634.2016.1224892 Epub ahead of print.

Bai B, Meng J, Wang Y-Q, Wang H, Holbrook LT (2017) Osteology of the Middle Eocene ceratomorph Hyrachyus modestus (Mammaia, Perissodactyla). Bull Amer Mus Natur Hist. 413:1-68.

Holbrook LT (2015) The identity and homology of the postprotocrista and its role in molarization of upper premolars of Perissodactyla (Mammalia). J Mamm Evol. 22:259-269.

Rose KD, Holbrook LT, Rana RS, Kumar K, Jones KE, Ahrens HE, Missiaen P, Sahni A, Smith T (2014) Early Eocene fossils suggest that the mammalian order Perissodactyla originated in India. Nat Commun. 5:5570.

Holbrook, LT (2014) On the skull of Radinskya (Mammalia, ?Phenacolophidae) and its phylogenetic position. J Vert Paleontol. 34:1203-1215.

Alison Krufka

Associate Professor
Biological Sciences

krufka@rowan.edu

Education:
BS (Biology), College of William and Mary
PhD (Developmental Biology), University of Wisconsin-Madison
Postdoctoral (Genetics, Cell, and Developmental Biology), University of Minnesota-Twin Cities

Research Expertise:
Discipline Based Education Research | Evolution and development of the lateral line system |
Urea cycle function and evolution

My research focuses on effective ways to integrate scientific skills, authentic inquiry, and an understanding science into undergraduate curricula. I am working on three projects that incorporate scientific skills and inquiry into the classroom: 1) integration of biology and engineering through development of inquiry based cell culture technology and biomaterials lab modules, 2) study of the effective implementation of the CREATE approach to teaching the process of scientific inquiry through directed analysis of primary literature, and 3) the development/assessment of a scientific skills based transfer student course.

I am investigating the evolution and embryonic development of lateral line system using threespine stickleback. We seek to understand how adult variation in the number and size of neuromast sensory organs are generated during embryonic development. I also am interested in the evolutionary conservation of urea cycle genes. We hypothesize the urea cycle genes function in embryos prior to the formation of ammonia excretion pathways and protect the developing brain from the breakdown of yolk proteins. The conservation of urea cycle genes from fish to mammals allows us to study urea cycle disorders and the toxicity of hyperammonemia on brain development using the zebrafish model.

Member of:
American Association for the Advancement of Science
American Society for Cell Biology
Society for Developmental Biology

Recent Academic Projects:
I serve as the Program Director of the Cumberland County College Bridge to Rowan University NIH-sponsored Bridges to the Baccalaureate Program.

Recent Publications:
Hoskins S, Krufka A (2015) The CREATE Strategy Benefits Students and Is a Natural Fit for Faculty. Microbe 10:108-112.

Caldovic L, Haskins N, Mumo A, Pinter M, Tuchman M, Krufka A (2014) Expression Pattern and Biochemical Properties of Zebra sh N-acetylglutamate Synthase. PLoS ONE 9:e85597.

Evarts S, Krufka A, Holbrook L, Wilson C (2014) I'm Looking Over a White-Striped Clover: A Case Study in Natural Selection. In: Science Stories You Can Count On: 51 Case Studies With Quantitative Reasoning in Biology. Herried C, Schiller N, Herrid K, eds. Arlington, VA, NSTA Press.

Claude F. Krummenacher

Assistant Professor
Biological Sciences/Molecular & Cellular Biosciences

krummenacher@rowan.edu
http://users.rowan.edu/~krummenacher/

Education:
BS (Biology), University of Lausanne
PhD (Biology), University of Lausanne
Postdoctoral (Virology), Wistar Institute
Postdoctoral (Virology), University of Pennsylvania

Research Expertise:
Virology | Cell biology | Molecular and structural biology

My lab focuses on the interactions between herpes simplex virus (HSV) and its human host. To identify new therapeutic targets, we use molecular and cellular approaches to understand host-virus interactions and responses to infection. We study the mechanism by which HSV binds to cellular receptors in order to design inhibitors of virus entry. We also characterize cellular responses to identify factors involved in susceptibility to HSV infection. Finally, we also are interested in the effects of human saliva on the susceptibility to infection by HSV. This combination of approaches aims at identifying new biomarkers for HSV susceptibility and discovering novel targets for innovative antiviral targets for innovative therapies. We recently interested in identifying and developing new compounds that can inhibit HSV infection and spread.

Honors and Awards:
Joseph and Josephine Rabinowitz Award for Scientific Excellence at the PENN Dental School (2007)
Stephen L Sacks Investigator Award from the American Herpes Foundation (2005)
Frances R Lax Award for Faculty Development at Rowan University (2015)

Member of:
American Society for Microbiology (http://www.asm.org/)
American Association for the Advancement of Science (http://www.aaas.org/)
American Society for Virology (http://www.asv.org)

Recent Publications:
Bhargava AK, Rothlauf PW, Krummenacher C (2016) Herpes simplex virus glycoprotein D relocates nectin-1 from intercellular contacts. Virology. 499:267-277.

Bello-Morales R, Crespillo AJ, Praena B, Tabarés E, Revilla Y, García E, Fraile-Ramos A, Baron W, Krummenacher C, López-Guerrero JA (2016) Role of Proteolipid Protein in HSV-1 entry in oligodendrocytic cells. PLoS One. 11:e0147885.

Petermann P., Rahn E, Their K, Hsu MJ, Rixon F, Bloch W, Özcelik S, Krummenacher C, Barron MJ, Dixon MJ, Scheu S, Pfeffer K, Knebel-Mörsdorf D (2015) Entry mechanisms of Herpes Simplex Virus Type 1 into murine skin: Involvement of nectin-1 and HVEM as cellular receptors. J Virol. 89:262-274.

Lazear E, Whitbeck JC, Zuo Y, Carfí A, Cohen GH, Eisenberg RJ, Krummenacher C (2014) Dynamics of conformational changes at the N-terminus of herpes simplex virus glycoprotein D induced by HVEM and nectin-1. Virology 448:185-95.

Terry J. O'Brien
Associate Professor
Biological Sciences

obrien@rowan.edu

Education:
BS (Botany), University of Iowa
MS (Botany), University of Iowa
PhD (Integrative Biology), University of California at Berkeley

Research Expertise:
Plant Cell Culture | Plant Anatomy and Morphology | Plant Diversity and Evolution

My research interests are in three major areas: plant cell culture, anatomy and morphology of nonvascular and vascular plants, and evolutionary biology of plants.

My current research focuses on the production of useful plant metabolites from plant cell cultures derived from vascular cambial cells. These metabolites are diverse in chemical structure, vary with taxonomic groups of plants, and are used in applications ranging from medicine to cosmetology to agriculture. My work especially seeks to improve the cost efficiency and reliability of production of metabolites from plant cell cultures.

I also am interested in and have prior research projects in the use of anatomy, morphology, and nucleic acids to reconstruct patterns of evolution in plants, in particular, the mosses. This research helped to establish our current knowledge of broad relationships and trait evolution within mosses, an ancient lineage of plants. Related to this work, I also have research interests in the population biology of vascular plants, especially the pteridophytes (ferns and allies) and lycophytes (club mosses).

Honors and Awards:
Hattori Prize for Best Publication in Bryology, with NE Bell, D Quandt, AE Newton. 2009.

Member of:
American Society of Plant Biologists (aspb.org)
Botanical Society of America (www.botany.org)

Recent Publications:
Bell NE, Quandt ED, O'Brien TJ, Newton AE. (2009) Taxonomy and phylogeny in the earliest diverging pleurocarps: square holes and bifurcating pegs. The Bryologist 110:533-560.

O'Brien TJ. (2009) The phylogenetic distribution of pleurocarpous mosses: evidence from cpDNA sequences. Pp. 19-41 in Pleurocarpous Mosses: Systematics and Evolution (A Newton, E deLuna, R Tangney, Eds) CRC Press.

Courtney Richmond
Professor
Biological Sciences

richmond@rowan.edu
http://www.rowan.edu/colleges/csm/departments/biologicalSci/facultyStaff/CourtneyRichmondWelcomePage.htm

Education:
BA (Biology), Swarthmore College
PhD (Marine Science), University of South Carolina
Postdoctoral (Ecological Modelling),
     National Research Council & Environmental Protection Agency
Postdoctoral (Ecological Modelling), Academy of Natural Sciences Estuarine Research Center

Research Expertise:
Ecological modeling | Individual to community responses to environmental stressors |
Life history strategies of marine invertebrates | Biocontrol of crop pests

My research interests focus on how stressful environmental conditions affect individual organisms, and how those individual-level effects scale up to population- and community-level effects in space and through time. I study both natural and anthropogenic (human-induced) stressors as the drivers of these ecological changes. The techniques I use include empirical, manipulative studies as well as the construction of ecological models to project short-term and/or individual-level effects to larger scales.

I've studied many marine invertebrate taxa, including copepods, ctenophores, and the larvae of snails and marine polychaetes. Despite my background in invertebrates, I've also collaborated with others who work on Florida seagrasses and wasps that infect and damage wheat crops in the Northern Plains of the United States and Canada.

Member of:
American Association for the Advancement of Science (www.aaas.org)
Ecological Society of America (www.esa.org)
Society for Integrative and Comparative Biology (www.sicb.org)
Union of Concerned Scientists (www.ucusa.org)

Recent Academic Projects:
Ecological modelling of biocontrol of the wheat stem sawfly, Cephus cinctus
Zooplankton population studies in South Jersey reservoirs (includes undergraduates in field and laboratory studies)

Recent Publications:
Rand, TA, Richmond, CE, Dougherty, ET (2017) Using matrix population models to inform biological control management of the wheat stem sawfly, Cephus cinctus. Biol Control. 109:27-36.

Richmond, CE, Rose, KA, Breitburg DL (2013) Individual variability and environmental conditions: effects on zooplankton cohort dynamics. Mar Ecol Prog Ser. 486:59-78.

Richmond CE, Kolesar SE (2012) Consensus building for environmental issues: marine protected areas as a case study. In Proceedings of the 33rd Conference of the Association for Biology Laboratory Education (ABLE) (Tested Studies for Laboratory Teaching Vol. 33) McMahon K, ed. pp.302-310.

Maria V. Tahamont

Professor
Biological Sciences

tahamont@rowan.edu

Education:
BA (Health and Physical Education), Glassboro State College
MSeD (Exercise Physiology), Southern Illinois University
PhD (Exercise Physiology), Southern Illinois University
Postdoctoral (Pulmonary Physiology), Albany Medical College

Research Expertise:
Exercise Physiology | Pulmonary Physiology | Science Education

My research interests include histological changes that occur as a result of lung injury and associated trauma including GI disorders like pancreatitis. My interests in science research revolve around increasing access for women and minority students in STEM fields.

Honors and Awards:
The Lindback Distinguished Teaching Award, Rowan University
Parker B. Francis Postdoctoral Fellowship, Albany Medical College
Elmer and Grace Clark Doctoral Scholar Award, Southern Illinois University
Dissertation Fellowship, Southern Illinois University

Member of:
Faculty 21, Project Kaleidoscope
American Association for the Advancement of Science
National Science Teachers Association
Association of Women in Science
Association of American Colleges and Universities
Who's Who Among America's Teachers

Svjetlana (Lana) Vojvodic

Assistant Professor
Biological Sciences

vojvodic@rowan.edu
http://users.rowan.edu/~vojvodic/

Education:
BS (Biology), University of South Alabama
MS (Biology), University of South Alabama
PhD (Biology), University of Copenhagen
Postdoctoral (Biology), University of Arizona

Research Expertise:
Host-parasite interactions | Gut microbiome | Social insects

I am interested in understanding a range of symbiotic interactions, from pathogens to beneficial gut microbes. I integrate approaches from microbiology, epidemiology, functional genomics, and behavior in social insect model systems to study these interactions. Social insects live in large societies, much like human society, in which thousands of highly genetically related individuals interact in close proximity, putting them at high risk for disease outbreaks. Consequently, honey bees and most ants have evolved different mechanisms of disease resistance such as: individual innate immune responses; collective colony-level immune response known as social immunity; and immune response generated by beneficial symbionts (e.g., mutualistic microbes) found in/on individuals. I am investigating the honey bee diversity and function of gut microbiome; co-evolution and interactions of mutualistic bacteria and pathogenic fungi and the effect they have on bee immunity and behavior. By using social insect networks I am investigating pathogen spread and social immunity within the ant Temnothorax curvispinosus.

Member of:
Entomological Society of America (http://www.entsoc.org)
International Union for the Study of Social Insects (http://www.iussi.org)
Society for Invertebrate Pathology (http://www.sipweb.org)
Society for the Study of Evolution (http://www.evolutionsociety.org)
Animal Behavior Society (http://www.animalbehaviorsociety.org/web/index.php)

Recent Publications:
Keiser CN, Vojvodic S, Butler I, Sartain E, Rudolf VHW, Saltz JB (2017) Queen presence mediates the relationship between collective behaviour and disease susceptibility in ant colonies. J Anim Ecol. (doi: 10.1111/1365-2656.12696)

Vojvodic S, Johnson BR, Harpur B, Kent C, Zayed A, Anderson KE, Linksvayer TA (2015) The genomic signature of social interactions regulating honey bee caste development. Ecol Evol. 5:4795-4807.

Klinger EG, Vojvodic S, DeGrandi- Hoffman G, Welker DL, James RR (2015) Mixed infections illustrate virulence differences in host-speci c bee pathogens. J Invertebr Pathol. 129:28-35.

Pontieri L, Vojvodic S, Graham R, Pedersen JS, Linksvayer TA (2014) Ant colonies prefer infected over uninfected nest sites. PLoS One. 9:e111961.

Vojvodic S, Rehan S, Anderson KE (2013) Microbial gut diversity of africanized and european honey bee larval instars. PLoS One. 8:e72106.

Chemistry & Biochemistry

Gregory A. Caputo
Professor & Department Head
Chemistry & Biochemistry/Molecular & Cellular Biosciences

caputo@rowan.edu
http://users.rowan.edu/~caputo/

Education:
BS (Chemical Biology), Stevens Institute of Technology
PhD (Molecular & Cell Biology), Stony Brook University
Postdoctoral (Molecular Medicine), Texas A&M Health Science Center
Postdoctoral (Biochemistry & Biophysics), University of Pennsylvania School of Medicine

Research Expertise:
Biophysical Chemistry | Antimicrobials | Peptide-lipid interactions

My research interests are in two major areas: designing/characterizing peptides with specific functions and antimicrobial surfaces.

The majority of the research focuses on the development and characterization of antimicrobial peptides. These are short, cationic sequences that are highly effective, broad spectrum antimicrobials with low toxicity profiles. I study the chemical and amino-acid composition of these peptides and the role different amino acids play in the functional properties of these peptides. My lab also has a project focused on the design of peptides to interact with optically active porphyrins toward the development of novel materials for application in photovoltaic devices.

I also am interested in antimicrobial thin film coatings. In collaboration with the Departments of Physics & Astronomy and Electrical & Computer Engineering, my team has developed a series of coatings (patent pending) with a variety of antimicrobial and physical properties. The group focuses on the efficacy and mechanism of the antimicrobial coatings.

Member of:
American Chemical Society (www.acs.org)
Biophysical Society (www.biophysics.org)

Recent Publications:
Goderecci SS, Kaiser E, Yanakas M, Norris Z, Scaturro J, Oszust R, Medina CD, Waechter F, Heon M, Krchnavek RR, Yu L, Lofland SE, Demarest RM, Caputo GA, Hettinger JD (2017) Silver Oxide Coatings with High Silver-Ion Elution Rates and Characterization of Bactericidal Activity. Molecules. 22: pii: E1487

Hanna SL, Huang JL, Swinton AJ, Caputo GA, Vaden TD (2017) Synergistic effects of polymyxin and ionic liquids on lipid vesicle membrane stability and aggregation. Biophys Chem. 227:1-7.

Takahashi H, Caputo GA, Vemparala S, Kuroda K (2017) Synthetic Random Copolymers as a Molecular Platform To Mimic Host-Defense Antimicrobial Peptides. Bioconjug Chem. 28:1340-1350.Review

Ridgway Z, Picciano AL, Gosavi PM, Moroz YS, Angevine CE, Chavis AE, Reiner JE, Korendovych IV, Caputo GA (2015) Functional characterization of a melittin analog containing a non-natural tryptophan analog. Biopolymers. 104:384-94.

James Grinias

Assistant Professor
Chemistry & Biochemistry

grinias@rowan.edu

Education:
BS (Chemistry), Eastern Michigan University
PhD (Analytical Chemistry), University of North Carolina at Chapel Hill
Post-doctoral affiliation (Analytical Chemistry), University of Michigan

Research Expertise:
Analytical Chemistry | Liquid Chromatography | Microfluidics

My research background focuses on the fundamental development of liquid chromatography (LC) columns in capillaries and microfluidic devices. LC columns are at the heart of many analytical separation techniques across pharmaceutical, environmental, and biomedical research projects. Early work focused on the physical structure of the packed chromatographic bed inside a fused silica capillary and led to strategies that could be used to pack more efficient columns in capillaries and also miniaturized microfluidic devices. Other interests have included understanding the physical processes beyond bed structure that impact column performance (included extra-column effects and frictional heating) and applying LC and mass spectrometry (MS) instrumentation to solve analytical problems in neuroscience and molecular physiology.

Honors and Awards:
2017 Eastern Michigan University Young Alumnus Award
NIH NRSA Individual Postdoctoral Fellowship Award (F32- EB019800)
HPLC 2013 Csaba Horváth Top Young Scientist Award

Member of:
American Chemical Society (www.acs.org)
California Separation Science Society (casss.org)
Chromatography Forum of Delaware Valley (www.cfdv.org)

Recent Publications:
Blue LE, Franklin EG, Godinho JM, Grinias JP, Grinias KM, Lunn DB, Moore SM (2017) Recent Advances in Capillary Ultrahigh Pressure Liquid Chromatography. J Chromatogr A. In Press.

Grinias JP, Kresge GA (2017) Miniaturizing Columns and Instruments in Liquid Chromatography. LC-GC 35:515-516.

Dugan CE, Grinias JP, Parlee SD, El-Azzouny M, Evans CR, Kennedy RT (2017) Monitoring Cell Secretions on Microfluidic Chips using Solid-Phase Extraction with Mass Spectrometry. Anal Bioanal Chem. 409:169-178.

Grinias JP, Wong J-MT, Kennedy RT (2016) Repeatability of Gradient UHPLC-MS/MS Methods in Instrument-Controlled Thermal Environments. J Chromatogr A. 1461:42-50.

Subash Jonnalagadda

Associate Professor
Chemistry & Biochemistry/Molecular & Cellular Biosciences

jonnalagadda@rowan.edu
http://users.rowan.edu/~jonnalagadda

Education:
BS (Chemistry), Pondicherry University, India
MS (Chemistry), University of Hyderabad, India
PhD (Organic Chemistry), Purdue University
Postdoctoral (Organic Chemistry), University of Pennsylvania
Postdoctoral (Medicinal Chemistry), University of Minnesota

Research Expertise:
Organic & Medicinal Chemistry | Organoboron Chemistry | Alternate Energy Materials

Medicinal Chemistry: We have been developing novel aza- and bora-heterocyclic compounds and betulin-based natural product derivatives as anti-cancer agents. In collaboration with Rowan School of Osteopathic Medicine, we have also identified few Withaferin-serotonin conjugates as potential therapeutic options for the treatment of Alzheimers' Disease.

Value Added Chemicals from Biomass: Recent efforts in this area have included the development of new protocols for the effective conversion of biomass derived cellulosic materials into chemicals such as hydroxymethyl furfural and furan dicarboxylic acid for applications as bio-based polymers.

Honors and Awards:
Rowan University Wall of Fame Teaching Award, 2013, 2016
Eli Lilly International Graduate Scholar, 2000-2005, Purdue University

Member of:
American Chemical Society (www.acs.org)

Recent Publications:
Suman P, Patel A, Solano LN, Jampana G, Gardner Z, Holt CM, Jonnalagadda SC (2017) Synthesis and cytotoxicity of Baylis-Hillman template derived betulinic acid-triazole conjugates. Tetrahedron. 73:4214-4226.

Alam MA, Arora K, Gurrapu S, Jonnalagadda SK, Nelson GL, Kiprof P, Jonnalagadda SC, Mereddy VR (2016) Synthesis and evaluation of functionalized benzoboroxoles as potential anti-tuberculosis agents Tetrahedron. 72:3795-3801.

Suman P, Patel BP, Kasibotla AV, Solano LN, Jonnalagadda SC (2015) Synthesis and evaluation of functionalized amino-benzoboroxoles as potential anti-cancer agents. J Organomet Chem. 798:125-131.

Jain A, Jonnalagadda SC, Ramanujachary KV, Mugweru A (2015) Selective oxidation of 5-hydroxymethyl-2-furfural to furan-2,5-dicarboxylic acid over spinel mixed metal oxide catalyst, Catalysis Commun. 58:179-182.

Jain A, Shore AM, Jonnalagadda SC, Ramanujachary KV, Mugweru A (2015) Conversion of fructose, glucose and sucrose to 5-hydroxymethyl-2-furfural over mesoporous zirconium phosphate catalyst, Appl Catalysis A. 489:72-76.

Thomas M. Keck

Assistant Professor
Chemistry & Biochemistry/Molecular & Cellular Biosciences

keckt@rowan.edu

Education:
BS (Biomedical-Biochemical Engineering), University of Southern California
PhD (Physiology & Pharmacology), Oregon Health & Science University
Postdoctoral (Medication development for drug addiction),
          National Institute on Drug Abuse-Intramural Research Program (NIDA-IRP)

Research Expertise:
Pharmacology | Neuroscience | Biochemistry

I am interested in developing new medications for neuropsychiatric disorders, including Alzheimer's disease, schizophrenia, ADHD, pain, anxiety, and a particular interest in drug addiction. My lab works closely with medicinal chemists to design and test new drug-like molecules, combining molecular and behavioral pharmacology methods to evaluate the preclinical potential of new compounds designed to target the dopamine D4 receptor, the μ opioid receptor, and the trace amine-associated receptor 1, among others.

Honors and Awards:
2017 Maharaj Ticku Memorial Travel Fellowship for New Investigators Award, Behavior, Biology and Chemistry Conf.
2015 Frances R. Lax Faculty Development Award, Rowan University
2013 Mentoring Award for Fellows, NIDA-IRP, NIH
2013 Postdoctoral Mentor Award, NIH
2012 & 2013 Fellows' Award for Research Excellence, NIH

Member of:
American Society for Pharmacology and Experimental Therapeutics https://www.aspet.org/
Pharmacology Society (Councilor) https://www.aspet.org/MAPS/
Philadelphia Chapter of the Society for Neuroscience http://pcsfn.com/

Recent Publications:
Zou M-F, Keck TM, Kumar V, Donthamsetti P, Schweppe C, Burzynski C, Roof RA, Free RB, Janowsky A, Shi L, Sibley DR, Javitch JA, Newman AH (2016) Novel analogues of (R)-5-(methylamino)-5,6-dihydro-4H-imidazo[4,5,1-ij]quinolin-2(1H)-one (sumanirole) provide clues to dopamine D2-D3 receptor agonist selectivity J Med Chem. 59:2973-2988.

Keck TM, John WS, Czoty PW, Nader MA, Newman AH (2015) Identifying medication targets for psychostimulant addiction: unraveling the dopamine D3 receptor hypothesis. J Med Chem. 58:5361-80.

Keck TM, Banala AK, Slack RD, Burzynski C, Bonifazi A, Okunola-Bakare OM, Moore M, Deschamps JR, Rais R, Slusher BS, Newman AH (2015) Using click chemistry toward novel 1,2,3-triazole-linked dopamine D3 receptor selective ligands. Bioorg Med Chem. 23:4000-4012.

Keck TM, Bi G-H, Yang H-J, Zhang H-Y, Srivastava R, Gardner EL, Newman AH, Xi Z-X (2013) Fenobam sulfate inhibits cocaine-taking and cocaine-seeking behavior in rats: implications for translation. Psychopharmacology. 229:253-265.

Gustavo Moura-Letts

Assistant Professor
Chemistry & Biochemistry

moura-letts@rowan.edu
http://www.gmlresearchgroup.com/

Education:
BS (Chemistry), Universidad Peruana Cayetano Heredia, Peru
MS (Chemistry), University of Massachusetts
PhD (Organic Chemistry), University of Pittsburgh
Postdoctoral Fellow (Organic Chemistry), The Ohio State University
Postdoctoral Fellow (Medicinal Chemistry), Memorial Sloan-Kettering Cancer Center

Research Expertise:
Drug Discovery | Reaction Invention | Organic Synthesis

My background is in synthetic organic chemistry with an emphasis in methods development and library synthesis. My research group is focused on developing novel reactions for the synthesis of biologically relevant molecular scaffolds. Our central hypothesis is to invent organic reactions to access biologically relevant molecular targets. Thus, I have a number of projects dedicated to the synthesis of small molecule libraries with a diverse array of biological properties and to the discovery of novel reaction pathways for the synthesis of complex molecular scaffolds.

Projects:
Novel Methods for the Synthesis of Small Heterocycles, Synthesis of Pharmacologically Relevant Molecular Scaffolds, Photoredox Catalysis for New Reaction Discovery, Isolation and Characterization of Natural Products from Peruvian Medicinal Plants, Development of Novel Drugs for the Treatment of Diabetes and Cardiovascular Diseases, Novel Alkaloid-like Scaffolds as Highly Potent Analgesics Without side Effects.

Member of:
American Chemical Society
Division of Organic Chemistry (ACS)

Recent Academic Projects:
Developing workshop-like certificate program for returning veterans in chemistry instrumentation.

Recent Publications:
Lizza JR, Moura-Letts G (2017) Solvent-Directed Epoxide-Opening with Primary Amines for the Synthesis of β-Amino Alcohols. Synthesis. 49:1231-1242.

Bakanas IJ, Moura-Letts G (2016) Synthesis of Novel Tetrasubstituted Pyrazoles from Substituted Hydrazines and β-Ketoesters. Eur J Org Chem. 32:5345-5349.

Lizza JR, Patel SV, Yang CF, Moura-Letts G (2016) Direct Synthesis of Cyanopyrrolidinyl β-Amino Alcohols for the Development of Diabetes Therapeutics. Eur J Org Chem. 30:5160-5168.

Neuhaus WC, Moura-Letts G (2016) Alumina-Promoted Synthesis of N-Aryl-1,2,4-Triazoles from Substituted Hydrazines and Imides. Tetrahedron Lett. 57:4974-4977.

Amos Mugweru

Professor
Chemistry & Biochemistry

mugweru@rowan.edu

Education:
BS (Chemistry), Kenyatta University
MS (Analytical Chemistry), University of Nairobi
PhD (Analytical/Electrochemistry), University of Connecticut
Postdoctoral (Glucose sensor array), Pennsylvania State University

Research Expertise:
Analytical Chemistry | Electrochemistry | Chromatography

My research interest is in two major areas: Fabrication, modification and characterization of electrode with nanoscale materials for use in electrochemical sensors/biosensors and biomedical sensing including heavy metals and other toxins from the environment.

I also am interested in synthesis, electrochemical characterization of new materials for hydrogen generation for future hydrogen economy.

Recent Publications:
Shore A, Mazzochette Z, Mugweru A (2016) Mixed valence Mn,La,Sr-oxide based magnetic nanoparticles coated with silica nanoparticles for use in an electrochemical immunosensor for IgG. Microchim Acta. 183:475-483.

Shore A, Kahi HK, Kamau GN, Mugweru A (2016) Electrochemical and Spectroscopic Characteristics of Artemisinin Anti-malaria Drug: Charge Transfer Redox Process. Int J Chem Kinet. 48:72-78.

Jain A, Ramanujachary KV, Jonnalagadda S, Mugweru A (2015) Conversion of fructose, glucose and sucrose to HMF using zirconium phosphate as catalyst. Appl Catal A. 489:72-76.

Aravind SSJ, Costa M, Pereira V, Mugweru A, Ramanujachary K, Vaden TD (2015) Evaluation of ball-milled molybdenum phosphide - graphite nanomaterials for HER catalytic activity. Appl Catal A. 490:101-107.

Jain A, Ramanujachary KV, Jonnalagadda S, Mugweru A (2015) Selective oxidation of 5-hydroxymethyl-2-furfural to furan-2,5- dicarboxylic acid over spinel mixed metal oxide catalyst. Catal Commun. 58:179-182.

Lark Perez

Associate Professor
Chemistry & Biochemistry

perezla@rowan.edu
http://users.rowan.edu/~perezla/home.html

Education:
BS (Chemistry), Long Island University
PhD (Organic Chemistry), Yale University
Postdoctoral (Medicinal Chemistry and Microbiology), Princeton University

Research Expertise:
Chemical Biology | Organic Synthesis | Medicinal Chemistry

The goal of my research is to apply synthetic organic chemistry to enhance the understanding of biological processes, especially cellular signaling. Applications of this general research focus include the study of bacterial quorum sensing, a process in which bacteria regulate gene expression, including virulence factors, through the synthesis and detection of small molecule signals and a major research focus of my group. The group's research in this area has led to the identification of several highly potent and drug-like inhibitors of bacterial virulence in gram-negative bacteria and has illuminated aspects of the biological regulatory circuits involved. We are fully equipped and experienced in chemical synthesis, medicinal chemistry and microbiology.

Member of:
American Chemical Society (ACS)
American Society of Microbiology (ASM)

Recent Publications:
Capilato JN, Philippi SV, Reardon T, McConnell A, Oliver DC, Warren A, Adams JS, Wu C, Perez LJ (2017) Development of a novel series of non-natural triaryl agonists and antagonists of the Pseudomonas aeruginosa LasR quorum sensing receptor. Bioorg Med Chem. 25:153-165.

Wu B, Capilato JN, Pham MP, Walker J, Spur B, Rodriguez A, Perez LJ, Yin K (2016) Lipoxin A4 augments host defense in sepsis and reduces Pseudomonas aeruginosa virulence through quorum sensing inhibition. FASEB J. 30:2400-2410.

O'Brien KT, Noto JG, Nichols-O'Neill L, Perez LJ (2015) Potent irreversible inhibitors of quorum sensing regulated virulence in Pseudomonas aeruginosa. ACS Med Chem Lett. 6:162-167.

Lu HD, Spiegel A, Hurley A, Perez LJ, Bassler BL, Semmelhack MF, Prud'homme RK (2015) Modulating Vibrio cholerae quorum sensing controlled communication using autoinducer-loaded nanoparticles. Nano Lett. 15:2235-2241.

Perez LJ, Karagounis TK, Hurley A, Bassler BL, Semmelhack MF (2014) Highly potent, chemically stable quorum sensing agonists for Vibrio cholerae. Chem Sci. 5:151-155.

Kandalam V. Ramanujachary

Professor
Chemistry & Biochemistry

chary@rowan.edu

Education:
MS (Chemistry), Andhra University, India
PhD (Chemistry), Indian Institute of Technology, Madras, India
Postdoctoral (Materials Science), Rutgers University

Research Expertise:
Inorganic Chemistry | Materials Chemistry | Medicinal Chemistry

Efficient means of producing Hydrogen gas
Bio-mass conversion to value added chemicals
Design, synthesis, and development of nano-pharmaceuticals and nano-sized nutritional supplements
Development of small molecule chemotherapeutics
Synthesis, structure and electronic properties of various binary and ternary oxides, sulfides, selenides, fluorides, nitrides, phosphides featuring transition metal ions
Development of novel catalytic materials

Honors and Awards:
Rowan University Research Award 2009

Member of:
American Chemical Society
Materials Research Society of Singapore
Luminescence Society of India

Recent Publications:
Shu Z, Axe Li, Jahan K, Ramanujachary KV, Kochersberger C (2015) Metal concentrations and distribution in paint waste generated during bridge rehabilitation. Sci Total Environ. 526:262-270.

Shu Z, Axe L, Jahan K, Ramanujachary K (2015) Field methods for rapidly characterizing paint waste during bridge rehabilitation. Chemosphere. 134:598-605.

Jyothirmayee A, Ramanujachary K, Mugweru A, Vaden T (2015) Molybdenum phosphide-graphite nanomaterials for efficient electrocatalytic hydrogen production. Appl Catal A Gen. 490:101-107.

Timothy D. Vaden

Associate Professor
Chemistry & Biochemistry

vadent@rowan.edu
users.rowan.edu/~vadent

Education:
BS (Chemistry), Midwestern State University
PhD (Chemistry), University of Illinois at Urbana-Champaign
Postdoctoral (Physical Chemistry), Oxford University
Postdoctoral (Environmental and Molecular Sciences), Pacific Northwest National Laboratory

Research Expertise:
Physical Chemistry | Biophysical Chemistry | Spectroscopy

My research utilizes tools of experimental physical chemistry to investigate metal ion-molecule interactions, characterize the proton solvation and conduction mechanisms in ionic liquid solutions, and protein stability in aqueous ionic liquids.

My lab has four main research projects underway:
Characterizing the solvation of protons in ionic liquids and the proton transportation mechanisms in acidic ionic liquid solutions.
Understanding the behavior of proteins and antibiotics in aqueous ionic liquid solutions.
Evaluating competitive metal ion chelation by small molecules in the presence of peptides.
Synthesizing and evaluating different hydrogen-generating electrocatalysts.

Member of:
American Chemical Society (www.acs.org)

Recent Academic Projects:
Investigations of TMG-biomolecule ILs for stabilizing proteins, investigations of ILs for enhancing antibiotic activities

Recent Publications:
Hanna SL, Huang JL, Swinton AJ, Caputo GA, Vaden TD (2017) Synergistic effects of polymyxin and ionic liquids on lipid vesicle membrane stability and aggregation. Biophys Chem. 227:1-7.

Borrell KL, Cancglin C, Stinger BL, DeFrates KG, Caputo GA, Wu C, Vaden TD (2017) An Experimental and Molecular Dynamics Study of Red Fluorescent Protein mCherry in Novel Aqueous Amino Acid Ionic Liquids. J Phys Chem B. 121:4823-4832.

Tran AT, Lam PT, Miller AM, Walczyk DJ, Tomlin J, Vaden TD, Yu L (2017) Proton transfer and esterification reactions in EMIMOAc-based acidic ionic liquids RSC Adv. 7:18333-18339.

Miller MC, Hanna SL, DeFrates KG, Fiebig OC, Vaden TD (2016) Kinetics and mass spectrometric measurements of myoglobin unfolding in aqueous ionic liquid solutions. Int J Biol Macromol. 85:200-207.

Chun Wu

Assistant Professor
Chemistry & Biochemistry/Molecular & Cellular Biosciences

wuc@rowan.edu
http://users.rowan.edu/~wuc/

Education:
BS (Chemistry), Xiamen University
MS (Analytical Chemistry), Xiamen University
MS (Computer Science), University of Delaware
PhD (Chemistry), University of Delaware

Research Expertise:
Computer-aided Drug Design | Molecular Dynamics Simulation | Molecular Modeling

The long-term goal of my research program is to gain mechanic insights into the structure, dynamics and function of pharmacologically important biomolecules. The insights enable rational drug design using a hierarchical virtual screening protocol including docking, molecular dynamics simulation, and free energy perturbation methods. My current research aims to: 1) develop novel cancer drugs that target DNA/RNA-quadruples, transporter (ABCB1) and kinase (MLK); 2) develop novel analgesic and anti-drug-addiction agents that target G-protein coupled receptors (GPCR) (Dopamine, TAAR1, Opioid) membrane receptors; 3) develop novel anti-virus drugs against herpes virus entry (gD); 4) develop diabetes drug that simultaneously targets inflammation (PPAR).

Honors and Awards:
2010, Travel Award, the IBBI (Isolated Biomolecules and Biomolecular Interactions) conference, Berlin, Germany
2004, Named to the Dean's list in recognition of Scholastic Excellence, University of Delaware
1999, Excellent Thesis, Xiamen University

Member of:
American Chemical Society (www.acs.org)

Recent Publications:
Readmond C, Wu C (2017) Investigating detailed interactions between novel PAR1 antagonist F16357 and the receptor using docking and molecular dynamic simulations. J Mol Graphics Model 77:205-217.

Mulholland K, Siddiquei F, Wu C (2017) Binding Modes and Pathway of RHPS4 to Human Telomeric G-quadruplex and Duplex DNA Probed by All-Atom Molecular Dynamics Simulations with Explicit Solvent. PCCP 19:18685-18694.

Sader S, Cai J, Muller A, Wu C (2017) Can human allergy drug fexofenadine, an antagonist of histamine (H1) receptor, be used to treat dog and cat? Homology modeling, docking and molecular dynamic Simulation of three H1 receptors in complex with fexofenadine. J Mol Graph Model 75:106-116.

Sader S, Wu C (2017) Computational analysis of Amsacrine resistance in human Topoisomerase II alpha mutants (R487K and E571K) using homology modeling and all-atom molecular dynamics simulation in explicit solvent, J Mol Graph Model 72:209-219.

Catherine Yang

Professor
Chemistry & Biochemistry/Molecular & Cellular Biosciences

yang@rowan.edu
http://www.rowan.edu/colleges/csm/departments/chembio/facultyStaff/yang_002.html

Education:
BS (Chemistry), Zhejiang University, China
MS (Photochemistry), Tufts University
PhD (Biochemistry), Tufts University
Postdoctoral (Molecular Pharmacology), Harvard Medical School

Research Expertise:
Cancer Biochemistry | Protease Regulations | Pharmaceutical Sciences

De Novo Synthesis of Pyridine Drug Analogs
Regulatory Role of Prostate Specific Antigen in Prostate Cancer Progression
Rational Drug Design for Anti-Prostate Cancer
Molecular Recognition in Mutated DNA Targeted by Antitumor Drug
Allergy Vaccine Development
Anti-Diabetes Drug Development
Detoxifying Organo-nitrile Industry Toxin Using Enzyme Matrix

Honors and Awards:
Wall of Fame Teaching Award, Rowan University
Pioneer/Innovation Award, Rowan University

Member of:
American Chemical Society (ACS)
American Association for Cancer Research, Inc.
Biochemical Society
Medical Monitor Society

Recent Publications:
Goldberg KH, Yin AC, Mupparapu A, Retzbach E, Goldberg G, Yang CF (2016) Components in aquesou Hibiscu rosa-sinensis flower extract inhibit in vitro melanoma cell growth, J Trad Comp Medicine. 1-5.

Kojtari A, Shah V, Babinec J, Yang, C, Ji H-F (2014) Structure-Based Drug Design of Diphenyl α-Aminoalkylphosphonates as Prostate-Specific Antigen Antagonists, J Chem Information and Modeling. 54:2967-2979.

Lin JP, Yang CF (2013) Recent Advances in Micro/nano-particles for clinical detection of cancer biomarker. Analytical Methods. 5:5839-6248.

Yang CF, Zakreski R, Li W, Mou X, Iltchenco N, Cooperman, B (2012) Proteolytic Inhibition in Regulating the Insulin-like Binding Proteins in Prostate Cancer, Biochem & Physiol. 1:1-8.

Lei Yu

Associate Professor
Chemistry & Biochemistry

yu@rowan.edu
http://users.rowan.edu/~yu/

Education:
BS (Chemistry), Jilin University
PhD (Chemistry), Changchun Institute of Applied Chemistry, Chinese Academy of Sciences
Postdoctoral (Analytical Chemistry), Oakland University
Postdoctoral (Analytical Chemistry), Clemson University

Research Expertise:
Electrochemistry | Electrochemical energy storage and conversion devices | Spectroscopy | Surface Characterization | Nanomaterials Characterization | Conductive polymers

My three major research projects are: (1) ionic liquids solutions of lithium ion and acids as advanced electrolyte solutions of lithium ion batteries and fuel cells; (2) electrochemical preparation of carbide-derived carbon and its application in supercapacitors, sensors, and biomedical devices; (3) quantities measurement and characterization of nanoparticles in complicated systems. Other projects include the development of biosensors and synthesis of soluble conducting polymers.

Member of:
American Chemical Society (www.acs.org)
The Electrochemical Society (www.electrochem.org)

Recent Academic Projects:
(1) Ionic liquid solutions' properties and applications as electrolytes; (2) electrochemical oxidation of metal carbides; (3) effects of nanoparticles on human and cancer cells.

Recent Publications:
Lam PH, Tran AT, Walczyk DJ, Miller AM, Yu L (2017) Conductivity, Viscosity, and Thermodynamic Properties of Propylene Carbonate Solutions in Ionic Liquids. J Mol Liq. 246:215-220.

Goderecci S, Kaiser E, Yanakis M, Norris, Scaturo J, Ozust R, Medina C, Waechter F, Heon M, Yu L, Lofland S, Demarest R, Krchnavek R, Caputo G, Hettinger J (2017) Silver oxide coatings with high silver-ion elution rates and characterization of bactericidal activity. Molecules. 22:1487.

Walczyk DJ, Mason DF, Palazzo BG, Norris ZA, McRae, N, Tran AT, Hettinger JD, Yu L (2017) Electrochemical Oxidation of Niobium and Tantalum Carbides in Aqueous Solutions. ECS Trans. 77:1599-1606.

Tran AT, Lam PH, Miller AM, Walczyk DJ, Tomlin J, Vaden TD, Yu L (2017) Proton transfer and esterification reactions in EMIMOAc-based acidic ionic liquids. RSC Adv. 7:18333–18339.

Camargo LGB, Palazzo BG, Taylor G, Norris ZK, Patel YK, Hettinger JD, Yu L (2015) Carbide-Derived Carbon by Electrochemical Etching of Vanadium Carbides. J Electrochem Soc. 162:H811-H815.

Computer Science

Ganesh Baliga

Professor
Computer Science

baliga@rowan.edu
http://elvis.rowan.edu/~baliga/research.pdf

Education:
B. Tech. (Computer Science and Engineering), Indian Institute of Technology, Bombay
M. Tech. (Computer Science and Engineering), Indian Institute of Technology, Bombay
MS (Computer and Information Sciences), University of Delaware
PhD (Computer and Information Sciences), University of Delaware

Research Expertise:
Data Analytics | Machine Learning | Algorithm Design and Analysis | Cloud Computing

My research focus is on the design of algorithms and software systems for machine learning and data analytics. I have published over 15 papers in machine learning in international conferences and journals. Presently, I am the Technical Lead and co-PI of the Perka First Data-Rowan CS Lab, an innovative industry academia collaboration where Perka engineers work closely with faculty and students to develop active production software. At present I am establishing a lab with a focus on data analytics using deep neural networks. I am the co-PI of a grant from the National Science Foundation to develop materials for an undergraduate curriculum for algorithms design and NP-Completeness. Over the past four years, I have served as co-PI in projects funded by Bristol-Myers Squibb and Mission Solutions Engineering and have been involved in nine external grants and contracts.

Member of:
ACM

Recent Academic Projects:
Co-PI, Perka Lab. Sponsored by Perka Inc., May 2015 – May 2018.
Co-PI, NSF TUES grant: "Learning algorithm design: A project based curriculum" May 2012 – April 2017.

Recent Publications:
Lobo AF, Baliga GR (2017) A project-based curriculum for algorithm design and NP completeness centered on the Sudoku problem. Journal of Computing Sciences in Colleges. 32:110-118.

Lobo AF, Baliga GR (2016) A project-based curriculum for algorithm design and intractability centered on the traveling salesperson problem. Journal of Computing Sciences in Colleges. 31:62-69.

Lobo AF, Baliga GR (2014) Teaching algorithm design and and intractability with a project-based curriculum centered on a single intractable problem: Three domains to choose from. SIGCSE Workshop, Atlanta, GA March 2014.

Seth D. Bergmann

Associate Professor
Computer Science

bergmann@rowan.edu
http://cs.rowan.edu/~bergmann/

Education:
BS (Physics), Rensselaer Polytechnic Institute
MSE (Computer and Information Sciences), The University of Pennsylvania

Research Expertise:
Compilers | Algorithms | Data Locality | Formal Languages | CS Education

I have conducted research in the following areas:
Data locality in internal sorting algorithms
Simplification of Regular Expressions
Public Key Cryptography
Open Source Textbooks

I have published a textbook on Compiler Design (Wm. C. Brown, publishers). That book has been converted to open source, and is now available on my web site. I am in the process of developing other open source textbooks, in collaboration with other authors.

Honors and Awards:
Visiting Professor at Oberlin College while on sabbatical leave, 1986
Visiting Professor at The University of Auckland while on sabbatical leave, 1987

Member of:
Association for Computing Machines (ACM)
ACM Special Interest Group on Programming Languages (SIGPLAN)
ACM Special Interest Group on Computers and Security (SIGSAC)
ACM Special Interest Group on Computer Science Education (SIGCSE)

Recent Publications:
Bergmann, Seth D (2014) Open Source Textbooks. Publishing Research Quarterly. 30:1.

Bergmann, Seth D (2009) Degenerate Keys for RSA Encryption. ACM SIGCSE Inroads. 41:2.

Anthony F. Breitzman Sr.

Assistant Professor
Computer Science

Breitzman@rowan.edu
https://scholar.google.com/citations?user=Gi-GOxEAAAAJ&hl=en

Education:
BS (Mathematics), Stockton University
MA (Mathematics), Temple University
MS (Computer Science), Drexel University
PhD (Computer Science), Drexel University

Research Expertise:
Data Mining | Web and Text Mining | Computation Linguistics | Sentiment Analysis | Intellectual Property | Science Policy

My research interests are broadly in the area of Data Mining, which is an inter-disciplinary field that combines Statistics and Computer Science in an effort to identify patterns in large quantities of data. A subfield of interest is in Text Mining, which is essentially data mining with text. I am currently collaborating with the School of Medicine to develop a text mining tool related to literature based discovery of treatments for rare diseases that are not well studied.

I am also interested in the study of innovation and emerging technologies through the mining of large patent databases.

Member of:
Institute of Electrical and Electronic Engineers (IEEE.org)
Upsilon Pi Epsilon - The Honor Society of Computer Science

Recent Publications:
Breitzman A, Thomas P (2017) A technology forecasting framework enhanced via twitter mining. Proceedings of the IEEE Future Technology Conference, Vancouver, CA, November 29-30, 2017. In press.

Breitzman A (2017) A new look at Polya's Prime Gap Heuristics. The Mathematical Scientist. 42:38-42.

Anderson G, Breitzman A (2017) Identifying NIST impacts on patenting: A novel data set and potential uses. J Res Natl Inst Stand Technol. 122:1-16.

Breitzman A (2016) Major milestones in the twin prime conjecture. Mathematical Scientist. 41:3-15.

Breitzman A, Thomas P (2016) The Emerging Clusters Model: A tool for identifying emerging technologies across multiple patent systems. Research Policy. 44:195-205.

Breitzman A, Thomas P (2015) Inventor team size as a predictor of the future citation impact of patents. Scientometrics 103:631.

Vahid Heydari

Assistant Professor
Computer Science

heydari@rowan.edu
https://www.researchgate.net/profile/Vahid_Heydari3

Education:
BS (Computer Engineering), University of Science & Culture
MS (Computer Engineering), Payame Noor University
MS (Cybersecurity), University of Alabama at Huntsville
PhD (Computer Engineering), University of Alabama at Huntsville

Research Expertise:
Moving Target Defenses | Networks Security | Networks Analysis and Simulation

Dr. Heydari's research interests lie within Wireless Ad Hoc Networks Security and Moving Target Defenses (MTDs) to prevent remote cyber-attacks. He has worked on detecting different attacks against Mobile Ad Hoc Net- works (MANETs) and reliability of data collection in Wireless Sensor Networks (WSNs). He also proposed a queuing analysis for delay calculation in Wireless Ad Hoc Networks.

Honors and Awards:
2016 Best Student Poster Award (ICCWS)
2016 Best Poster Award (CISSE)
2016-2017 Four NSF Funded Student Travel Awards
2016-2017 Real World Cryptography and IEEE Student Travel Awards

Member of:
ACM, IEEE, IEEE Communications Society, IEEE Computer Society, IEEE Cybersecurity Community, IEEE Technical Committee on Security and Privacy, IEEE Young Professionals

Recent Publications:
Heydari V (2017) IP Hopping by Mobile IPv6. Handbook of Cyber-Development, Cyber-Democracy and Cyber-Defense. Springer International Publishing.

Heydari V, Yoo SM (2017) Timeout period analysis to detect blackhole attack in multihop wireless ad hoc networks. International Journal of Wireless Information Networks.

Heydari V, Kim S, Yoo SM (2017) Scalable Anti-Censorship Framework using Moving Target Defense for Web Servers. IEEE Transactions on Information Forensics and Security. 12:1113-1124.

Heydari V, Yoo SM (2016) E2EACK: An End-to-End Acknowledgment-based Scheme against Collusion Black Hole and Slander Attacks in MANETs. Wireless Networks. 22:2259-2273.

Heydari V, Yoo SM, Kim S (2016) Secure VPN using Mobile IPv6 based Moving Target Defense. In Proc. IEEE Global Communications Conference. Washington, DC.

Vasil Hnatyshin

Professor & Department Head
Computer Science

hnatyshin@rowan.edu
http://users.rowan.edu/~hnatyshin

Education:
BS (Computer Science), Widener University (Summa Cum Laude)
MS (Computer and Information Sciences), University of Delaware
PhD (Computer and Information Sciences), University of Delaware

Research Expertise:
Simulation and Modeling of Computer Networks using OPNET | Network Security | Statistical Data Mining and Data Analytics

I am currently working on the following projects: application of similarity functions together with partition around medoids and k-modes algorithms to network security, implementation and development of software for analyzing pharmaceutical data, study of Random Forests algorithm effectiveness for analyzing metaboloids data produced by mass spectrometer, study of location-aided routing protocols for wireless networks through simulation and modeling techniques using OPNET software.

Member of:
Institute of Electrical and Electronics Engineers (IEEE)

Recent Academic Projects:
Created and deployed new co-op/internship program for Computer Science students together with the Rowan's Career Management Center, CSM Dean's office, and such industrial partners as Lockheed Martin, ASRC Federal, Keystone Industries, and others.

Recent Publications:
Dixon M, Genov S, Hnatyshin V, Thayasivam U (2018) Accuracy of Clustering Prediction of PAM and K-Modes Algorithms, Proc. of IEEE Future of Information and Communication Conference

Muck IB, Hnatyshin V, Thayasivam U (2016) Accuracy of Class Prediction using Similarity Functions in PAM, Proc. of IEEE International Conference on Industrial Technology 586-591

Hnatyshyn S, Thayasivam U, Hnatyshin V, White C (2015) Chapter 7: Machine learning algorithms for metabolomics applications, In book: Identification and Data Processing Methods in Metabolomics, Chapter: 7, Publisher: Future Science Book Series, pp. 96-110.

Wakemen J, Hodson M, Shafer P, Hnatyshin V (2013) Using High-Powered Long-Range ZigBee Devices for Communication During Amateur Car Racing Events, Proc. of International Conference on Wireless Communications, Vehicular Technology, Information Theory and Aerospace and Electronic Systems Technology.

Hnatyshin V (2013) "Improving MANET Routing Protocols Through The Use Of Geographical Information," International Journal of Wireless & Mobile Networks (IJWMN), Vol. 5, No. 2.

Shen-Shyang Ho

Assistant Professor
Computer Science

hos@rowan.edu
https://sites.google.com/site/shenshyang/

Education:
BS (Mathematics with Computational Science), National University of Singapore
PhD (Computer Science), George Mason University
Postdoctoral, California Institute of Technology and NASA Jet Propulsion Laboratory

Research Expertise:
Data Mining | Artificial Intelligence | Machine Learning | Pattern Recognition

My current research interests are: transfer learning, one-shot learning, computational creativity, spatiotemporal data mining, privacy issues in data mining, machine learning on network/graph data. My projects and investigations are both research-driven and application-driven. The application-driven investigations utilize real-world data such as mobile data from smartphones, crowdsourced sensor data collected using smartphone, factory sensor data, text data (from internet), audio data, image data, and satellite data.

Member of:
Association for Computing Machinery (www.acm.org)
Institute of Electrical and Electronics Engineers (www.ieee.org)

Honors and Awards:
NASA Postdoctoral Fellowship, 2007-2009.

Recent Academic Projects:
2017 SURP projects: "Histogram-based Conformal Set Predictor with Application to Trajectory-based Object Similarity Search" and "A Knowledge Transfer Framework for Computational Creativity with Application to Music Generation"

Recent Publications:
Zhao J, Ho S-S (2017). Structural knowledge transfer for learning Sum-Product Networks. Knowledge-Based Systems, 122:159-166.

Chai WH, Ho S-S, Goh CK, Chia LT, Quek HC (2017). A fast sparse reconstruction approach for high resolution image-based object surface anomaly detection. Fifteenth IAPR International Conference on Machine Vision Applications (MVA), 13-16.

Ho S-S, Dai P, Rudzicz F (2016) Manifold Learning for Multivariate Variable-Length Sequences With an Application to Similarity Search, IEEE Transactions on Neural Networks and Learning System. 27:1333-1344.

Chen PH, Ho S-S (2016) Is overfeat useful for image-based surface defect classification tasks? IEEE International Conference on Image Processing (ICIP), pp. 749-753.

Cherian J, Luo J, Guo H, Ho S-S, Wisbrun R (2016) ParkGauge: Gauging the Occupancy of Parking Garages with Crowdsensed Parking Characteristics, 17th IEEE International Conference on Mobile Data Management (MDM), Porto, pp. 92-101.
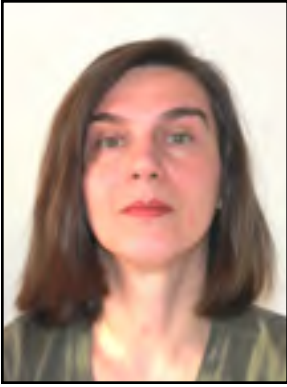
Gabriela Hristescu

Associate Professor
Computer Science

hristescu@rowan.edu
http://elvis.rowan.edu/~hristescu/

Education:
BS (Computer Science and Engineering), Polytechnic Institute of Bucharest, Romania
MS (Computer Science), Rutgers University
PhD (Computer Science), Rutgers University

Research Expertise:
Data Mining | Machine Learning/Artificial Intelligence | Bioinformatics/Computational Biology | Databases |
Parallel and Distributed Computing

My research focuses on developing computational models, simulation, and visualization of cellular protein import through nuclear pores; developing software tools for knowledge extraction from large DNA microarray databases, data mining of gene expression databases, using machine learning approaches to analyze health data.

Member of:
Association for Computing Machinery (www.acm.org)
Institute of Electrical and Electronics Engineers (www.ieee.org)
UPE International Honor Society for the Computing and Information Disciplines (upe.acm.org)

Recent Publications:
Taggart DP, Waltz AI, Hristescu G. (2013) Machine Learning Approach for Analyzing Health Data, Proceedings on the International Conference on Artificial Intelligence (ICAI '13). The World Congress in Computer Science, Computer Engineering and Applied Computing.

Jennifer S. Kay

Professor
Computer Science

kay@rowan.edu
http://www.rowan.edu/~kay/

Education:
BSE (Computer Science and Engineering), University of Pennsylvania
BA (Mathematics), University of Pennsylvania
MS (Computer Science), Carnegie Mellon University
PhD (Computer Science), Carnegie Mellon University

Research Expertise:
Educational Robotics | Computer Science Education | Effective Systems for Learning at Scale (MOOCs) | Artificial Intelligence | Robotics | Human-Computer Interaction | Intelligent Software Agents

My most recent work is in two areas: the development and evaluation of methods to introduce novices to Computer Science & Computational Thinking using Robotics and Effective Systems for Learning at Scale (MOOCs). I have received grants to pursue this work from a wide variety of sources including Google, iRobot, the National Science Foundation, and the Institute for Personal Robots in Education.

Honors and Awards:
Rowan University Academic Advising Wall of Fame 2016
Lindback Award for Distinguished Teaching, Rowan University 2013
Best Paper Award, CCSCE 2009

Member of:
ACM (Senior Member)
IEEE (Senior Member)
UPE CS Honor Society

Recent Publications:
Kay JS, Nolan TJ, Grello TM (2016) The Distributed Esteemed Endorser Review: A Novel Approach to Participant Assessment in MOOCs, in Proceedings of the Third Annual ACM Conference on Learning@Scale, 157-160.

Kay JS, Moss JG, Engelman S, McKlin T (2014) Sneaking In Through The Back Door: Introducing K-12 Teachers to Robot Programming, in Proceedings of the 45th ACM Technical Symposium on Computer Science Education, SIGCSE pp 499-504.

Kay JS, McKlin T (2014) The Challenges of Using a MOOC to Introduce 'Absolute Beginners' to Programming on Specialized Hardware, in Proceedings of the first ACM Conference on Learning @ Scale, pp 211-212.

Andrea F. Lobo

Professor
Computer Science

lobo@rowan.edu
http://www.rowan.edu/~lobo

Education:
BS (Computer and Information Sciences), Universidad de Costa Rica
MS (Computer and Information Sciences), University of Delaware
PhD (Computer and Information Sciences), University of Delaware

Research Expertise:
Computer Networks | Simulation and Modeling | Algorithm Design and Analysis | Mobile Computing | Internet of Things

My research focuses on the design and evaluation of algorithms, software, networks and systems. I have secured external funding from industry and government in excess of $750,000 over the past 5 years. Presently, I am the PI and co-Technical Lead of the Perka First Data-Rowan CS Lab, an innovative industry-academia collaboration where Rowan-CS students do paid on-campus internships developing production software with active engagement from faculty members and Perka engineers. I am also founder and CEO of SimAcumen, a Rowan Innovations Company. SimAcumen provides cloud-based business analytics for service supply chains, and our clients include Fortune 500 and Fortune Global 500 companies.

Honors and Awards:
Best Faculty Poster Presentation Award,
    24th Annual Eastern Conference of the Consortium for Computing Sciences, 2008.
Best Paper Award, with Ganesh Baliga,
    11th Annual Northeastern Conference of the Consortium for Computing Sciences in Colleges, 2006.
University of Delaware Bloc Fellowship, 1991

Member of:
ACM
IEEE

Recent Publications:
Lobo AF, Baliga GR (2017) A Project-Based Curriculum for Algorithm Design and NP-Completeness Centered on the Sudoku Problem. Journal of Computing Sciences in Colleges. 32:110-118.

Lobo AF, Baliga GR (2016) Assessment of a Project-Based Curriculum for Algorithm Design and Intractability Centered on the Traveling Salesperson Problem. Journal of Computing Sciences in Colleges. 31:62-69.

Lobo AF, Baliga GR (2014) A Project-Based Curriculum for Algorithm Design and Intractability Centered on the Traveling Salesperson Problem. Journal of Computing Sciences in Colleges. 29:108-114.

Lobo AF, Baliga GR (2014) Teaching algorithm design and intractability with a project-based curriculum centered on a single intractable problem: Three domains to choose from. Proceedings of the 45th ACM technical symposium on Computer science education. 741-741.

Lobo AF, Baliga GR (2012) Developing a project-based curriculum for the design and analysis of algorithms for intractable problems. Journal of Computing Sciences in Colleges. 27:68-69.

Bo (Beth) Sun

Associate Professor
Computer Science

sunb@rowan.edu
http://users.rowan.edu/~sunb

Education:
BS (Computer Science), Wuhan University
MS (Computer Science), Lamar University
PhD (Modeling and Simulation), Old Dominion University

Research Expertise:
Data Visualization | Serious Game | VR/AR-based Simulation

For the past ten years, I have committed my research to develop visualizations, particularly simulation using Immersive Technologies and Computer Vision. My current research interests also include Data Visualization, Image Processing and Natural Language Animation.

Awards and honors:
Best presentation, Siemens Tech. to Bus. Post-doc Workshop on Technology, Innovation and Entrepreneurship 2008
Euro SIWzie award, 2005 European Simulation Interoperability Workshop
SIWzie award, 2005 Spring Simulation Interoperability Workshop

Member of:
IEEE (https://www.ieee.org/index.html)
NCWIT(https://www.ncwit.org/)

Recent Academic Projects:
Developed a visual tracking method to monitor eye movement in cognitive neuroscience using computer vision techniques.

Conducted visual analysis to find out possible reasons of a popular local bird in a wildlife preserve based on two large scale and multi-dimensional datasets on chemical release and meteorological information.

Developed serious game prototype to assess learning outcomes of higher education particularly for minority students.

Recent Publications:
Sun B, Xu W, Jessamy R, Ha S (2017) A Tableau Case Study On Visual Analysis To Explore Mystery At Wildlife Preserve. IEEE Visualization and Computer Graphics, IEEE VIS 2017 VAST Challenging, Phoenix, AZ, Oct 2017.

Sun B, Igbiriki R, Pere P, Edwards A (2016) Kizzle- An App For Learning. The 10th International Conference On Interactive Mobile Communication Technologies and Learning, IMCL2016, San Diego, CA, Oct 2016.

Sun B (2014) An Image Processing-Based Method For Quantification Of Microvasculature. The 2014 IEEE International Conference on Multimedia and Expo, Chengdu, China, July 2014 pp. 1-6.

Li J, Vadlamudi A, Chuang SH, Sun X, Sun B, McKenzie FD (2012) Prostate cancer region prediction by fusing results from MALDI SPECTRA PROCESSING AND TEXTURE ANALYSIS. Simulation: Transactions of the Society for Modeling and Simulation International. 88:1247-1259.

Nancy Lynn Tinkham

Assistant Professor
Computer Science

nlt@rowan.edu
http://elvis.rowan.edu/~nlt/

Education:
BS (Mathematics), Wheaton College (Illinois)
PhD (Computer Science), Duke University

Research Expertise:
Artificial Intelligence | Logic Programming | Inductive Inference | Natural Language Processing |
Computer Science Education

My current research involves artificially intelligent game-playing algorithms and pattern detection in the strategy game Arimaa.

I also have worked on innovative approaches to computer science education, including the development of a tutorial software system for students learning symbolic logic.

Member of:
Association for Computing Machinery (www.acm.org)
Association for the Advancement of Artificial Intelligence (www.aaai.org)
IEEE Computer Society (www.ieee.org)

Recent Publications:
Provine DF, Tinkham NL. (2008) DeSymbol: An Interpretive Tool for Symbolic Logic. The Journal of Computing Sciences in Colleges 23(3), 38-43.

Tinkham NL. (2008) An Introduction to Functional Programming with Scheme. Deer Park, NY: Linus Publications.

Jianning Xu

Professor
Computer Science

xu@rowan.edu
http://elvis.rowan.edu/~xu/

Education:
BS (Computer Engineering), Harbin Institute of Technology, China
PhD (Computer Science), Stevens Institute of Technology

Research Expertise:
Image Processing | Computer Vision

My research interests include Mathematical Morphology and shape analysis, representation, and recognition.

Morphological shape analysis has been the focus of my research efforts in recent years. I have developed and published several new morphological shape representation algorithms. In these algorithms, a 2-D shape can be represented as a collection of rectangular shape components, or a collection of convex polygons, or a collection of overlapping disks. Morphological operations are used to derive the shape components used in the representations in these algorithms. The advantages of these new algorithms include that the shape components have simple and well-defined mathematical characterizations; the representations are compact and efficient for computers to manipulate; and the algorithms are simple and efficient to implement. Shape matching algorithms based on these shape representation algorithms have also been developed and published.

Recent Publications:
Xu J (2014) A Generalized Morphological Skeleton Transform Using both Internal and External Skeleton Points, Pattern Recognition, 47:2607-2620.

Xu J (2011) Shape matching using both internal and external morphological shape components in Proceedings of 2011 International Conference on Image Processing, Computer Vision, and Pattern Recognition (HR Arabnia, L Deligiannidis, G Schaefer, Eds), CSREA Press. pp 10-15.

Xu J (2008) Shape Matching Using Morphological Structural Shape Components, in Proceedings of the 15th IEEE International Conference on Image Processing.

Xu J (2007) Morphological decomposition of 2-D binary shapes into modestly overlapped octagonal and disk components, IEEE Transactions on Image Processing, 16:337-348.

Health & Exercise Science

Gregory Blake Biren

Associate Professor
Health & Exercise Science

biren@rowan.edu

Education:
BA (Psychology), Shippensburg University
MEd (Exercise Physiology), Temple University
PhD (Exercise Physiology), Temple University

Research Expertise:
Strength and Conditioning

My early research interests focused on exercise conditioning, nutrition, and fatigue. While these areas will remain a primary focus, I currently am directing my efforts to improving the knowledge and skills of K-12 students in the areas of Science, Technology, Engineering, Art, and Mathematics (STEAM) as it relates to Exercise Science. The goal is to improve youth's desire to learn, understand, and apply STEAM related topics by experiencing the science behind human movement.

Supported by a grant received in 2015, we are creating a program entitled Sport Science K-20. The purpose is to develop partnerships with K-12 school systems to expose students to the science behind human movement. Our vision is for all youth to be inspired to care for the body through understanding the science behind physical activity, nutrition, and health. It will include interactive workshops both in the K-12 setting along with those performed at Rowan University. In addition, a Sport Science K-20 website will provide video lessons on a variety of exercise science related topics that can be utilized to apply STEAM and health related concepts into the K-12 setting.

Member of:
National Strength and Conditioning Association
American College of Sports Medicine
New Jersey American Alliance for Health, Physical Education, Recreation, and Dance

Recent Publications:
Mastrangelo MA, Chaloupka EC (2013) Childhood obesity, an international problem with a local solution. International Journal of Food, Nutrition and Public Health. 6: 25-35.

Mastrangelo MA, Chaloupka EC (2011) Childhood obesity, an international problem with a local solution in World Sustainable Development Outlook. Ahmed A, Busler M, ed. pp. 389-400.

Scibilia GJ, Chaloupka EC, Mastrangelo MA (2011) A literature review of rehabilitation programs after total shoulder arthroplasty. Hand Rehabilitation Journal. American Physical Therapy Association. 28:3-8.

Edward C. Chaloupka

Professor
Health & Exercise Science

chaloupka@rowan.edu

Education:
BS (Health and Physical Education), Queens College, City University of New York
MS (Education), Queens College, City University of New York
Graduate Certificate of Proficiency (Physical Therapy),
    Hahnemann Medical College and Hospital
PhD (Exercise Physiology/Human Gross Anatomy/Human Physiology),
    The Ohio State University
Postdoctoral Fellowship, Naval Aerospace Medical Research Center-Pensacola FL

Research Expertise:
Exercise physiology | Physical rehabilitation | Sports medicine

My research interests are primarily metabolic, cardiovascular, and muscle responses to exercise.

The majority of my research has investigated the metabolic responses (primarily maximal oxygen uptake) during exercise bouts of different durations and intensities. This research has involved pediatric and adult populations of subjects including subjects considered to be either well or not well endurance trained. Other areas of focus have been muscular strength and power responses to exercise and nutritional supplementation and perceived exertion responses to long duration exercise.

My current research interest focuses on childhood obesity and the role of exercise in combating this international problem.

Member of:
American College of Sports Medicine—Elected Fellow (FACSM)

Recent Publications:
Mastrangelo MA, Chaloupka EC (2013) Childhood obesity, an international problem with a local solution. International Journal of Food, Nutrition and Public Health. 6: 25-35.

Mastrangelo MA, Chaloupka EC (2011) Childhood obesity, an international problem with a local solution in World Sustainable Development Outlook. Ahmed A, Busler M, ed. pp. 389-400.

Scibilia GJ, Chaloupka EC, Mastrangelo MA (2011) A literature review of rehabilitation programs after total shoulder arthroplasty. Hand Rehabilitation Journal. American Physical Therapy Association. 28:3-8.

Daniel Freidenreich

Assistant Professor
Health & Exercise Science

freidenreich@rowan.edu

Education:
BS (Exercise Science), Rutgers University
MA (Kinesiology), The University of Connecticut
PhD (Kinesiology), The University of Connecticut
Postdoctoral (Kinesiology), The Ohio State University

Research Interests:

Nutrition | Metabolism | Low Carbohydrate Diets | Athletic Performance | Metabolic Disease | Immune Function

I have two areas of research interest which include: 1) the study of low carbohydrate diets on athletic performance and metabolic disease such as overweight/obesity and metabolic syndrome 2) the effects of exercise on the innate immune system and how immune cells and the muscle communicate to coordinate recovery from exercise.There are several opportunities to merge my two fields of interest by studying how a low carbohydrate diet in either athletic, healthy or metabolically diseased populations alters immune cell function.

Member of:

International Society for Exercise and Immunology (ISEI) (http://www.isei.dk/)
National Strength and Conditioning Association (NSCA) (https://www.nsca.com/)
American College of Sports Medicine (ACSM) (http://www.acsm.org/)
International Society for Advancement of Cytometry (ISAC) (http://isac-net.org/)
International Clinical Cytometry Society (ICCS) (http://www.cytometry.org/web/index.php)

Recent Publications:

Volek JS, Freidenreich DJ, Saenz C, Kunces LJ, Creighton BC, Bartley JM, Davitt PM, Muno CX, Anderson JM, Maresh CM, Lee EC, Schuenke MD, Aerni G, Kraemer WJ, Phinney SD (2016) Metabolic characteristics of keto-adapted ultra-endurance runners. Metabolism. 65:100-10.

Volk BM, Kunces LJ, Freidenreich DJ, Kupchak BR, Saenz C, Aristizabal JC, Hernandez ML, Bruno RS, Maresh CM, Kraemer WJ, Phinney SD, Volek JS (2014) Effects of step-wise increases in dietary carbohydrate on circulating saturated Fatty acids and palmitoleic acid in adults with metabolic syndrome. PloS One. 9:e0113605.

Aristizabal JC, Freidenreich DJ, Volk BM, Kupchak BR, Saenz C, Maresh CM, Kraemer WJ, Volek JS (2015) Effect of resistance training on resting metabolic rate and its estimation by a dual-energy X-ray absorptiometry metabolic map. Eur J Clin Nutr. 69:831-36.

Kunces LJ, Cusack LK, Kupchak BR, Volk BM, Freidenreich DJ, Aristizabal JC, Saenz C, Pei R, Guo Y, Fernandez ML, Bruno RS, Maresh CM, Kraemer WJ, Pronczuk A, Hayes KC, Volek JS (2013) Triglyceride recrystallized phytosterols in fat-free milk improve lipoprotein profiles more than unmodified free phytosterols in hypercholesterolemic men and women. J Am Coll Nutr. 32:234-42.

Volek JS, Volk BM, Gómez AL, Kunces LJ, Kupchak BR, Freidenreich DJ, Aristizabal JC, Saenz C, Dunn-Lewis C, Ballard KD, Quann EE, Kawiecki DL, Flanagan SD, Comstock BA, Fragala MS, Earp JE, Fernandez ML, Bruno RS, Ptolemy AS, Kellogg MD, Maresh CM, Kraemer WJ (2013) Whey protein supplementation during resistance training augments lean body mass. J Am Coll Nutr. 32:122-35.

Douglas Mann

Associate Professor
Health & Exercise Science

mannd@rowan.edu

Education:
BA (Psychology) University of Miami (Fla)
MS (Education, Athletic Training) Old Dominion University
DPE (Physical Education) Springfield College

Research Interests:
Athletic Injury Prevention

My area of interest is in athletic injury prevention, particularly flexibility programs and injury prevention, life stress and injury prevention, and cognitive reserve and neuroplasticity.

Honors and Awards:
2016 Rowan University Athletic Training Hall of Fame
2008 Joe Blankowitsch Eastern Athletic Trainers Association Presidential Award

Member of:
Eastern Athletic Trainers Association
Athletic Trainers Society of New Jersey
National Athletic Trainers Association
USA Swimming Coach

Recent Academic Projects:
Conference Presentation (2016) Cooper Healthcare Symposium. Neuroplasticity and Rehabilitation

Presentation (2015 and 2016) Philadelphia Marathon. Stress and Anxiety and Running

Presentation (2016) Broad Street Run. Stress and Anxiety and Running

Exhibitor and Organizer (2015 and 2016). Organized "Psyching Team" Philadelphia Marathon. Spoke with runners individually who were nervous about upcoming race.

Erin Pletcher

Assistant Professor
Health & Exercise Science

pletcher@rowan.edu

Education:
BS (Rehabilitation Science), University of Pittsburgh
MS (Sport & Recreation Administration, James Madison University
PhD (Rehabilitation Science), University of Pittsburgh

Research Expertise:
Injury Prevention | Performance Optimization

Research interests include understanding the processes involved and formulating approaches for improved injury prevention, performance optimization and rehabilitation in an athletic and military population. Previous work has included assessment of modifiable musculoskeletal risk factors for injury in an athletic and military population and coordination patterns and variability in the softball windmill pitch.

Member of:
National Strength and Conditioning Association
National Athletic Trainers' Association

Recent Publications
Allison KF, Keenan KA, Wohleber MF, Perlsweig KA, Pletcher ER, Lovalekar M, Beals K, Coleman LC, Nindl BC (2017) Greater ankle strength, anaerobic and aerobic capacity, and agility predict Ground Combat Military Occupational School graduation in female Marines. J Sci Med Sport. 20 (Suppl 4):S85-S90.

Pletcher ER, Williams VJ, Abt JP, Morgan PM, Parr JJ, Wohleber MF, Lovalekar M, Sell TC (2017) Normative data for the NeuroCom Sensory Organization Test in the United States Military Special Operations Forces. J Athl Train. 52:129-136.

Peter Rattigan

Associate Dean, College of Science & Mathematics
Professor, Health & Exercise Science

rattigan@rowan.edu
http://users.rowan.edu/~rattigan/new

Education:
BEd (Physical Education), Avery Hill College, London, UK
MA (Physical Education), University of Minnesota, Minneapolis
PhD (Kinesiology), University of Minnesota, Minneapolis

Research Expertise:
Cooperative Learning/Goal Structure | Skill and Fitness Development | Teen Driver Safety | Video Modeling

My research interests all involve pedagogical best practices, primarily in Physical Education.

I have studied goal structures (cooperative, competitive and individual learning) with David and Roger Johnson at the University of Minnesota. They are internationally renowned experts in the area. My focus has been improving learning in physical education through effective use of goal structures. I am also interested in skill, knowledge and fitness development in Physical Education, including using exercise physiology and kinesiology as a STEM area in K-12 schools. I work with two colleagues on presenting teen driver safety programs in NJ schools, and study the data from pre- and post surveys to gauge its effectiveness.

I have recently begun to look into the effectiveness of video modeling as a teaching and learning tool for diverse learners, both for K-12 students (to improve physical skills) and for teacher candidates (to improve pedagogical skills).

Honors and Awards:
New Jersey Association for Health, Physical Education, Recreation & Dance (NJAHPERD) Outstanding Teacher of Higher Education, 2010

Member of:
Society of Health & Physical Educators (SHAPE) (www.shapeamrica.org)
New Jersey Association For Health, Physical Education, Recreation & Dance (www.njahperd.org)

Recent Academic Projects:
Development of www.sportscienceK20 with Greg Biren and Jim McCall. This website will provide resources including unit and lesson plans, study guides, quizzes, videos and links that help teachers incorporate STEM/STEAM in Health and Physical Education classes, and help college students in understanding exercise sceince & kinesiology concepts.

Recent Publications:
Obrusnikova I, Rattigan P (2016) Using Video-Based Modeling to Promote Acquisition of Fundamental Motor Skills in Diverse Learners. Journal of Health, Physical Education, Recreation & Dance. In press.

Willis S, Rattigan P, Gooding J, Syed R, Barbadero J (2013) Activities That Engage Students in Driver Education Distracted Driving Lessons. The Chronicle for Driver Education Professionals. American Driver and Traffic Safety Education Association (ADTSEA).

Leslie Spencer

Professor
Health & Exercise Science

spencer@rowan.edu

Education:
BBA (Computer Information Systems), James Madison University
MS (Health Promotion and Wellness Management), Springfield College
PhD (Health Education), Temple University

Research Expertise:
Wellness Coaching and Behavior Change | Intellectual and Developmental Disabilities

My research interests are in two major areas: 1) wellness coaching/motivational interviewing and 2) designing fitness and nutrition programs for people with intellectual and developmental disabilities.

I began my behavior change research with an extensive review of the Transtheoretical Model (TTM), which culminated in a series of published systematic literature reviews, in which I evaluated the TTM as applied to the following areas: tobacco use, cancer screening behavior, dietary behavior and exercise behavior. More recently, I and my colleagues developed a program for medical residents in which they were trained to use Motivational Interviewing strategies with patients. My next goal is to develop and study a wellness coaching intervention using Motivational Interviewing strategies with special populations.

My research in the area of creating fitness and nutrition programs for people with intellectual and developmental disabilities (IDD) is ongoing and is unique in that it also involves the caregiver as a recipient of the programs. My colleagues and I have created a model for both fitness programming that is appropriate for people with IDD and a model for family-based nutrition counseling which uses a Motivational Interviewing strategy.

Honors and Awards:
Distinguished Undergraduate Program Award, National Wellness Institute

Member of:
National Wellness Institute (nationalwellness.org)

Recent Academic Projects:
Creation of a Master of Arts in Wellness and Lifestyle Management

Recent Publications:
DiRosa L, Gupta AK, DeBonis S, Spencer L (2017) Effectiveness of a Clinically Oriented Motivational Interviewing Training Program in Increasing Skills & Changing Perceptions. Osteopathic Family Physician 9:0-17.

DiRosa L, Pote T, Wilhite B, Spencer L. (2013) Get FIT (Fitness Integration Training): A Program to Reduce Obesity and Metabolic Syndrome in People with Intellectual and Developmental Disabilities and their Caregivers. J Health Care Poor Underserved, Fall Issue.

Robert Sterner

Associate Professor & Department Chair
Health & Exercise Sciences

sterner@rowan.edu

Education:
BS (Physical Education), East Stroudsburg University
MS (Health, Physical, and Recreational Education), University of Pittsburgh
PhD (Applied Biomechanics), The University of Toledo

Research Expertise:
Fatigue and Neuromuscular Control

My research interests are to assess how fatigue affects the neuromuscular system during physical activity.

Member of:
National Athletic Trainers' Association, Member
Eastern Athletic Trainers' Association, Member
Athletic Trainers' Society of New Jersey

Recent Publications:
Thompson C, Fanok S, Harrington D, Heller A, Hannah E, Grugan C, Sterner R. A Case of a Catastrophic Knee Injury in a Collegiate Football Player. J Athl Train (Supplement). In press.

Seacrist T, Saffioti J, Balasubramanian S, Kadlowec J, Sterner R, García-España JF, Arbogast KB, Maltese MR (2011) Passive Cervical Spine Flexion: The Effect of Age and Gender. Clin Biomech. 27:326-333.

Mehmet Uygur

Assistant Professor
Health & Exercise Science

uygurm@rowan.edu
http://www.rowan.edu/colleges/sbshp/facultystaff/profiles/uygur.html

Education:
BS (Physics), Middle East Technical University, Turkey
MS (Exercise Physiology), Middle East Technical University, Turkey
MS (Biomechanics), University of Delaware
PhD (Motor Control), University of Delaware
Postdoctoral (Neurophysiology), University of Delaware

Research Expertise:
Force coordination through object manipulation | Neuromuscular quickness | Effects of exercise on the cognitive and motor functions in clinical populations

My research interests include the assessment of hand function and neuromuscular quickness through object manipulation in healthy and neurological populations. I am developing a non-invasive measurement technique that quantifies both neuromuscular quickness and force coordination simultaneously. I also am interested in the effects of high speed, low resistance exercise on different aspects of cognitive and motor functions in neurological populations including people with schizophrenia and multiple sclerosis.

Honors and Awards:
Young investigator award, European College of Sports Science
Graduate fellow competitive award, University of Delaware

Member of:
Society for Neuroscience (http://www.sfn.org)
Gerontological Society of America (https://www.geron.org)
European College of Sports Science (http://www.sport-science.org)

Recent Publications:
Uygur M, Bellumori M, Knight CA (2017) Effects of a low-resistance, interval bicycling intervention in Parkinson's Diease. Physiother Theory and Pract. Epub ahead of print.

Haberland K, Uygur M (2017) Simultaneous assessment of hand function and neuromuscular quickness through a static object manipulation task in healthy adults. Exp Brain Res. 235:321-329.

Daniel F, Jelaska I, Uygur M, Jaric S. (2017) Effects of unilateral muscle fatigue on performance and force coordination in bimanual tasks. Motor Control 21:26-41.

Bellumori M, Uygur M, Knight CA (2017) High-speed cycling intervention improves rate-dependent mobility in older adults. Med Sci Sports Exerc. 49:106-114.

Uygur M, Bellumori M, LeNoir K, Poole K, Pretzer-Aboff I, Knight CA (2015) Immediate effects of high speed cycling intervals on bradykinesia in Parkinson's disease. Physiother Theory and Pract 31:77-82.

Emge N, Uygur M, Kaminski TW, Royer T, Jaric S (2014) Selective effects of arm proximal and distal arm muscles on force coordination in static manipulation tasks. J Mot Behav 46:259-265.

Nicole A. Vaughn

Assistant Professor
Health & Exercise Science

vaughnn@rowan.edu

Education:
BS (Psychology), Morgan State University
MS (Medical Psychology), Uniformed Services University of the Health Sciences
PhD (Medical Psychology), Uniformed Services University of the Health Sciences
Post-doctoral (Cardiovascular Behavioral Medicine & Health Disparities),
      Uniformed Services University of the Health Sciences

Research Expertise:
Chronic Disease Prevention | Community-based Participatory Research | Health Disparities | Trauma-Informed Programs

My research interests include using community based participatory research methods to address chronic disease prevention (diabetes, overweight, obesity) as well as trauma informed programs that enhance resilience in underserved and urban settings with ethnic minority adults and youth (i.e., African American). Additionally, I am focused on identifying evidence-based and evidence-informed practices to disseminate and implement in these settings.

My research includes working with community partners to implement evidence-based and evidence informed strategies in their local settings (i.e., churches, after school settings, community centers) to promote healthy lifestyles. Additionally, I have training in health behavior strategies and trauma-informed practices for youth and families. My dissemination and implementation research projects are at the intersection of public health, health promotion, health education and community/industry partnerships.

Honors and Awards:
2016-2018 Fellow for National Cancer Institute's Mentored Training for Dissemination and Implementation Research in Cancer (MT-DIRC)

Member of:
Society of Behavioral Medicine (http://www.sbm.org/)
American Public Health Association (http://www.apha.org/)

Recent Academic Projects:
Getting People In Sync: Working with Communities to Implement an Evidence-Based Prediabetes Prevention Program

Understanding the Health Profile of First Generation College Students

Recent Publications
Noland C, Vaughn NA, Sun S, Schlecht H (2015) Understanding patients' perspectives on opt-out, incentivized, and mandatory HIV testing health communication, Int J Health Sci (Qassim). 9:294-303.

Vaughn NA, Jacoby S, Williams T, Guerra T, Thomas N, Richmond T (2012) Digital animation as a method to disseminate research findings to the community using a community-based participatory approach. Am J Community Psychol. 51:30-42.

McDonald CC, Richmond TS, Guerra T, Thomas NA, Walker A, Branas CC, TenHave TR, Vaughn NA, Leff SS, Hausman AJ (2012) Methods for linking community views to measureable outcomes in a youth violence prevention program. Prog Community Health Partnersh. 6:499-506.

Robert R. Weaver

Professor
Health & Exercise Science

weaverr@rowan.edu

Education:
BA (Sociology), SUNY Cortland
MA (Sociology), University of Connecticut
PhD (Sociology), University of Connecticut

Research Expertise:
Sociology of Health & Illness | Social determinants of health | Qualitative methods

My research examines various social conditions shape our health and healthcare. This includes characterizing how economic, social, cultural, and technological resources influence health, wellness, and the management of health conditions for various populations (most recently, for students). I also examine how myriad the uses of information tools to inform people about their health, while shaping how health and clinical decisions are made.

Member of:
American Sociological Association (www.asanet.org)

Recent Academic Projects:
Currently, I am a PI on four projects related to health and health practices of university students: (1) student hunger on campus, (2) health and acculturation of first-generation university students, (3) nutrition information and dietary choices, and (4) disordered eating behaviors among students. I also am co-Investigator on a study that examines the prevalence and correlates of anxiety, stress, and depressive symptomatology among university students (in Ontario, Canada).

Recent Publications:
Mustafa N, Zaidi AU, Weaver RR (2017) Conspiracy of silence: Cultural conflict as a risk factor for the development of eating disorders among second generation Canadian South Asian women. South Asian Diaspora. Epub ahead of print.

Weaver RR (2015) Reconciling evidence-based medicine and patient-centered care: Defining evidence-based inputs to patient-centred decisions. J Eval Clin Pract. 21:1076-80.

Weaver RR (2015) Seeking high reliability in primary care: Leadership, tools, and organization. Health Care Manage Rev. 40:183-192.

Weaver RR, Lemonde M, Payman N, Goodman WM (2014) Health capabilities and diabetes self-management: The impact of economic, social, and cultural resources. Soc Sci Med. 102:58-68.
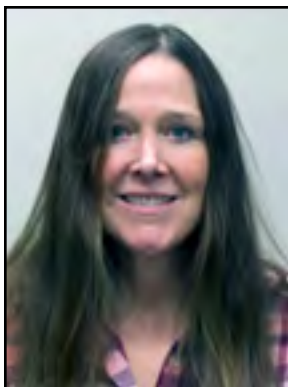
Shari Willis

Associate Professor
Health & Exercise Science

williss@rowan.edu

Education:
BS (Exercise Science), Northeast Missouri State
MS (School and College Health & Safety Education), Indiana University
PhD (Health Promotion and Education), University of Utah

Research Expertise:
Driver Education

My recent research has been in Driver Education. Along with other faculty members we are considering the parental influence on driving. We have brought parents and teens together to discuss the Graduated Drivers License and benefits of working with their teen during the driving process. The project is currently funded by State Farm Insurance.

Currently, I am working as the technical advisor with a team of other driving professionals on standards for driver education that should be implemented within the next two years in the State of New Jersey. The document is titled New Jersey Driver Education Curriculum Guide.

This past year I taught a research methodology course to undergraduates. The students and I completed a class research project on food insecurity and college students as did another professor and his class. We were very interested in the results from our classes that a study on a larger scale was initiated. Along with other Rowan University faculty and personnel the research at the college level has been approved and will begin this school year. College students across the country are being impacted by the food they choose and the food they can afford. The research investigates the choices students make and possible solutions.

Member of:
American Driver Training Safety Education Association

Rowan University

Hypergeometric Frobenius-Bernoulli Polynomials and Numbers

Savanna Dissle, Dr. Abdul Hassen
Department of Mathematics, Rowan University

Introduction

Theorem 1

Theorem 2

Lemma 3

Theorem 3

Theorem 4

Mathematics

Nasrine Bendjilali

Assistant Professor
Mathematics

bendjilali@rowan.edu
https://academics.rowan.edu/csm/departments/math/facultystaff/faculty/Bendjilali/bendjilali-nasrine.html

Education:
BS (Applied Mathematics), University of Petra, Amman, Jordan
MS (Mathematics), Lehigh University
PhD (Applied Mathematics), Lehigh University
Postdoctoral (Center for Cerebrovascular Research), University of California, San Francisco

Research Expertise:
Multiple testing procedures and their applications in biomedical research | Statistical methods for genetic mapping of human traits | Genetic risk factors contributing to development of complex human diseases

My research focuses on identifying genetic risk factors contributing to complex human diseases including cardiovascular and cerebrovascular diseases, in addition to designing and analyzing high-throughput genomic data. I am also interested in developing statistical procedures motivated by questions arising in biological research; in particular, developing multiple testing procedures to address the problem of multiplicity in high-dimensional data analysis.

Member of:
American Statistical Association; Mathematical Association of America; American Society of Human Genetics; European Society of Human Genetics.

Recent Academic Projects:
Gene-diet interaction and risk of cardiovascular diseases.

Recent Publications:
Bendjilali N, MacLeon S, Kalra G, Willis SD, Hossian AK, Avery E, Wojtowicz O, Hickman MJ (2017) Time-course analysis of gene expression during the saccharomyces cerevisiae hypoxic response. G3: Genes|Genomes|Genetics. 7:221-31.

Weinsheimer S, Bendjilali N, Nelson J, Guo D, Zaroff J, Sidney S, McCulloch E, Salman R, Berg J, Koeleman B, Simon M, Bostrom A, Fontanella M, Sturiale C, Pola R, Puca A, Lawton M, Young W, Pawlikowska L, Klijn CJ, Kim H (2016) Genome-wide association study of sporadic brain arteriovenous malformations. J Neurol Neurosurg Psychiatry. 87:916-23.

Kremer PH, Koeleman BP, Pawlikowska L, Weinsheimer S, Bendjilali N, Sidney S, Zaroff JG, Rinkel GJ, van den Berg LH, Ruigrok YM, de Kort GA, Veldink JH, Kim H, Klijn CJ (2015) Evaluation of genetic risk loci for intracranial aneurysms in sporadic arteriovenous malformations of the brain. J Neurol Neurosurg Psychiatry. 86:524-9.

Bendjilali N, Nelson J, Weinsheimer S, Sidney S, Zaroff JG, Hetts SW, Segal M, Pawlikowska L, McCulloch CE, Young WL, Kim H (2014) Common variants on 9p21.3 are associated with brain arteriovenous malformations with accompanying arterial aneurysms. J Neurol Neurosurg Psychiatry. 85:1280-3.

Bendjilali N, Hsueh WC, He Q, Willcox DC, Nievergelt CM, Donlon TA, Kwok PY, Suzuki M, Willcox BJ (2014) Who are the okinawans? Ancestry, genome diversity, and implications for the genetic study of human longevity from a geographically isolated population. J Gerontol A Biol Sci Med Sci. 69: 1474-1484.

Abdul Hassen

Professor
Mathematics

hassen@rowan.edu
http://users.rowan.edu/~hassen

Education:
BS (Mathematics), Addis Ababa University, Ethiopia
MS (Mathematics), Addis Ababa University, Ethiopia
PhD (Mathematics), Temple University, Philadelphia, PA

Research Expertise:
Analytic and Elementary Number Theory | Generalized Bernoulli and Euler Numbers and Polynomials

My research interests are in the area of Analytic and Analytic Number Theory. I am interested in characterization of Automorphic integral associated with Hekce groups.

Currently, I am working on the determination of those automorphic integrals with prescribed poles of any order and any number of poles. I also am working on problems related to generalized Euler numbers and polynomials. Related to these polynomials are the Hypergeometric Bernoulli polynomials, which generalize the classical Bernoulli numbers via their generating function. These new polynomials have many similar properties as the classical ones as well as some properties unique to them. For example, their complex zeros seem to converge to a curve in the complex plane but the exact curves are not known

I also work with graduate and undergraduate students on research projects from Euler's papers as well as partition functions.

Recent Publications:
Hassen A, Roibal A. (2016) Triangles on the Lattice of Integers, Mathematics and Computer Education Journal, In press.

Geleta HL, Hassen A. (2016) Fractional Hypergeometric Zeta Functions. Ramanujan J. 41: 421-436.

Geleta HL, Hassen A, Mohammed, S. (2015) Series Representation of the Second Order Hypergeometric Zeta Function, Journal for Algebra and Number Theory Academia, in press.

Karen Heinz

Professor
Mathematics

heinz@rowan.edu

Education:
BS (Mathematics), The Pennsylvania State University
MA (Mathematics), The Ohio State University
PhD (Curriculum and Instruction with an emphasis in Mathematics Education),
     The Pennsylvania State University

Research Expertise:
Mathematics Education | Teacher Development

My scholarly work is in two major domains: directing grant-funded projects that provide professional development to mathematics teachers and researching teacher development.

The purpose of my grant-funded projects has been to provide professional development to teachers in grades K to 12 to help them develop their understandings of mathematics content, mathematics learning, mathematics teaching, and mathematics state standards. My research focuses on teachers' mathematical conceptions and how those conceptions develop.

Honors and Awards:
Distinguished Research in Teacher Education Award, Association of Teacher Educators (2000)

Member of:
Association of Mathematics Teachers of New Jersey (www.amtnj.org)
National Council of Teachers of Mathematics (www.nctm.org)

Recent Publications:
Heinz K, Shown TE (2014) Using triangular numbers as "steps" when constructing quadratic and cubic sequences, Mathematical Spectrum. 47:11-18.

Heinz K, Sterba-Boatwright B (2008) The when and why of using proportions. Mathematics Teacher. 101:528-533.

Simon MA, Tzur R, Heinz K, Kinzel M (2004) Explicating a mechanism for conceptual learning: Elaborating the construct of reflective abstraction. Journal for Research in Mathematics Education. 35:305-329.

Marlena Herman

Professor
Mathematics

herman@rowan.edu

Education:
BS (Secondary Mathematics Education), Indiana University of Pennsylvania
MEd (Teaching and Curriculum), Pennsylvania State University
PhD (Mathematics Education), The Ohio State University

Research Expertise:
Mathematics Education

Teaching and learning mathematics with technology
Use of graphing calculators and data collection devices in the mathematics or science classroom
Application of mathematics concepts, especially physics (e.g., mathematical modeling, parametrics)
Mathematical topics: golden numbers, home primes, conic sections

Member of:
National Council of Teachers of Mathematics (http://www.nctm.org/)
The Association of Mathematics Teachers of New Jersey (http://amtnj.org/)

Recent Publications:
Herman M, Schiffman J (2014) Exploring Home Primes. Mathematics Teacher. 107:606-614.

Herman M, Meagher M, Abrahamson L, Owens D (2013) Student Perceptions of Use of a Classroom Communication System in Mathematics Classes. International Journal for Technology in Mathematics Education. 20:45-68.

Laumakis P, Herman M (2013) The Mathematics of Retirement Investing. The Mathematical Scientist. 38:43-49.

Herman M (2012) Exploring Conics: Why Does B2-4AC Matter? Mathematics Teacher. 105:526-532, plus online addendum.

Christopher Lacke

Associate Professor
Mathematics

lacke@rowan.edu
https://www.researchgate.net/profile/Chris_Lacke

Education:
BA (Mathematics and Economics), Bowdoin College
MS (Statistics), University of Southern Maine
PhD (Operations Research), North Carolina State University

Research Expertise:
Medical Decision Making | Statistics in Medicine & Health | Statistical Education

My primary research involves the applications of decision analysis, operations research, and applied statistics, primarily in medicine, health, and exercise science. I am currently involved in projects with members of the Rowan School of Osteopathic Medicine (SOM), the Rowan University Department of Health & Exercise Science, and students at SOM.

Member of:
Institute of Operations Research and the Management Sciences (INFORMS)

Recent Publications:
Cleary, DB, Riddell, WT, Lacke, CJ (2012) Effect of washer placement on performance of direct tension indicators with curved protrusions, ENG J AISC 49:55-64.

Mastrangelo, MA, Chaloupka, EC, Kang, J, Lacke, CJ, Angelucci, J, Martz, WP, Biren, GB (2004) Predicting anaerobic capabilities in 11-13 year old boys. J Strength Cond Res. 18:72-76.

Paul J. Laumakis

Professor
Mathematics

laumakis@rowan.edu

Education:
BS (Mechanical Engineering), Drexel University
MA (Mathematics), Villanova University
PhD (Applied Mathematics), Lehigh University
Post-doctoral (Mathematics), United States Military Academy

Research Expertise:
Data Analysis | Mathematics Education | Applied Mathematics

My current research involves comparing and assessing the effectiveness of different calculator technologies in the teaching and learning of college level mathematics. Additionally, my scholarship interests focus on the creation of real-world application projects for use in both the secondary and college level mathematics classroom.

Honors and Awards:
Davies Fellow, Department of Mathematical Sciences, United States Military Academy, 1993-1996.

Recent Publications:
Laumakis P, McCormack K (2014) Analyzing exercise training effect and its impact on cardiorespiratory and cardiovascular fitness. J Stat Educ. 22:1-23.

Laumakis P, Herman M (2013) The mathematics of retirement investing. The Mathematical Scientist. 38:43-49.

Laumakis P (2012) Analyzing highway speeding data in the statistics classroom, Mathematics Teacher. 105:352- 358.

Eric Milou

Professor
Mathematics

milou@rowan.edu
http://ericmilou.net

Education:
EdD (Mathematics Education), Temple University
MA (Mathematics), West Chester University
BA (Mathematics), Franklin & Marshall College

Research Expertise:
K-12 Mathematics Education Curriculum & Instruction

I am interested in curriculum and instruction development in mathematics education. Special interests include the use of technology and mathematical modeling in curriculum and instruction in grades 6-12. Recently published K-12 textbooks include Pearson's EnVisions Math Grades 6-8, EnVisions Algebra, Geometry and Algebra II, and Pearson's digits; all comprehensive middle school or high school mathematics programs.

Honors and Awards:
2009 Max Sobel Outstanding Mathematics Educator Award
2015 Rowan University Joseph Barnes Outstanding Service Award

Member of:
National Council of Teachers of Mathematics (NCTM)
National Council of Supervisors of Mathematics (NCSM)
Association of Mathematics Teachers of NJ (AMTNJ)
California Math Council (CMC)
TODOS: Mathematics for ALL

Hieu D. Nguyen

Professor
Mathematics

nguyen@rowan.edu
http://www.rowan.edu/math/facultystaff/nguyen/

Education:
BS (Mathematics and Electrical Engineering), University of Minnesota-Minneapolis
PhD (Mathematics), University of California-Berkeley

Research Expertise:
Experimental Mathematics | Coding Theory | Frames

My research interests lie broadly in experimental mathematics with a current focus on coding theory and frames.

My work on coding theory consists of two projects. The first is to construct good error-correcting codes capable of correcting insertion, deletion, and substitution errors and apply them to the design of barcodes for DNA multiplex sequencing and data storage. The second is the develop codes for two-party interactive communication that are resistant to the same types of errors.

My work on frames seeks to construct efficient algorithms to partition frames with low coherence, called tight equiangular frames (ETFs), into sets with uniform small spectral norms, and to develop applications in communications and signal processing that utilize such partitions. Current work focuses on two special types of frames: Steiner and maximal ETFs.

Member of:
Mathematical Association of America (www.maa.org)

Recent Publications:
Rosado J, Nguyen HD (2017) Partitions of equiangular tight frames. Linear Algebra Appl. 526:95-120.

Bittner D, Cheong L, Gates D, Nguyen HD (2017) New approximations for the area of the Mandelbrot set. Involve. 10:555-572.

Logan B, Nguyen HD (2016) Group symmetries of complementary code matrices. IEEE Trans Aerosp Electron Syst. 52:2255-2262.

Nguyen HD, Coxson GE (2016) Doppler tolerance, complementary code sets, and generalised Thue–Morse sequences. IET Radar Sonar Navig. 10:1603-1610.

Le TA, Nguyen HD (2016) New multiple insertion/deletion correcting codes for non-binary alphabets. IEEE Trans Inf Theory. 62:2682-2693.

Thanh Nguyen
Assistant Professor
Mathematics

nguyent@rowan.edu
http://users.rowan.edu/~nguyent/

Education:
BS & MS (Mathematics) Vietnam National University, Hanoi
PhD (Engineering Mathematics) Vrije Universiteit Brussel, Belgium
Post-doctoral: Austrian Academy of Sciences, UNC Charlotte, Iowa State University

Research Expertise:
Inverse Problems & Optimization | Modeling & Simulation | Numerical Analysis

My areas of research are in computational, applied mathematics, and engineering applications. In particular, my research interests include inverse problems for partial differential equations, optimization, numerical analysis, mathematical modeling, and applications in nondestructive testing, subsurface imaging, and medical imaging. I have published more than 30 papers in the following areas: (1) Modeling and inverse problems for the heat equations and their application in the detection and characterization of buried objects from infrared images; (2) Coefficient and shape reconstruction problems in time-domain and frequency-domain inverse scattering theory of wave and their application in the detection of airborne, through-wall and buried objects using radar measurements; (3) Evaluation of the electrical conductivity and magnetic permeability of metals from alternating current potential drop measurements. My current research projects include globally convergent inverse methods for coefficient identification problems for partial differential equations.

Member of:
Society for Industrial and Applied Mathematics (SIAM, http://www.siam.org/)

Recent Publications:
Kolesov A, Klibanov M, Nguyen L, Nguyen D-L, Thanh NT (2017) Experimental single measurement data for an inverse medium problem inverted by a multi-frequency globally convergent numerical method. Applied Numerical Mathematics 120:179-196.

Thanh NT, Beilina L, Klibanov M, Fiddy M (2015) Imaging of buried objects from experimental backscattering radar measurements using a globally convergent inverse method. SIAM J Imaging Sci. 8:757–786.

Klibanov M, Thanh NT (2015) Recovering dielectric constants of explosives via a globally strictly convex functional. SIAM J Appl Math. 75:518-537.

Sini M, Thanh NT (2015) Regularized recursive Newton-type methods for inverse scattering problems using multifrequency measurements. ESAIM Math Model Numer Anal. 49:459-480.

Beilina L, Thanh NT, Klibanov M, Malmberg JB (2015) Globally convergent and adaptive finite element methods in imaging of buried objects from experimental backscattering radar measurements. J Comput Appl Math. 289:371-391.

Thanh NT, Beilina L, Klibanov M, Fiddy M (2014) Reconstruction of the refractive index from experimental backscattering data using a globally convergent inverse method. SIAM J Sci Comput. 36:B273-293.

Thomas J. Osler

Professor
Mathematics

osler@rowan.edu
http://www.rowan.edu/open/colleges/csm/departments/math/facultystaff/osler/index.htm

Education:
BS (Physics), Drexel University
PhD (Mathematics), Courant Institute, News York University

Research Expertise:
Fractional derivatives | Complex variables | Special functions

My early work on fractional derivatives included 16 papers that are still being cited today. In the past 20 years I have published over 136 papers in mathematics and physics. Most of these are expository papers, and include topics of historical interest on Euler, the zeta function, number theory, partitions, geometry and other subjects. Over 30 were joint-authored with Rowan students.

Honors and Awards:
The Gary Hunter Mentoring Award presented by the American Federation of Teachers, 2008
The Editorial Excellence Award from the journal "Mathematics and Computer Education", 2009
The Mathematical Association of America, New Jersey Section, Distinguished Teacher of Mathematics Award, 2009.
Oslerfest: (In honor of my 70th birthday) A two day National Mathematical Conference at Rowan University, 2010.

Member of:
American Mathematical Society
Mathematical Association of America

Recent Publications:
Osler TJ (2016) Bisecting and trisecting the arc of the lemniscate. The Mathematical Gazette, 100:471-481.

Osler TJ (2016) Iterations for the lemniscate constant resembling the Archimedean algorithm for pi. The American Mathematical Monthly. 123:90-93.

Osler TJ, Jacob W, Nishimura R (2016) An infinite product of nested radicals for log x from the Archimedean algorithm. The Mathematical Gazette. 100:274-278.

Osler TJ (2016) Another look at higher vertical motion. The Mathematical Gazette. 100:517-520.

Osler TJ, Kosior JM (2016) A sequence of good approximations for the period of a pendulum with large amplitude. The Mathematical Scientist 41:40-44.

Charalampos (Babis) Papachristou

Associate Professor
Mathematics

papachristou@rowan.edu

Education:
BS (Mathematics), Aristotle University of Thessaloniki, Greece
PhD (Statistics), The Ohio State University
Postdoctoral (Human Genetics), University of Chicago

Research Expertise:
Statistical Genetics | Biostatistics | Genetic Epidemiology

My research interests are in the areas of statistical genetics, epidemiology, and applications to biological and medical studies. I primarily develops novel methodologies for analyzing data from genetic studies to identify disease susceptibility genes. I am currently involved in variety of projects some of which aim at uncovering factors affecting asthma susceptibility, reducing drug wastage in VA hospitals, building mouse models of response to leukemia treatments, and identifying genetic markers that predict drug response to cancer treatment.

Honors and Awards:
Christian R. and Mary F. Lindback Award for Distinguished Teaching - 2013

Member of:
American Statistical Association (ASA)
International Genetic Epidemiology Society (IGES)

Recent Academic Projects:
Unlocking the Heritability of Methylation in Human DNA via the Use of Pedigree Data
Haplotype-based Tests for Detecting Gene-Environment Interactions
Exploring Factors Affecting Eating Habits of College Students
Identifying Factors Contributing to Benign Brain Tumors (Meningiomas)

Recent Publications:
Fazia T, Pastorino R Foco L, Han L, Abney M, Beecham A, Hadjixenofontos A, Guo H, Gentilini D, Papachristou C, Bitti PP, Ticca A, Berzuini C, McCauley JL, Bernardinelli L (2017) Investigating multiple sclerosis genetic susceptibility on the founder population of east-central Sardinia via association and linkage analysis of immune-related loci. Mult Scler. Epub ahead of print.

Papachristou C, Ober C, Abney M (2016) A LASSO penalized regression approach for genome-wide association analyses using related individuals: application to the Genetic Analysis Workshop 19 simulated data. BMC Proceedings. 10(Suppl 7):53.

Papachristou, C (2015) A population based confidence set inference method for SNPs that regulate quantitative phenotypes. In: Ordered Data Analysis, Modeling and Health Research Methods (Springer Proceedings in Mathematics & Statistics Vol. 149) Choudhary P, Nagaraja C, Ng H, ed. pp. 235-244, Cham:Springer.

Christopher S. Simons

Associate Professor
Mathematics

simons@rowan.edu
http://users.rowan.edu/~simons/

Education:
BSc (Mathematics), McGill University
MA (Mathematics), Princeton University
PhD (Mathematics), Princeton University

Research Expertise:
Finite group theory | Computational number theory

I am interested in extended Coxeter presentations leading to finite groups and sporadic groups including the Monster and Bimonster. This work involves both machine-aided investigation as well as more theoretical and geometric explorations. These presentations have connections to modular functions through the monstrous moonshine phenomenon.

I am also interested in aspects of computational number theory relating to integer sequences such as the chirality of integer triples and its resulting recursive properties.

Recent Publications:
Li M-S, Robertson K, Osler TJ, Hassen A, Simons CS, Wright M (2009) On numbers equal to the sum of two squares in more than one way. Math Comput Educ. 43:102-108.

Simons CS, Wright M (2007) Fibonacci imposters. Internat J Math Ed Sci Tech. 38:677-682.

Simons CS (2005) An elementary approach to the Monster. Amer Math Monthly. 112:334-341.

Simons CS, Wright M (2004) Zeroing the baseball indicator and the chirality of triples. J Integer Seq. 7:8p.

Conway JH, Simons CS (2001) 26 implies the Bimonster. J Algebra. 235:805-814.

Thayasivam Umashanger

Associate Professor
Mathematics

thayasivam@rowan.edu
http://users.rowan.edu/~thayasivam/

Education:
BSc (Statistics), University of Colombo
MS (Statistics), University of Georgia
PhD (Statistics), University of Georgia

Research Expertise:
Data Mining and Statistical Learning | Robust Estimation | Bayesian Statistics

We are pursuing several lines of research to identify and validate the use of statistical learning/data mining methods with multidisciplinary data.

Projects include:
Biomarker discovery for neurogenerative diseases
Peak detection with maximum entropy principal
Clustering mix attributes – network security
Spoof detection and Speaker identification/verification in biometrics
Assessing robust methods for analyzing multivariate data Telemedicine/Telehealth statistical learning

Member of:
American Statistical Association (www.asa.org)
Institute of Mathematical Statistics (www.imstat.org)
Institute of Applied Statistics Sri Lanka (www.iappstat.lk)
Data Science Association

Recent Publications
DeMarshall CA, Nagele EP, Sarkar A, Godsey G, Thayasivam U, Han M, Belinka B, Nagele RG (2017) Autoantibodies as diagnostic biomarkers for the detection and subtyping of Multiple Sclerosis, J Neuroimmol. 309:51-57.

Kabakci F, Thayasivam U (2017) Assessing robust clustering for gaussian mixtures in the presence of outliers and noise variables with component overlap - A simulation study. Computational Mathematics, Computational Geometry & Statistics (CMCGS). 175-181. Received Best Paper Award.

Edwards JS, Ramachandran RP, Thayasivam U (2017) Robust speaker verification with a two classifier format and feature enhancement. IEEE ISCAS 2017, 50th International Symposium on Circuits & Systems. Conference, Baltimore, MD

DeMarshall CA, Nagele EP, Sarkar A, Acharya NK, Godsey G, Goldwaser EL, Kosciuk M, Thayasivam U, Han M, Belinka B, Nagele RG (2016) Detection of Alzheimer's disease at mild cognitive impairment and disease progression using auto-antibodies as blood-based biomarkers, Alzheimers Dement (Amst). 3:51-62.

Thayasivam U, Hnatyshin V, Muck IB (2016) Accuracy of Class Prediction using Similarity Functions in PAM. In Proc of 2016 IEEE International Conference on Industrial Technology (ICIT), Taipei, pp. 586-591.
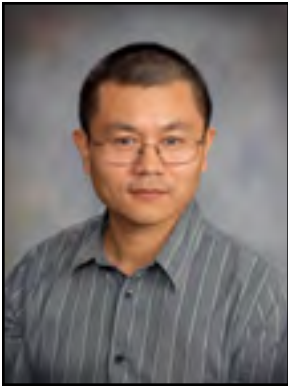
Min Wang
Assistant Professor
Mathematics

wangmin@rowan.edu
http://users.rowan.edu/~wangmin/

Education:
BS (Mathematics and Applied Mathematics), Ocean University of China
MS (Applied Mathematics), Ocean University of China
MS (Mathematical Sciences), Northern Illinois University
PhD (Mathematical Sciences), Northern Illinois University

Research Expertise:
Mathematical Modeling | Mathematical Finance | Data Analytics

I am a mathematician with both academic and industrial experience. As a result, my research interests are split into two categories: applied mathematics and data sciences.

As a mathematician, my research interests are in applied mathematics, which include deterministic and stochastic differential equations, mathematical modeling, numerical analysis, and their applications. Currently, I am working on several problems from biomathematics and mathematical finance.

Due to my industrial data analytic experience, I am also interested in the areas of data analytics such as risk modeling, machine learning, data visualization, and model validation. I am familiar with US consumer credit data and the predictive modeling techniques widely used in credit industry. I look forward to combining my industrial data analytic experience and math knowledge to solve problems.

Recent Academic Projects:
Feng Y, Wang M (2017) Credit valuation adjustment (CVA) for discretely monitored barrier option under stochastic jump model.

Wang M, Williams V (2017) Data analysis on Philadelphia bike sharing system.

Recent Publications:
Browne C, Wang M, Webb GF (2017) A stochastic model of nosocomial epidemics in hospital intensive care units. Electron J Qual Theory Differ Equ. 6:1-12.

Graef JR, Kong L, Kong Q, Wang M (2017) On a fractional boundary value problem with a perturbation term. Journal of Applied Analysis and Computation 7:57-66.

Graef JR, Kong L, Wang M (2014) A Chebyshev spectral method for solving Riemann-Liouville fractional boundary value problems. Appl Math Comput. 241:140–150.

Graef JR, Kong L, Wang M (2014) Stationary solution of a stochastic nosocomial epidemic model in hospital intensive care units. Stochastic Anal Appl. 32:840–850.

Dexter C. Whittinghill III

Associate Professor & Department Head
Mathematics

whittinghill@rowan.edu

Education:
BA (Mathematics), Middlebury College
MS (Mathematics), University of Wisconsin-Milwaukee
MS (Statistics), Purdue University
PhD (Statistics), Purdue University

Research Expertise:
Statistics Education | Design of Experiments

My current interests include co-author-consulting with Rowan faculty in other disciplines regarding statistical education.

Honors and Awards:
Inaugural Outstanding Contributed Paper Award in Statistics Education, SIGMAA in Statistics Education 2006

Member of:
American Statistical Association (ASA, www.amstat.org)
Institute of Mathematical Statistics (IMS, www.imstat.org)
Mathematical Association of America (MAA, www.maa.org)

Recent Publications:
Flynn, MA, Everett JW, Whittinghill D (2015) The impact of a living learning community on first-year engineering students. Eur J Eng Ed. 41:331-334.

Chen JC, Kadlowec JA, Whittinghill DC (2010) Classes that click: Fast, rich feedback to enhance student learning and satisfaction. J Eng Ed. 99:159-168.

Chen JC, Kadlowec JA, Whittinghill DC (2008) Using handheld computers for instantaneous feedback to enhance student learning and promote interaction. Int J Eng Ed. 24:616-624.

Marcus Wright
Assistant Professor
Mathematics

wright@rowan.edu

Education:
AB (Mathematics), Harvard University
PhD (Mathematics), Stanford University

Research Interests:
Complex Analytic Differential Geometry | Iteration of Rational Functions | Deformations of Complex Manifolds

My research interests are in the study of the function theory and analytic invariants of complex manifolds using intrinsic metrics and infinitesimal metrics, such as the Kobayashi metric, and Riemannian curvature, and how these characteristics of a manifold vary with deformation of complex structure.

I also am interested in the dynamics of iteration of rational functions, especially those related to numerical root finding methods, and the effects of deformation on such dynamical systems.

Recent Publications:
Osler T J, Wright M, Orchard M (2005) Theon's ladder for any root. International Journal of Mathematical Education in Science and Technology. 36, pp. 389-398

Simons CS, Wright M (2004) Zeroing the Baseball Indicator and Chirality of Integer Triples. Journal of Integer Sequences. 1-8.

Molecular & Cellular Biosciences

Mary L. Alpaugh

Associate Professor & Department Chair
Molecular & Cellular Biosciences

alpaugh@rowan.edu

Education:
BS (Biology & Philosophy), King's College
PhD (Biochemical & Biophysical Sciences), University of Houston
Postdoctoral (Pathology), University of California, Los Angeles

Research Expertise:
Cancer Biology | Tumor Progression | Metastasis | Intravasation

My research focuses predominantly on the molecular mechanisms of intravasation, the rate-limiting step of metastasis, and resistance/susceptibility of lymphovascular emboli to therapeutics.

Metastasis poses the single most difficult clinical challenge in the attempt to manage and treat cancer. In this effort, I have established patient-derived xenografts, signifcantly the first (and only) human transplantable inflammatory breast cancer xenograft, called MARY-X. Inflammatory breast cancer (IBC) is one of the most aggressive types of breast cancer; nearly 100% of all women with IBC have lymph node involvement and 25% have distant metastases upon diagnosis. The signature phenotype of IBC is florid lymphovascular invasion of cancer emboli. Whereas most human xenografts grow as a subcutaneous confluent cellular mass, MARY-X grows exclusively in the murine lymphatic and blood vessels, recapitulating the phenotype displayed in human IBC and in essence providing both a preclinical IBC model and a relevant model of metastasis. MARY-X, in vitro, is a primary cellular derivative from tumor explants. These tumor cells spontaneously form tight, compact aggregates of cells termed "MARY-X spheroids". Comparable to human IBC emboli, a persistent, over-expression of an intact E-cadherin/α, β-catenin axis mediates the compaction of both in vitro and in vivo MARY-X spheroids and tumor emboli, respectively. The in vitro MARY-X spheroid has comparative 3-dimensional (3-D) architectural/pathophysiological features to the lymphovascular embolus. Therefore MARY-X provides a relevant 3D in vitro analysis platform for drug design and development of IBC and metastatic disease i.e. the lymphovascular embolus.

Member of:
American Association for Cancer Research

Recent Publications:
Thorek DLJ, Watson PA, Lee S-G, Ku AT, Bournazos S, Braun K, Kim K, Sjöström K, Doran MG, Lamminmäki U, Santos E, Veach D, Turkekul M, Casey E, Lewis JS, Abou DS, van Voss MRH, Scardino PT, Strand S-E, Alpaugh ML, Scher HI, Lilja H, Larson SM, Ulmert D (2016) Internalization of secreted antigen targeted antibodies by the neonatal Fc receptor for precision imaging of the androgen receptor axis. Science Translational Medicine. In press.

Putcha P, Yu J, Rodriguez-Barrueco R, Saucedo-Cuevas L, Villagrasa P, Murga-Penas E, Quayle SN, Yang M, Castro V, Llobet-Navas D, Birnbaum D, Finetti P, Woodward WA, Bertucci F, Alpaugh ML*, Califano A,* Silva J* (2015) HDAC6 activity is a non-oncogene addiction hub for inflammatory breast cancer. Breast Cancer Research 17:149.

Theodoraki MA, Rezende Jr CO, Chantarasriwong O, Corben AD, Theodorakis EA, Alpaugh ML (2015) Spontaneously-forming spheroids as an in vitro cancer cell model for anticancer drug screening. Oncotarget 6:21255-67.

Corben AD, Uddin MM, Crawford B, Farooq M, Modi S, Gerecitano J, Chiosis G, Alpaugh ML (2014) Ex vivo Treatment Response of Primary Tumors and/or Associated Metastases for Preclinical and Clinical Development of Therapeutics. J Vis Exp (92):e52157.

Benjamin R. Carone

Assistant Professor
Molecular & Cellular Biosciences

carone@rowan.edu

Education:
BS (Molecular & Cellular Biology, Philosophy), University of Connecticut
PhD (Genetics and Genomics), University of Connecticut
Postdoctoral (Transgenerational Inheritance/Epigenetics),
    University of Massachusetts Medical School
Visiting Assistant Professor (Histone Modifications), Williams College

Research Expertise:
Epigenetics | Genomics | Histone modifications

My research interests are in the field of Epigenetics, which I approach by working to identify the epigenetic marks and molecular mechanisms responsible for causing and maintaining the inheritance of acquired states.

Investigating the capacity of conserved protein catalytic domains to establish and maintain epigenetic modifications in S. cerevisiae with the ultimate goal establishing the causal role of histone packaging in regulating gene expression. Specifically, my laboratory has created a suite of fusion proteins using CRISPR technology to target H3K9me to eGFP tagged endogenous S. cerevisiae genes which we interrogate expression levels using qRT-PCR as flow cytometry.

Testing the hypothesis that mammalian spermatic chromatin is highly organized and that this patterning can function to drive Transgenerational Epigenetic Inheritance. Determining the genome-wide organization of chromatin in germ cells using genomic and bioinformatics approaches. We are currently working with previously/externally generated datasets but will also be investigating spermatic chromatin in the context of Ctcf mutant mice at Rowan University as this project matures.

Member of:
American Society for Biochemistry and Molecular Biology (www.asbmb.org)
Genetics Society of America (www.genetics-gsa.org)
Sigma Xi (www.sigmaxi.org)

Recent Publications:
Sharma FNU, Conine CC, Shea JM, Carone BR, Belleannee C, Li X, Bing XY, Fauquier L, Chen Po-shen, Gu Weifeng, Fazzio TG, Sullivan R, Mello CC, Garber M, Rando OJ (2015) Paternal diet alters tRNA fragment levels throughout the male reproductive tract in mammals. Science. 351:391-6.

Carone BR, Hung JH, Hainer SJ, Chou M-T, Carone DM, Weng Z, Fazzio TG, Rando OJ (2014) High resolution mapping of chromatin packaging in mouse ES cells and sperm. Dev Cell. 30:11-22.

Carone BR, Xu T, Murphy K, Marinus MG (2014) High incidence of multiple antibiotic resistant cells in cultures of entero-hemorrhagic Escherichia coli O157:H7 Mutat. Res. 759:1-8.

Mark J. Hickman

Associate Professor
Molecular & Cellular Biosciences

hickmanm@rowan.edu
go.rowan.edu/hickman

Education:
AB (Biochemistry), Bowdoin College
PhD (Biological Sciences), Harvard University
Postdoctoral (Genetics), Harvard Medical School
Postdoctoral (Genomics), Princeton University

Research Expertise:
Genetics | Genomics | Bioinformatics | Molecular Biology

My laboratory studies: (1) cellular signaling and global gene expression in response to hypoxia, and (2) mutation analysis using whole genome sequencing. We employ genetic, genomic and bioinformatic approaches in the model organism S. cerevisiae. A current focus is characterizing the multiple signaling pathways that control gene expression in response to hypoxia, using signaling deletion mutants and RNA-seq analysis.

Member of:
Genetics Society of America
International Society for Computational Biology
American Chemical Society
American Society of Microbiology

Recent Academic Projects:
Mentoring BS and MS students in all aspects of my research
Development and coordination of BS and MS Programs in Bioinformatics.

Recent Publications:
Willis SD, Hossian N, Evans N, Hickman MJ (2017) Measuring mRNA Levels Over Time During the Yeast S. cerevisiae Hypoxic Response. J Vis Exp. (126) e56226.

Bendjilali N, MacLeon S, Kalra G, Willis SD, Hossian N, Avery E, Wojtowicz O, Hickman MJ (2017) Time-course analysis of gene expression during the S. cerevisiae hypoxic response. G3 (Bethesda) 7:221-231.

Reavey CT, Hickman MJ, Dobi KC, Botstein D, Winston F (2015) Analysis of Polygenic Mutants Suggests a Role for Mediator in Regulating Transcriptional Activation Distance in Saccharomyces cerevisiae. Genetics. 201:599-612.

Lang GI, Rice DP, Hickman MJ, Sodergren E, Weinstock GM, Botstein D, Desai MM (2013) Pervasive genetic hitchhiking and clonal interference in forty evolving yeast populations. Nature. 500:571-4.

Gibney PA, Hickman MJ, Bradley PH, Matese JC, Botstein D (2013) Phylogenetic portrait of the Saccharomyces cerevisiae functional genome. G3 (Bethesda). 3:1335-40.

Cristina Iftode

Associate Professor
Molecular & Cellular Biosciences

iftode@rowan.edu
http://users.rowan.edu/~iftode/index.html

Education:
BS (Biochemistry; Cell Biology and Genetics), University of Bucharest, Romania
PhD (Cellular and Molecular Biology), New York University Medical Center
Postdoctoral (Molecular Virology), Princeton University

Research Expertise:
Stem cell differentiation | Replication and transcription of DNA viruses

My research interests are: 1) human stem cells and biomaterials in regenerative medicine, and 2) isolation and characterization of secondary plant metabolites.

1) I study the application of the adipose derived-mesenchymal stem cell (AD-MSC) differentiation to the regeneration of the intervertebral disc tissue. In collaboration with the Departments of Chemical and Mechanical Engineering, my group is using a tissue engineering approach where cell-seeded injectable scaffolds and inducers of differentiation are delivered to the injury site. Characterization of differentiation toward the desired phenotype is assessed by the presence of tissue specific markers.

In collaboration with the Department of Physics & Astronomy, I examine the medical applicability of protein-based biomaterials in combination with AD-MSCs.

2) I also am interested in culturing methods from meristematic plant cells for the production of secondary plant metabolites (SPMs). Together with a colleague from my department, we are expanding the application of this technique to extracting SPMs from plant species with uses in medicine and cosmetology.

Honors and Awards:
Rowan University's Collaborative Innovation in Tissue Engineering Award, 2016

Member of:
American Society for Cell Biology Chemical Society (www.ascb.org)
American Society for Microbiology (www.asm.org)
American Society for Virology (www.asv.org)

Recent Publications:
Christiani T, Toomer K, Sheehan J, Nitzl A, Branda A, England E, Graney P, Iftode C, Vernengo AJ (2016) Synthesis of Thermogelling Poly(N-isopropylacrylamide)-graft-chondroitin Sulfate Composites with Alginate Microparticles for Tissue Engineering, J Vis Exp. 11:482, e53704.

Wiltsey C, Christiani T, Williams J, Scaramazza J, Van Sciver C, Toomer K, Sheehan J, Branda A, Nitzl A, England E, Kadlowec J, Iftode C, Vernengo J (2015) Thermogelling Bioadhesive Scaffolds for Intervertebral Disc Tissue Engineering: Preliminary In Vitro Comparison of Aldehyde-Based Versus Alginate Microparticle-Mediated Adhesion, Acta Biomater. 15:71-80.

Wiltsey C, Kubinski P, Christiani T, Toomer K, Sheehan J, Branda A, Kadlowec J, Iftode C, Vernengo J (2013) Characterization of Injectable Hydrogels Based on Poly(N-isopropylacrylamide)-g-chondroitin sulfate with Adhesive Properties for Nucleus Pulposus Tissue Engineering, J Mater Sci: Mater Med. 24:837-847.

Ileana Soto Reyes

Assistant Professor
Molecular & Cellular Biosciences

sotoreyes@rowan.edu
http://users.rowan.edu/~sotoreyes/index.html

Education:
BS (Life Sciences), University of Puerto Rico
PhD (Biology) School of Medicine, University of Puerto Rico
Postdoctoral (Neuroscience), Johns Hopkins University
Postdoctoral (Genetics/Neuroscience, The Jackson Laboratory

Research Expertise:
Neurodegeneration | Mouse Genetics | Neuroinflammation

My primary research focus is on the role of inflammation in neurodegenerative diseases such as Niemann Pick Type-C disease. In particular, emerging evidence suggests that neuroinflammation, a carefully controlled infiltration of specific immune cells into the tissue, may be critical for neuronal damage. The interplay between neurons, resident support, endothelial cell and infiltrating immune cells (particularly monocytes) is complex. Therefore I will apply cellular and genetic approaches to critically assess the role of the different cell types in neurodegenerative diseases.

Honors and Awards:
The Jackson Laboratory Postdoctoral Fellowship, NIH T32 training grant, 2009-2011

Member of:
Society for Neuroscience (SFN.org)
American Society for Cell Biology (ASCB)

Recent Publications:
Soto I, Grabowska WA, Onos KD, Graham LC, Jackson HM, Simeone SN, Howell GR (2016) Meox2 haploinsufficiency increases neuronal cell loss in a mouse model of Alzheimer's disease. Neurobiol Aging, 42:50-60.

Graham LC, Harder JM, Soto I, de Vries WN, John SW, Howell GR (2016) Chronic consumption of a western diet induces robust glial activation in aging mice and in a mouse model of Alzheimer's disease. Sci Rep, 6:21568.

Soto I, Graham LC, Richter HJ, Simeone SN, Radell JR, Grabowska W, Howell MC, Howell GR (2015) APOE stabilization by exercise prevents aging neurovascular dysfunction and complement induction. PLOS Bio 13:e1002279.

Soto I, Howell GR, John CW, Kief JL, Libby RT and John SW (2014) DBA/2J mice are susceptible to diabetic nephropathy and diabetic exacerbation of IOP elevation. PLOS One 9:e107291

Howell GR*, Soto I*, Ryan M, Graham LC, Smith RS, John SW (2013) Deficiency of complement component 5 ameliorates glaucoma in DBA/2J mice. J Neuroinflammation 10:76.

Physics & Astronomy

Tabbetha A. Dobbins

Associate Professor
Physics & Astronomy/Molecular & Cellular Biosciences

dobbins@rowan.edu
http://users.rowan.edu/~dobbins/

Education:
BS (Physics), Lincoln University (PA)
MS (Materials Science & Engineering), The University of Pennsylvania
PhD (Materials Science & Engineering), The University of Pennsylvania
Postdoctoral, National Institute of Standards and Technology

Research Expertise:
Synchrotron X-ray Studies | Neutron Scattering | Hydrogen Storage

My research interests are in two major areas: neutron and synchrotron X-ray studies for understanding reaction mechanism in metal hydrides and developing nanomaterials for enhancing cancer therapy.

Honors and Awards:
National Research Council Post-Doctoral Fellowship
Penn State University Alumni Association Achievement Award
National Science Foundation Early Faculty Career Award

Member of:
American Physical Society (www.aps.org)
National Society of Black Physicists (https://nsbp.org)
ASM International (http://www.asminternational.org/)
Materials Research Society (www.mrs.org)

Recent Publications:
NaraseGowda S, Brown CM, Tyagi M, Jenkins T, Dobbins TA (2016) Quasi-Elastic Neutron Scattering Studies of Hydrogen Dynamics for Nanoconfined NaAlH4. J Phys Chem C. 120:14863-73.

Wood B, Ham K, Hussey DS, Jacobson DL, Faridani A, Kaestner A, Vajo JJ, Liu P, Dobbins TA, Butler LG (2014) Real-Time Observation of Hydrogen Absorption by LaNi5 with Quasi-Dynamic Neutron Tomography. Nucl Instr Meth Phys Res B: Beam Interactions with Materials and Atoms. 324:95-101.

Hu X, Duki S, Forys J, Hettinger J, Buchicchio J, Dobbins T, Yang C (2014) Designing Silk-silm, Protein Alloy Materials for Biomedical Applications. J Vis Exp. 90:E50891.

Dobbins T, NaraseGowda S, Butler L (2012) Study of the Morphological Changes in MgH2 Destabilized LiBH4 Systems using Computed X-ray Microtomography. Materials. 5:1740-1751.

Dobbins T, Chevious R, Lvov Y (2011) The Behavior of Na+-Polystyrene Sulfonate at the Interface with Single-Walled Carbon Nanotubes (SWNTs) and Its Implication to SWNT Suspension Stability. Polymers. 3:942-954.

Eduardo V. Flores

Associate Professor
Physics & Astronomy

flores@rowan.edu
http://users.rowan.edu/~flores/

Education:
BS (Physics), NYU Polytechnic Institute
PhD (Theoretical Physics), University of Michigan

Research Expertise:
Elementary Particle Physics | Foundations of Quantum Physics

I study the paradoxes of quantum physics, a theoretical problem. Quantum physics numerical predictions are outstanding at all the available energy levels. However, the same is not true about the interpretation of quantum physics. Standard quantum theory contains a paradox known as the wave-particle duality paradox, that is, how the same object could sometimes be extended as to produce wave motion yet when detected it is a dot on a screen. This paradox might be symptomatic of a theory with intrinsic problems or a theory with an incorrect interpretation of its results. The mathematical success of quantum mechanics points to a problem with the interpretation of the theory. My present research is a quest to resolve the wave-particle duality paradox. The importance of finding a model that would explain this paradox is to open a new frontier in our understanding of the microscopic world. Another reason for my interest is its connection with quantum gravity. Quantum gravity is the major problem in theoretical particle physics. In my work I am proposing that the solution to the quantum gravity problem is linked to the solution of the wave-particle duality paradox.

Recent Publications:

Flores E (2010) Ether, the theory of relativity and quantum mechanics, Space, Time and Spacetime, Physical and Philosophical Implications of Minkowski's Unification of Space and Time, (V Petkov, Ed.) XII Springer.

Flores EV, De Tata JM (2010) Complementarity Paradox Solved: Surprising Consequences. Foundations of Physics, 40:1731-1743.

Buonpastore R, Flores E, Knoesel E (2010) Diffraction of Coherent Light with Sinusoidal Amplitude by a Thin-Slit Grid. Optics 121:1009-1012.

Eddie J. Guerra

Associate Professor
Physics & Astronomy

guerra@rowan.edu
http://elvis.rowan.edu/~guerra/

Education:
BS (Engineering Physics with Honors), University of California at Berkeley
MA (Physics), Princeton University
PhD (Physics), Princeton University
Postdoctoral (Physics), Gravity Group, Princeton University

Research Expertise:
Active Galaxies | Cosmology | Galaxy Photometry | Diversity in Science

Active galactic nuclei (AGN) are among the most distant objects observed, and the light we observe from AGN originated billions of years ago. Many advances in cosmology have come from precise measurements of the cosmic microwave background at radio wavelengths. My astronomy research has an observational emphasis, although the motivations arise out of theoretical issues raised in the study of AGN and cosmology. This includes past work in radio interferometry, theoretical studies, and recent work on a program of CCD photometry using the 0.4-meter telescope atop Science Hall.

I have a commitment to diversity in science that includes collaborations with county colleges to recruit Latino students to science programs at Rowan University

Member of:
American Astronomical Society
Society for Advancement of Chicanos/Hispanics and Native Americans in Science

Most Recent Publications:
Daly RA, Mory MP, O'Dea CP, Kharb P, Baum S, Guerra EJ, Djorgovski SG (2009) Cosmological Studies with Radio Galaxies and Supernovae, Astrophysical Journal. 691:1058.

Kharb P, O'Dea CP, Baum S, Daly RA, Mory MP, Donahue M, Guerra EJ (2008) A study of 13 Powerful Classical Double Radio Sources, Astrophysical Journal Supplement Series. 174:74. [Erratum (2011) 196:14]

Jeffrey Hettinger

Professor
Physics & Astronomy/Molecular & Cellular Biosciences

hettinger@rowan.edu

Education:
BA (Physics), Mansfield University
PhD (Physics), Boston University
Postdoctoral (Materials Science Division), Argonne National Laboratory

Research Expertise:
Thin Film Synthesis | Materials Characterization | Materials Processing

My current research includes:
Broad spectrum bactericidal coatings are focused on silver-eluting coatings and the control of the elution rates. These coatings are synthesized by the sputtering of silver in an oxygen-rich reactive environment forming highly soluble silver oxide coatings with excellent adhesion to surfaces with bactericidal silver-ion elution rates much higher than nanoparticle silver.

Carbide-derived carbon (CDC) is a porous carbon material with a very narrow pore-size distribution. This material is synthesized by extracting reactive metals from binary or ternary carbides creating a coordinated network of mesoscopic pores. The pore-size distribution is influenced by the method used for extraction and parameters (temperature, reactive gas ow rate, etc.) used in the conversion. Our group has investigated the role of pre-cursor crystal structure on the ultimate performance of the CDC in a double layer capacitor.

The role of microstructure and composition in determining the performance of neuro-stimulation electrode coating materials has been investigated. The goal of this work is to optimize the charge transfer rate between the charge carriers in the coating and ionic charge in solution. The microstructure can be adjusted by adjusting the substrate, the substrate surface roughness and the coating deposition parameters.

Experiment Techniques:
Sputtering, optical lithography, XRD, RIE, SEM, AFM, FIB, EDS, WDXRF, specific heat, thermal transport, electrical transport, magnetization and magnetic susceptibility.

Member of:
Materials Research Society
American Physical Society
Society of Vacuum Coaters

Recent Publications:
Carroll J, Krchnavek R, Lunk C, Scabarozi T, Lo and S, Hettinger J (2014) An investigation of the properties of epitaxial chromium-substituted vanadium carbide thin lms, Vacuum. 109:212.

Fordham WR, Redmond S, Westerland A, Cortes EG, Walker C, Gallagher C, Medina CJ, Waecther F, Lunk C, Ostrum RF, Caputo GA, Hettinger JD, Krchnavek RR (2014) Silver as a Bactericidal Coating for Biomedical Implants. Surface & Coatings Technology. 253:52.

Hu X, Duki S, Forys J, Hettinger J, Buchicchio J, Dobbins T, Yang C (2014) Designing Silk-silk Protein Alloy Materials for Biomedical Applications. J Vis Exp. (90), e50891.

Xiao Hu
Associate Professor
Physics & Astronomy/Molecular & Cellular Biosciences/Biomedical Engineering

hu@rowan.edu
http://users.rowan.edu/~hu/

Education:
BS (Crystal and Material Physics), Nanjing University
MS (Physics), Tufts University
MS (Biomedical Engineering), Tufts University
PhD (Polymer and Biophysics), Tufts University
Postdoctoral (Tissue Engineering), Tuft University

Research Expertise:
Protein-based Biomaterials | Polymer Physics | Tissue Engineering | Controlled Drug Release and Delivery | Biosensor and Nanomedicine

My research focus is on protein or biopolymer materials, including fibrous proteins (silks, elastins, resilins, keratins, collagens), variable plant proteins (zeins, soy proteins, etc.) and other recombinant or natural polymers, and their related engineering technologies to control the self-assembly of these polymer systems into functional materials. These materials can be fabricated into tunable forms such as films, gels, particles, fibers, or composites, and can be widely used for different green or biomedical technologies, including tissue regeneration medicine, disease model, controlled drug delivery and release, antibody and vaccine storage, flexible biosensors, green plastics, biophotonics, and nano-biotechnology.

Honors and Awards:
Rising Innovator Award, Rowan University (2016)

Recent Academic Projects:
Flexible Protein Sensor Materials for Controlled Drug Delivery and Release (NJHF)
Continuous Processing for Improved Properties of Nanofibers (NSF)

Recent Publications:
Wang F, Aravind SSJ, Wu H, Forys J, Venkataraman V, Ramanujachary K, Hu X (2017) Tunable green graphene-silk biomaterials: Mechanism of protein-based nanocomposites. Mater Sci Eng C 79:728-739.

Torculas M, Medina J, Xue W, Hu X (2016) Protein Based Bioelectronics. ACS Biomater Sci Eng. 2:1211-1223.

Wang F, Wolf N, Rocks E-M, Vuong T, Hu X (2015) Comparative studies of regenerated water-based Mori, Thai, Eri, Muga and Tussah silk fibroin films. J Therm Anal Calorim. 122:1069-1076.

Hu X, Raja WK, An B, Takarova O, Cebe P, Kaplan DL (2014) Stability of Silk and Collagen Protein Materials in Space. Sci Rep. 3:3428.

Hu X, Tang-Schomer MD, Huang W, Xia X-X, Weiss AS, Kaplan DL (2013) Charge-Tunable Autoclaved Silk-Tropoelastin Protein Alloys That Control Neuron Cell Responses. Adv Funct Mater. 23:3875-3884.

Qin G*, Hu X*, Cebe P, Kaplan D (2012) Mechanism of resilin elasticity. Nature Commun. 3:1003.

David R. Klassen

Professor & Department Chair
Physics & Astronomy

klassen@rowan.edu
http://www.rowan.edu/colleges/csm/departments/physics/facultySta_/moreinfo.cfm?id=215

Education:
BS (Astrophysics & Math), University of Minnesota
PhD (Physics), University of Wyoming
Postdoctoral, Cornell University

Research Expertise:
Planetary Science | Infrared Observational Astronomy | Computational Physics

My primary area of research interest is understanding how clouds affect the water cycle and climate of Mars. On the observational side I use ground-based (NASA-IRTF) and spacecraft (MRO-CRISM) near-infrared spectral images to track and measure the ice abundance in clouds over diurnal, seasonal, and interannual timescales. More recently, I have begun working on the climate modeling side of the problem—working out a way to convert General Circulation Model outputs into synthetic spectra that can be more directly compared to spacecraft data. My work is done in collaboration with scientists at the Space Science Institute, NASA Goddard Space Flight Center, and NASA Ames Research Center. My work has been funded by both NASA and the NSF. Over the years I have had the pleasure of training a multitude of Rowan undergraduates in astronomical image processing and analysis.

Member of:
American Astronomical Society-Division for Planetary Sciences
American Geophysical Union
American Association of Physics Teachers
New Jersey AAPT
Astronomical Society of the Pacific
Planetary Society

Recent Academic Projects:
I am working with the Education & Public Outreach Subcommittee of the Division for Planetary Sciences of the American Astronomical Society to create and maintain a web guide for undergraduate students and advisors to all the graduate programs in which a PhD can be earned within the field of Planetary Science.

Recent Publications:
Klassen, DR, Kahre, MA, Wolff, MJ, Haberle, RM, Hollingsworth, JL (2017) Modeling MARCI and TES Aphelion Cloud Belt Optical Depth Peak Differences with the Ames MGCM, In The Mars Atmosphere: Modeling and Observation, January 17–20 2017, Granada, Spain. Forget F, Millour M, ed. pp. 3212.

Klassen DR (2016) Principal components analysis of Martian NIR image cubes to retrieve surface spectral endmembers. PASP 128:074501.

Michael J. Lim

Professor
Physics & Astronomy

lim@rowan.edu

Education:
BS (Physics), Harvard College
PhD (Physics), University of Michigan, Ann Arbor
Postdoctoral (Physics), National Institute of Standards and Technology, Gaithersburg
Postdoctoral (Physics), Bryn Mawr College

Research Expertise:
Ultracold plasmas | Fiber-coupled confocal microscopy | Laser-induced breakdown spectroscopy

Current projects:
Formation of ultracold atomic plasmas (UCPs). Recombination dynamics in UCPs formed by photoionization of ultracold neutral atoms.

Fiber-coupled confocal microscope for fluorescence correlation spectroscopy to study micelle dynamics. Collaboration with Nathaniel Nucci, Rowan Physics and Rowan MCB.

Member of:
American Physical Society (www.aps.org)

Recent Academic Projects:
Philadelphia-Singapore Optics Research Experience for Undergraduates:
        10-week summer program for Philadelphia-area physics majors to perform experimental atomic physics and photonics research at Nanyang Technological University in Singapore. Funded by NSF-IRES

Recent Publications:
Siercke M, Oon FE, Mohan A, Wang Z. W, Lim MJ, Dumke R (2014) Density dependence of the ionization avalanche in ultracold Rydberg gases. Phys Rev A. 89:022701.

Siercke M, Chan K.S, Zhang B, Beian M, Lim MJ, Dumke R (2012) Reconfigurable self-sufficient traps for ultracold atoms based on a superconducting square. Phys Rev A. 85:041403(R).

Zhang B, Siercke M, Chan KS, Beian M, Lim MJ, Dumke R (2012) Magnetic confinement of neutral atoms based on patterned vortex distributions in superconducting disks and rings. Phys Rev A. 85:013404.

Siercke M, Chan KS, Zhang B, Lim MJ, Dumke R (2011) Superconducting atom chips, Proc Intl Quant Elec Conf and CLEO Pacific Rim 2011 (Optical Society of America). I414.

Mueller T, Zhang B, Fermani R, Chan KS, Lim MJ, Dumke R (2010) Programmable trap geometries with superconducting atom chips. Phys Rev A. 81:053624.

Zhang B, Fermani R, Mueller T, Lim MJ, Dumke R (2010) Design of magnetic traps for neutral atoms with vortices in type-II superconducting micro-structures, Phys Rev A. 81:063408.

Hong Y. Ling

Professor
Physics & Astronomy

ling@rowan.edu

Education:
BS (Physics), Jiaxin Teacher's College (currently known as Huzhou University),
    Huzhou, P. R. China.
MS (Optics), Xian Institute of Optics and Fine Mechanics, Academia Sinica, Xian, P. R. China.
PhD (Physics), Drexel University

Research Expertise:
Cold Atom | Condensed Matter | Quantum Optics

My research interests include atomic and molecular physics, condensed matter physics, and quantum optics. The focus of my research is on low-temperature many-body systems which, depending on whether their constituents, are bosons or fermions or mixtures of both, can exhibit different but equally fascinating quantum effects at the macroscopic level. The experimental progress in cold atom physics has enabled such phenomena, which were only accessible to a few isotopes in solid state systems, such as 3He and 4He, to be studied in cold atom quantum gases. Of particular relevance are multi-component quantum gases which can exist as Bose-Bose, Fermi-Fermi, and Bose-Ferm binary mixtures, and as Bose-Bose-Bose, Fermi-Fermi-Bose, and Bose-Fermi-Fermi ternary mixtures. The list of possible quantum gases in cold atom systems, thus, seems endless in view of the rich existence of atomic elements and their isotopes in nature. Examples of my current research include exotic phases with unconventional Cooper pairings, nonequilibrium phenomena, polarons, etc., in a strongly interacting quantum gases either in continues or in lattice models.

Honors and Awards:
Rowan University Research Achievement Award 2011
KITP Scholar 2013-2015, Kavli Institute for Theoretical Physics, University of California, Santa Barbara, CA

Member of:
American Physical Society
Anacapa Society

Recent Publications:
Kain B, Ling HY (2014) Nonequilibrium states of a quenched Bose gas. Phys Rev A. 90:063626.

Kain B, Ling HY (2014) Polarons in a dipolar condensate. Phys Rev. A 89:023612.

Kain B, Ling HY (2013) Roton-assisted chiral p-wave super fluid in a quasi-two-dimensional dipolar Bose-Fermi quantum-gas mixture. Phys Rev A. 88:033616.

Kain B, Ling HY (2012) Cosmological inhomogeneities with Bose-Einstein condensate dark matter. Phys Rev D. 85:023527.

Samuel E. Lofland

Professor
Physics & Astronomy

lofland@rowan.edu
http://users.rowan.edu/~lofland/

Education:
BS (Physics, High Honors), University of Maryland
BS (Mathematics), University of Maryland
MS (Physics), University of Maryland
PhD (Physics), University of Maryland
Postdoctoral Fellowship (Condensed Matter Physics), University of Maryland

Research Expertise:
Magnetic Materials | Thermal Materials | Strongly Correlated Systems

My work is centered on the development and understanding of advanced materials and subsequent applications. Much of the research is interdisciplinary by nature.

Honors and Awards:
Inaugural recipient, Rowan University Award for Excellence in Research, 2007
Society of Physics National Advisor of the Year, 2009

Member of:
American Physical Society
IEEE

Recent Publications:
Jha M, Kumar S, Garg N, Ramanujachary KV, Lofland SE, Ganguli AK (2018) Microemulsion based approach for nano-spheres assembly into anisotropic nanostructures of NiMnO3 and their magnetic properties J Sol State Chem. 258:722-727.

Goderecci SS, Kaiser E, Yanakas M, Norris Z, Scaturro J, Oszust R, Medina CD, Waechter F, Heon M, Krchnavek RR, Yu L, Lofland SE, Demarest RM, Caputo GA, Hettinger JD (2017) Silver oxide coatings with high silver-ion elution rates and characterization of bactericidal activity. Molecules 22:1487.

Pavlishchuk AV, Kolotilov SV, Zeller M, Lofland SE, Thompson LK, Addison AW, Hunter AD (2017) High Nuclearity Assemblies and One-Dimensional (1D) Coordination Polymers Based on Lanthanide–Copper 15-Metallacrown-5 Complexes (LnIII= Pr, Nd, Sm, Eu). Inorg Chem. 56:13152-13165.

Mahmoudi G, Chowdhury H, Lofland SE, Ghosh BK, Kirillov AM (2017) Two manganese (II) coordination polymers driven by (iso) nicotinoyl-hydrazone blocks and pseudohalide ancillary ligands: Syntheses, structural features, and magnetic properties J Coord Chem. 70:1973-1983.

Saha S, Vaidya S, Ramanujachary KV, Lofland SE, Ganguli AK (2016) Ternary alloy nanocatalysts for hydrogen evolution reaction. Bull Mater Science 39:433-436.

Abedi M, Yeşilel OZ, Mahmoudi G, Bauzá A, Lofland SE, Yerli Y, Kaminsky W, GarczarekP, Zaręba JK, Ienco A, Frontera, Gargari MS (2016) Tetranuclear manganese(II) complexes of hydrazone and carbohydrazone ligands: Synthesis, crystal structures, magnetic properties, Hirshfeld surface analysis and DFT calculations. Inorg Chim Acta. 443:103-109.

Karen Magee-Sauer

Dean, College of Science & Mathematics
Professor, Physics & Astronomy

sauer@rowan.edu
www.rowan.edu/csm

Education:
BS (Physics), University of Virginia, Charlottesville
MS (Physics), University of Wisconsin-Madison
PhD (Physics), University of Wisconsin-Madison
Postdoctoral (Physics), University of Delaware, Bartol Research Institute

Research Expertise:
Cometary atmospheres | Infrared spectroscopy | Physics education

I currently serve as the Dean of the College of Science & Mathematics and the School of Health Professions. I also am the Principal Investigator for the PhysTEC comprehensive site award to Rowan University. The goals of Rowan's PhysTEC work is to recruit, retain, and train future high school physics teachers. As Dean, I continue my work leading the PhysTEC grant and also am committed to evidence-based instruction in math and science.

Prior to becoming the Dean, my research field in planetary sciences was supported by the National Science Foundation's Research at Undergraduate Institutions (RUI) program and NASA's Planetary Astronomy program for 13 years. I collaborated with scientists at the NASA Goddard Space Flight Center in Greenbelt, MD. This collaboration involved the composition and behavior of comets by observing the infrared emission of cometary molecules. The telescopes for these investigations were the NASA Infrared Telescope Facility and the W.M. Keck telescope, both atop of Mauna Kea (14,000 ft) on the Big Island of Hawaii.

Honors and Awards:
Lindback Distinguished Teaching Award, 2007
PhysTEC, Comprehensive Site Award: Recruiting and Training of High School Physics Teachers

Member of:
American Astronomical Society, Division for Planetary Science, International Astronomical Union, American Association of Physics Teachers

Recent Publications:
Villanueva GL, Magee-Sauer K, Mumma MJ (2013) Modeling of nitrogen compounds in cometary atmospheres: Fluorescence models of ammonia (NH_3), hydrogen cyanide (HCN), hydrogen isocyanide (HNC) and cyanoacetylene (HC_3N). J Quant Spectrosc Radiat Transf. 129:158-168.

Villanueva GL, Mumma MJ, Magee-Sauer K (2011) Ethane in planetary and cometary atmospheres: Transmittance and fluorescence models of the v7 band at 3.3 μm. J Geophys Res. 116:E08012.

Meech KJ, A'Hearn MF, Adams JA, Bacci P, Bai J, Barrera L, ... Ziffer JE (2011) EPOXI: Comet 103P/Hartley 2 observations from a worldwide campaign. Astrophys J Lett, 734:L1.

Nathaniel V. Nucci

Assistant Professor
Physics & Astronomy/Molecular & Cellular Biosciences

nucci@rowan.edu

Education:
BS (Biochemistry and Molecular Biology), University of New Hampshire
MS (Biochemistry and Molecular Biology), University of New Hampshire
PhD (Biochemistry and Molecular Biophysics), University of Pennsylvania
Postdoctoral (Biochemistry and Biophysics), University of Pennsylvania

Research Expertise:
NMR Spectroscopy | Reverse Micelle Technology | Protein Biophysics

Nuclear Magnetic Resonance (NMR) is a state-of-the-art spectroscopic method that provides both spatial and temporal information on the atomic level. This technology is especially insightful when examining macromolecules, but various technical challenges limit the size of the molecules that can be easily studied. I have unique expertise in the application of reverse micelle technology to the NMR-based investigation of macromolecular structure and dynamics. This special skill set allows my research group to ask a range of innovative questions about the ways biological systems function at the molecular level. In addition to NMR, we utilize UV/Visible absorption and fluorescence spectroscopy to investigate biomolecular structure and function. We are also developing an apparatus that combined fluorescence correlation microscopy with microfluidics to study chemical dynamics and the impacts of macromolecular crowding on protein function. Present projects include study of antifreeze protein function, nanoscale confinement effects on protein structure and function, structure/function studies of the hypoxia-inducible factor prolyl hydroxylases, and applications of reverse micelles such as drug delivery and manufacture of quantum dots.

Honors and Awards:
New Jersey Health Foundation Research Grant 2016-2017

Member of:
American Association for the Advancement of Science
Biophysical Society
American Chemical Society

Recent Publications:
Nucci NV (2017) New insight on the S100A1–STIP1 complex highlights the important relationship between allostery and entropy in protein function. Biochem J. 474:2977-2980.

O'Brien ES, Nucci NV, Fuglestad B, Tommos C, Wand AJ (2015) Defining the interaction interface between cytochrome c and cardiolipin using reverse micelle NMR. J Biol Chem. 209:30879-30887.

Nucci NV, Fuglestad B, Athanasoula EA, Wand AJ (2014) Role of cavities and hydration in the pressure unfolding of T4 lysozyme. Proc Natl Acad Sci USA. 111:13846-13851.

Nucci NV, Valentine KG, Wand AJ (2014) High-resolution NMR spectroscopy of encapsulated proteins dissolved in low-viscosity fluids. J Magn Reson. 214:137-147.

Trevor I. Smith

Assistant Professor
Physics & Astronomy/STEAM Education

smithtr@rowan.edu
http://users.rowan.edu/~smithtr/

Education:
BS (Physics), University of Maine
MST (Physics), University of Maine
PhD (Physics), University of Maine

Research Expertise:
Physics Education Research

I study how people think about and learn physics. My major work has focused on developing instructional strategies for advanced undergraduate thermal physics courses. My current research centers on how students use and reason about mathematics in both introductory and advanced physics courses, and the ways in which they synthesize various pieces of information to form a coherent understanding of a particular topic. I am particularly interested in using statistical analyses to measure how student understanding of a particular topic changes during a course.

Honors and Awards:
Invited Plenary Speaker at the Foundations and Frontiers of Physics Education Research Conference 2017
Physics Education Research Conference Proceedings Paper Award Finalist 2010

Member of:
American Association of Physics Teachers (www.aapt.org)
American Physical Society (www.aps.org)

Recent Academic Projects:
Measuring and representing student learning in introductory physics: A main goal of this project is to use statistical analyses to measure the relative "correctness" of various responses to common multiple-choice tests. These results may be used to show how students' understanding of physics develops during a course, even if they do not choose the correct response.

Recent Publications:
Griffin IT, Louis KJ, Moyer R, Wright NJ, Smith TI (2016) A Multi-faceted Approach to Measuring Student Understanding. In Jones D L, Ding L, Traxler A, ed. 2016 Phys Educ Res Conf.

Smith TI (2016) Representing uncertainty on model analysis plots. Phys Rev Phys Educ Res. 12:023102.

Smith TI (2015) Telling new stories by reanalyzing old data: FMCE edition. In Churukian AD, Jones D L, Ding L, ed. 2015 Phys Educ Res Conf.

Smith TI, Mountcastle DB, Thompson JR (2015) Student understanding of the Boltzmann factor. Phys Rev ST Phys Educ Res. 11:020123.

Nicholas Whiting

Assistant Professor
Physics & Astronomy/Molecular & Cellular Biosciences

whitingn@rowan.edu

Education:
BS (Chemistry), Southern Illinois University
PhD (Physical Chemistry), Southern Illinois University
Postdoctoral (Magnetic Resonance), University of Nottingham (UK)
Postdoctoral (Cancer Systems Imaging), The University of Texas MD Anderson Cancer Center

Research Expertise:
Hyperpolarized Magnetic Resonance | Molecular Imaging | Nanotherapeutics

My research focuses on improving nuclear magnetic resonance spectroscopy (NMR) and imaging (MRI) through the development of hyperpolarization methodologies, which temporarily improve NMR & MRI signals by several orders of magnitude through enhanced nuclear spin alignment. My primary goal is to apply these techniques to biocompatible nanomaterials, which can be utilized for both targeted molecular imaging and novel therapeutics. Along with developing additional MR-based contrast agents, I am also interested in determining the effects from prolonged usage of electronic nicotine delivery systems.

Honors and Awards:
Harold C. and Mary L. Daily Endowed Fund Fellowship 2016
Diane Denson Tobola Endowed Fellowship in Ovarian Cancer Research 2015
National Cancer Institute R25T Postdoctoral Fellowship in Cancer Prevention Research 2012
MD Anderson Cancer Center Odyssey Recruitment Postdoctoral Fellowship 2012
Baxter Young Investigator Award 2012
National Science Foundation International Research Postdoctoral Fellowship 2010
Participant: 57th Meeting of Nobel Laureates and Student Researchers in Lindau, Germany 2007

Recent Publications:
Whiting N, Hu J, Millward NZ, Lokesh GLR, Volk DE, Menter DG, Rupaimoole R, Previs R, Sood A, Bhattacharya PK (2016) Developing hyperpolarized silicon particles for in vivo MRI targeting of ovarian cancer. J Med Imag. 3:036001.

Whiting N, Hu J, Shah J, Cassidy MC, Cressman E, Millward NZ, Menter DG, Marcus CM, Bhattacharya PK (2015) Real-time MRI-guided catheter tracking using hyperpolarized silicon particles. Sci Rep. 5:12842.

Newton H, Walkup LL, Whiting N, West L, Carriere J, Havermeyer F, Ho L, Morris P, Goodson BM, Barlow MJ (2014) Comparative study of in situ N2 rotational Raman spectroscopy methods for probing energy thermalisation processes during spin-exchange optical pumping. Appl Phys B. 115:167-172.

Nikolaou P, Coffey A, Walkup L, Gust B, Whiting N, Newton H, Barcus A, Muradyan I, Moroz GD, Rosen M, Patz S, Barlow MJ, Chekmenev E, Goodson BM (2013) Near-unity nuclear polarization with an 'open-source' 129Xe hyperpolarizer for NMR and MRI. Proc Nat Acad Sci USA. 110:14150-14155.

Psychology

Bonnie L. Angelone
Associate Professor
Psychology

angelone@rowan.edu

Education:
BA (Psychology), University of Tulsa
MA (Experimental Psychology: Cognitive), Kent State University
PhD (Experimental Psychology: Cognitive), Kent State University

Research Expertise:
Visual Attention | Change Detection | Working Memory

Generally I study visual attention; it has been thought that we retain an accurate portrayal of our visual world simply by using our sense of vision. However, people are often poor at detecting large changes in their visual environment and they miss important information when their attention is focused on a primary task. My research focuses on examining factors that influence people's ability to detect visual information that is vital to an accurate representation, because in many situations it is this information that if missed can lead to deleterious effects. There are many image properties that can affect visual attention, such as salience, scene context, and complexity. In addition, there may be factors within the individual that influence visual attention abilities, such as expertise and working memory capacity.

Honors and Awards:
Nomination, Lindback Distinguished Teaching Award, Rowan University 2014
Wall of Fame Teaching Award, Rowan University 2008

Member of:
Vision Sciences Society (www.visionsciences.org)
Psychonomic Society (www.psychonomic.org)

Recent Publications:
Angelone BL, Hass RW, Cohen M (2016) Skill transfer in visual-arts expertise. Psychol Aesthet Creat Arts. 10:147-156.

Angelone BL, Beck MR (2013) Change detection performance in naturalistic scenes: The influence of visual working memory for identity and spatial locations. Current Research in Psychology, 3:49-59.

Levin DT, Angelone BL, Beck MR (2011) Visual search for rare targets: Distracter-tuning as a mechanism for learning from repeated target-absent searches. Br J Psychol. 102:313-327.

D.J. Angelone

Professor
Psychology

angeloned@rowan.edu
www.rowan.edu/assertlab

Education:
BA (Psychology), California State University
MA (Clinical Psychology), Kent State University
PhD (Clinical Psychology), Kent State University

Research Expertise:
Sexual Victimization | Perpetration, Sexual Risk Taking, Perceptions of Sexual Aggression, Substance Abuse, Post Traumatic Stress Disorder (PTSD), Readiness to Change Processes

My research agenda includes laboratory based experimental research examining 1) men's engagement in sexually aggressive behavior, 2) women's risk recognition for sexually inappropriate behaviors, and 3) observer perceptions of sexually aggressive behavior. I developed an alcohol administration laboratory to examine intoxication as a precursor to sexual decision-making. I also use survey-based methods to understand the correlates of sexually aggressive and risky behaviors, as well as factors related to successful substance abuse treatment and twelve-step engagement.

Honors and Awards:
Rowan University Teaching and Advising Wall of Fame
Society for the Scientific Study of Sexuality Outstanding mentor

Member of:
American Psychological Association,
International Academy of Sex Research
Research Society on Alcoholism
Society for the Scientific Study of Sexuality

Recent Publications:
Angelone DJ, Marcantonio TL, Melillo J (2017) An evaluation of adolescent and young adult sexual (re)victimization experiences: Problematic substance use and negative consequences. Violence Against Women. Epub ahead of print.

Angelone DJ, Mitchell D, Smith D (2016) The influence of gender ideology, victim resistance, and spiking a drink on acquaintance rape attributions. J Interpers Violence. Epub ahead of print.

Marcantonio T, Angelone DJ, Sledjeski E (2016) Using a pattern centered approach to assess sexual risk taking in study abroad students. J Am Coll Health. 64:165-173.

Angelone DJ, Mitchell D, Grossi L (2015) Men's perceptions of an acquaintance rape: The role of relationship length, victim resistance, and gender role attitudes. J Interpers Violence. 30:2278-2303.

Roberta Dihoff

Professor
Psychology

dihoff@rowan.edu

Education:
BA (Psychology), Rutgers University
MA (Child Development) Universty of Wisconsin- Madison
PhD (Human Development) University of Wisconsin-Madison

Research Expertise:
Clinical child development and assessment

The majority of my research focuses on the factors affecting and techniques to improve performance in children, especially those with developmental challenges. I have worked with young children (0-5) in several States since 1993 in a variety of capacities, including medical settings.

Honors and Awards:
Previous Executive Officer for Eastern Psychological Association

Member of:
Eastern Psychological Association

Recent Publications:
Brosvic GM, Dihoff RE, Epstein ML, Cook MJ. (2006) Feedback Facilitates the Acquisition and Retention of Numerical Fact Series by Elementary School Students with Mathematics Learning Disabilities. The Psychological Record, 56(1) 35-54.

Brosvic GM, Cook MJ, Dihoff RE, Epstein ML. (2006) Acquisition and Retention of Esperanto: The Case for Error Correction and Immediate Feedback. The Psychological Record, 56(2) 205-218.

Brosvic GM, Epstein ML, Cook MJ, Dihoff RE. (2005) Efficacy of Error for the Correction of Initially Incorrect Assumptions and of Feedback for the Affirmation of Correct Responding: Learning in the Classroom. The Psychological Record, 55(3) 401-418.

Dihoff RE, Brosvic GM, Epstein ML, Cook MJ. (2005) Adjunctive role for immediate feedback in the acquisition and retention of mathematical fact series by elementary school students with mild mental retardation, The Psychological Record, 55(1) 39-66.

Thomas J. Dinzeo

Associate Professor
Psychology

dinzeo@rowan.edu
https://academics.rowan.edu/csm/departments/psychology/facultystaff/faculty/dinzeo-tom.html

Education:
BA (Psychology), University of Minnesota
PhD (Clinical Psychology), Kent State University
Postdoctoral research, Yale University School of Medicine

Research Expertise:
Schizophrenia-spectrum disorders | Individual differences | Health and lifestyle

My research focuses on schizophrenia and the schizophrenia-spectrum disorders. I am interested in understanding the individual risk factors that contribute to the development (or exacerbation) of schizophrenia-related disorders. Over the last several years my lab has specifically examined neurocognitive functioning, personality factors, social/interpersonal functioning, & lifestyle behaviors. Recent research has included outpatients with schizophrenia and high-risk samples (e.g. college students with high levels of schizotypy). I am also interested in the relationship between health behaviors (e.g., substance use, stress management, exercise & nutrition) and outcomes in those with schizophrenia-spectrum conditions.

Member of:
American Psychological Association (www.apa.org)
Society for the Teaching of Psychology (http://www.apa.org/about/division/div2.aspx)
Society for Research in Psychopathology (www.psychopathology.org)

Recent Academic Projects:
Current projects include the examination of schizophrenia-spectrum indicators and 1) parental education and income and early life experiences on levels of physical activity and nutrition patterns, 2) the contribution of cognitive and emotional factors in the development of delusional ideation, 3) internet and technology usage related to wellbeing and social functioning, 4) individual differences in physiological response (EEG, blood pressure/heart rate) during visual change detection task. We are also in the process of finalizing a 7-year longitudinal project examining the prediction of academic functioning among college students with varying levels of schizotypy.

Recent Publications:
Dinzeo TJ, Sledjeski EM, Durner C, Docherty NM (2015) A comparative study of personality trait characteristics and reactivity in schizophrenia using a film clip paradigm. Am J Psychol. 128:515-526.

Cohen AS, Dinzeo TJ, Donovan NJ, Brown CE, Morrison SC (2015) Vocal acoustic analysis as a biometric indicator of information processing: Implications for neurological and psychiatric disorders. Psychiatry Res. 226:235-241.

Callaway DA, Cohen AS, Matthews RA, Dinzeo TJ (2014) Schizotypal Personality Questionnaire – Brief Revised: Psychometric replication and extension. Personality Disorders: Theory, Research, and Treatment. 5:32-38.

Dinzeo TJ, Thayasivam U, Sledjeski EM (2014) The development of The Lifestyle and Habits Questionnaire-Brief version: Relationship to quality of life and stress in college students. Prev Sci. 15:103-14.

Dustin A. Fife
Assistant Professor
Psychology

fife@rowan.edu

Education:
BS (Psychology), Brigham Young University, Provo
PhD (Quantitative Psychology), University of Oklahoma
Biostatistician, Oklahoma Medical Research Foundation

Research Expertise:
Missing Data | Data Visualization | Data Mining

Most statistical procedures assume (explicitly or implicitly) that samples were obtained using random selection. Rarely is this the case in Psychology, where convenience samples are frequently used. My research aims to discover how convenience sampling biases parameter estimates and how we can recover population parameters from biased samples. It turns out, if we consider non-random selection as a "missing data" problem, solutions are possible.

Aside from my main research area, I also spend a lot of time thinking and writing about, as well as programming algorithms for large-scale data mining operations. I have developed packages in R that aim to solve "small N, large p" type problems.

Honors and Awards:
Chuck Gettys Award for Outstanding Research in Graduate School, Department of Psychology at
the University of Oklahoma, 2013
Best Paper Award, The Consortium for Student Retention Data Exchange (CSRDE), 2011

Member of:
Academic Educational Research Association

Recent Publications:
Brown M, Fife DA, Guthridge JM, James JA, Monroe ME, Montgomery CG (2017) Association of IFIH1 and pro-inflammatory mediators: Potential new clues in SLE-associated pathogenesis. PloS one, 12: e0171193.

Fife DA, Mendoza JL (2017) Estimating incremental validity under missing data. Multivariate Behav Res. 52:164-177.

Munroe ME, Lu R, Zhao YD, Fife DA, Robertson JM, Guthridge JM, Niewold TB, Tsokos GC, Keith MP, Harley JB, James JA (2016) Altered type II interferon precedes autoantibody accrual and elevated type I interferon activity prior to systemic lupus erythematosus classification. Ann Rheum Dis. 75:2014-2021.

Fife DA, Hunter MD, Mendoza JL (2016) Estimating Unattenuated Correlations with Limited Information about Selection Variables Alternatives to Case IV. Organizational Research Methods, 19:593-615.

Fife DA, Rodgers JL, Mendoza JL (2014) Model conditioned data elasticity in path analysis: Assessing the "confoundability" of the data. Multivariate Behav Res. 49:597-613.

Georita Marie Frierson
Associate Professor & Dean's Fellow
Psychology

friersong@rowan.edu
http://www.rowan.edu/colleges/csm/departments/psychology/facultystaff/moreinfo.cfm?id=1055

Education:
BA (Psychology), Hampton University
MA (Clinical Psychology), The Ohio State University
PhD (Clinical Psychology), The Ohio State University
Internship/Residency (Clinical Psychology),
    The Warren Alpert Medical School at Brown University
Postdoctoral (Clinical Health Psychology),
    The Warren Alpert Medical School at Brown University

Research Expertise:
Psycho-social Oncology | Physical Activity | Community Engagement/Health Disparities

I am a licensed clinical psychologist trained in health psychology and currently an Associate Professor in the Department of Psychology at Rowan University. I am also the Director of Clinical training of the newly formed Ph.D. Program in Clinical Psychology at Rowan University. The two foci of my work with medically under-served populations are in 1) cancer education and control and 2) physical activity interventions or longitudinal designs. I have expanded her cancer survivor research to examine the psychological, behavioral and quality of life outcomes of medically under-served triple negative female breast cancer patients (TNBC; who typically have African American ancestry, BRCA 1 mutation, and/or advanced stage disease).

Honors and Awards:
American Psychological Association Commission for Accreditation: Commissioner (2016-2019)
Association of State and Provincial Psychology Boards (ASPPB)/Job Task Analysis Task Force (2016)
American Psychological Association Accreditation Site Visitor (2015)

Member of:
Society of Behavioral Medicine (SBM)
American Psychological Association (APA)

Recent Publications:
Powers M, Davis ML, Kauffman BY, Bird SO, Zvolensky M, Rosenfield D, Marcus BH, Church TS, Frierson GM, Otto MW, Smits JA (2016) Anxiety sensitivity, smoking variability, and nicotine addiction among treatment seeking smokers. Addict Disord Their Treat. 15:136-142.

Smits JAJ, Zvolensky MJ, Davis MD, Rosenfield D, Marcus BH, Church TS, Powers MB, Frierson GM, Otto MW, DeBoer L, Baird SO (2016) The Efficacy of Vigorous- Intensity Exercise as an Aid to Smoking Cessation in Adults with High Anxiety Sensitivity: A Randomized Controlled Trial. Psychosom Med. 78:354-364.

Jonassaint CR, Jones V, Leong S, Frierson G (2016) A systematic review of the association between depression and health care utilization in children and adults with sickle cell disease. Br J Haematol, 174:136-147.

Anderson BL, Brothers B, Carpenter K, Frierson GM, Shelby R, Thorton L (2015) Dissemination of an evidence-based treatment for cancer patients: training is the necessary first step. Transl Behav Med. 4:103-112.

Jeffrey M. Greeson
Assistant Professor
Psychology

greeson@rowan.edu
www.mindfulnesslab.org

Education:
BA (Psychology), Swarthmore College
MS (Biomedical Chemistry), Thomas Jefferson University
PhD (Clinical Psychology), University of Miami
Post-doctoral (Health Psychology), Duke University Medical Center

Research Expertise:
Health Psychology | Integrative Medicine | Mindfulness & Stress

My translational research program integrates basic science and behavioral medicine to better understand the link between being mindful, and being healthy. In addition to studying clinical outcomes of mindfulness training to reduce stress and stress-related symptoms, we also investigate the underlying mechanisms of mindfulness. These mechanisms include a number of biological and behavioral pathways, ranging from sleep patterns, to stress physiology and stress hormones, to emotion regulation, immune function, and gene expression – all of which are implicated in chronic disease risk.

Honors and Awards:
Fellow, The Institute for Integrative Heath
Distinguished Fellow, NIH/OBSSR Summer Institute in Behavioral RCTs
Ruth L. Kirchstein, NHLBI Institutional Training Grant

Member of:
American Psychological Association (APA)
American Psychosomatic Society (APS)
Association for Behavioral and Cognitive Therapies (ABCT)

Recent Academic Projects:
Mindfulomics: Pioneering the field of Mindfulness, Stress & Health through the 'Omics' Sciences
Serenity Study: NIH-funded, multisite trial to study mindfulness training to reduce stress and lower blood pressure
Serenity NOW: pilot study through Penn Mental Health AIDS Research Center to study mindfulness, HIV & depression

Recent Publications:
Greeson JM (2015) Integrating mindfulness into psychology and medicine: Growing evidence and emerging mechanisms for how to better treat stress-related conditions. The Pennsylvania Psychologist 75:16-17.

Greeson JM, Brantley JG, Smoski MJ, Suarez EC, Ekblad AG, Lynch TR, Wolever RQ (2015) Decreased symptoms of depression after Mindfulness-Based Stress Reduction: Potential moderating effects of religiosity, spirituality, trait mindfulness, gender, and age. J Altern Complement Med 21:166-174.

Greeson JM, Juberg MK, Maytan M, James K, Rogers H (2014) A randomized controlled trial of Koru: A mindfulness program for college students and other emerging adults. J Am Coll Health 62:222-33.

Jim A. Haugh

Associate Professor
Psychology

haugh@rowan.edu
http://theroadresearchlab.wixsite.com/theroad

Education:
BA (Psychology), Baldwin Wallace College
MS (Clinical Psychology), St. Louis University
PhD (Clinical Psychology), St. Louis University
Postdoctoral (Clinical Psychology), University of Michigan

Research Expertise:
Depression and Anxiety | Self-Help | Stepped-Care |Depression & Health |Etiology

My research areas focus on etiology and treatment of depression, anxiety, and co-morbid presentations of depression and anxiety. More specifically, recent investigations have included the utilization and effectiveness of guided bibliotherapy (self-help) to treat individuals with depressive and anxious symptoms, examining treatment preferences for depression and for individuals with cancer experiencing depressive symptoms, exploring stepped-care models of treating subclinical and clinical depression, acceptability and attitudes toward stepped care models, and the influence of state mindfulness and social problem-solving on depressive symptoms.

Honors and Awards:
2016 Rowan University Teaching Wall of Fame

Member of:
American Psychological Association
Division 12 of the APA Division of Clinical Psychology
Division 38 of the APA, Division of Health Psychology
Division 2 of the APA, Division of Teaching of Psychology
Eastern Psychological Association

Recent Publications:
Kirby KC, Benishek LA, Kerwin ME, Dugosh KL, Carpenedo CM, Bresani E, Haugh JA, Washio Y, Meyers RJ (2017) Analyzing Components of Community Reinforcement and Family Training (CRAFT): Is Treatment Entry Training Sufficient? Psychol Addict Behav. Epub ahead of print.

Haugh JA, Miceli M, DeLorme J (2016) Maladaptive parenting, temperament, early maladaptive schemas, and depression: A moderated mediation analysis. J Psychopathol Behav Assess, Epub ahead of print.

O'Brien McElwee R, Haugh JA (2009) Thinking clearly versus frequently about the future self: Exploring this distinction and its relation to possible selves. Self and Identity. 1:1-24.

Gerald E. Hough
Associate Professor
Psychology/Biological Sciences

hough@rowan.edu
http://users.rowan.edu/~hough/

Education:
BS (Biology), Purdue University
PhD (Neuroscience), The Ohio State University
Postdoctoral (Psychology), Bowling Green State University

Research Expertise:
Neuroscience | Electrophysiology | Bioacoustics

My research interests are in two major areas: effects of aging on behavior and hippocampal anatomy, and language dialect analysis in songbirds. The increased lifespan of humans causes a concomitant increase in age-related disorders. Therefore, developing animal models for age-related declines in neuroanatomy and learning are key to developing new diagnostic tests and treatments for these progressive disorders. I am using homing pigeons, a model species that is similar to humans in the way it learns about the environment (using 3D visual cues) and in hippocampal neuroanatomy. I am investigating the neural bases of spatial working memory declines seen in older birds as a model for developing new tools to diagnose at risk populations of humans. I also am interested in how the seaside sparrow, an Atlantic saltmarsh songbird, develops song dialects. This species is very sensitive to environmental disruption, which makes them a good indicator species for wetland degradation.

Honors and Awards:
Elected Fellow, American Ornithologists Union (2015)
Local Hero Award, American Federation of Teachers New Jersey (2015).

Member of:
Society for Neuroscience (www.sfn.org); Animal Behavior Society (www.animalbehaviorsociety.org); American Ornithologists Union (www.americanornithology.org); National Association of Biology Teachers (www.nabt.org); Wilson Ornithological Society (www.wilsonsociety.org)

Recent Academic Projects:
Homing pigeons fail to use spatial memory as they age (project with four undergraduate students resulting in two national conference presentations)

Discovery of geographic variation in song in seaside sparrows (project with three undergraduates resulting in two national conference presentations)

Recent Publications:
Garrett B, Hough GE (2017) Brain and Behavior: An Introduction to Behavioral Neuroscience. Thousand Oaks CA: Sage Publications.

Coppola VJ, Hough GE, Bingman VP (2014) Age-related spatial working memory deficits in homing pigeons (Columba livia). Behav Neurosci. 128:666-675.

Meredith C. Joppa

Assistant Professor
Psychology

Joppa@rowan.edu
www.rowan.edu/assertlab

Education:
BA (Psychology and Anthropology), Brown University
MA (Clinical Child Psychology), University of Denver
PhD (Clinical Child Psychology), University of Denver
Postdoctoral, Alpert Medical School of Brown University

Research Expertise:
Adolescence and Emerging Adulthood | Romantic Relationships | Dating Violence Prevention | Sexual Risk Prevention

The focus of my research is on risk behaviors that occur within young people's romantic relationships and make them vulnerable to dating violence, sexual assault, unintended pregnancy, sexually transmitted infections (STIs) and HIV. I use a mixed-methods approach to inform the development of prevention interventions for at-risk young people, currently focusing on young mothers and college student-athletes. Related interests include attachment theory, health risk behaviors, health disparities and healthcare engagement, and mental health.

Honors and Awards:
Frances R. Lax Award, Rowan University

Member of:
Licensed Psychologist #5428 (State of New Jersey), #B1-0001106 (State of Delaware)
American Psychological Association, Div. 53 (https://www.clinicalchildpsychology.org/)
American Psychological Association, Div. 54 (https://societyofpediatricpsychology.org/)
International Academy of Sex Research (http://www.iasrsite.org/)
Society for Research in Child Development (http://www.srcd.org)
Society for Research in Adolescence (http://www.s-r-a.org)
Society for Prevention Research (http://www.preventionscience.org)
Society for the Scientific Study of Sexuality (http://www.sexscience.org)

Recent Publications:
Rizzo CJ, Joppa MC, Barker D, Zlotnick C, Warren J, Saint-Eloi Cadely, H, Brown LK (2017) Individual and Relationship Characteristics of Adolescent Girls With Histories of Physical Dating Violence. Journal of Interpersonal Violence, Online First: 1-26.

Joppa MC, Rizzo CJ, Nieves AV, Brown LK (2016) Pilot investigation of a school-based dating violence prevention curriculum: A community-based partnership study. Journal of School Health, 86: 288-297.

Joppa MC, Brown LK, Hadley W, Rizzo CJ, Datadeen J, Donenberg G, DiClemente R, & the Project STYLE Study Group (2014) Internalizing symptoms and sexual risk among adolescents in mental health treatment: Personal and relational factors as potential mediators. Children and Youth Services Review, 46, 177-185.

Young BY, Furman W, Jones MC (2012) Changes in adolescents' risk factors following peer sexual coercion: Evidence for a feedback loop. Development and Psychopathology, 24, 559-571.

Mary Louise E. Kerwin

Professor & Department Head
Psychology

kerwin@rowan.edu
http://www.rowan.edu/abacenter

Education:
BA (Psychology), University of Notre Dame
MA (Developmental & Counseling Psychology), University of Notre Dame
PhD (Developmental & Counseling Psychology), University of Notre Dame
Postdoctoral (Addictions),
    University of Pennsylvania School of Medicine & The Treatment Research Institute

Research Expertise:
Behavior Analysis | Pediatric Feeding Disorders | Autism | Addiction | Parenting

My research interest is in evaluating the effect of behavioral interventions for a variety of issues/problems including pediatric feeding disorders, autism, and drug addiction, especially for mothers.

Honors and Awards:
Rowan University Research Achievement Award (2010)

Member of:
American Psychological Association
Association for Behavior Analysis International
International Society for Autism Research

Recent Publications:
Kirby KC, Benishek LA, Kerwin ME, Dugosh KL, Carpenedo CM, Bresani E, Haugh JA, Washio Y, Meyers RJ (2017) Analyzing components of Community Reinforcement and Family Training (CRAFT): Is Treatment Entry Training Sufficient? Psychol Addict Behav. Epub ahead of print. DOI: 10.1037/adb0000306

Kerwin MLE, Kirby KC, Speziali D, Duggan M, Mellitz C, Versek B, McNamara A (2015) What can parents do? A review of state laws regarding decision making for adolescent drug abuse and mental health treatment. J Child Adolesc Subst Abuse. 24:166-176.

Kirby KC, Versek B, Kerwin MLE, Meyers K, Bresani E, Washio Y, Meyers RJ (2015) Developing Community Reinforcement and Family Training (CRAFT) for parents of treatment-resistant adolescents. J Child Adolesc Subst Abuse. 24:155-165.

Kerwin MLE, Giorgio J, Steinman R, Rosenwasser B (2014) In their own voice: Mothers in drug treatment and their views on parent training. J Soc Work Pract Addict. 14:1-21.

Eicher PS, Kerwin MLE, Fox C, Brackett K (2012) More than a mouthful: A multidisciplinary approach to understanding and treating feeding problems in children. In Manual for Pediatric Feeding Disorders, VanDahm K, ed. Framingham, MA: Therapro, Inc.

Kimberly C. Kirby

Professor
Psychology

kirbyk@rowan.edu

Education:
BA & MA (Psychology), University of Manitoba
PhD (Human Development and Child Psychology), University of Kansas
Postdoctoral (Animal Learning), Duke University
Postdoctoral (Behavior Pharmacology), Johns Hopkins University School of Medicine

Research Expertise:
Applied Behavior Analysis | Substance Use Disorders | Addiction & the Family

I study the use of behavior analysis principles in treating Substance Use Disorders (SUDs) to find ways to encourage their use in treatment programs, and to help family members influence a loved one with a SUD. I also research technology-assisted tools to administer efficacious treatments. Recent grant work includes a NIH Center developing tools to assist parents of youth with SUDs and developing training for parents to help opiate-addicted youth leaving residential treatment.

Honors and Awards:
2010 Caron Foundation Research Award
2015 Distinguished Alumni Award in Applied Behavioral Science, University of Kansas

Member of:
American Psychological Association, Division 25; Fellow of Division 28 & 50 (www.apa.org/)
International Association for Behavior Analysis (www.abainternational.org)
College on Problems of Drug Dependence (www.cpdd.org)

Recent Publications:
Kirby KC, Benishek LA, Kerwin ME, Dugosh KL, Carpenedo CM, Bresani E, Haugh JA, Washio Y, Meyers RJ (2017) Analyzing components of Community Reinforcement and Family Training (CRAFT): Is Treatment Entry Training Sufficient? Psychol Addict Behav. Epub ahead of print. DOI: 10.1037/adb0000306

Curtis B, Ashford RD, Rosenbach S, Stern MR, Kirby KC (2017) Parental Identification and response to adolescent substance use and substance use disorders. Drugs Educ Prev Policy. In press.

Washio Y, Humphreys M, Colchado E, Sierra-Ortiz M, Zhang Z, Collins BN, Kilby LM, Chapman DJ, Higgins ST, Kirby KC (2017) Incentive-based intervention to maintain breastfeeding among low-income Puerto Rican mothers. Pediatrics. 139:e20163119.

Kirby KC, Benishek LA, Tabit M (2016) Contingency management works, clients like it, and it is cost-effective. Am J Drug Alcohol Abuse. 42:250-253.

Brooks AC, Chambers JE, Lauby J, Byrne E, Carpenedo CM, Benishek LA, Medvin R, Metzger DS, Kirby KC (2016) Implementation of a brief treatment counseling toolkit in Federally Qualified Healthcare Centers: Patient and clinician utilization and satisfaction. J Subst Abuse Treat. 60:70-80.

Bethany R. Raiff
Associate Professor
Psychology

raiff@rowan.edu
https://habitunit.com/

Education:
BA (Psychology), University of Wisconsin - Eau Claire
MS (Psychology), University of Florida
PhD (Psychology), University of Florida

Research Expertise:
Technology | Health | Behavior Analysis | Behavioral Economics

My primary research activities involve developing and testing the integration of technological innovations with behavioral interventions for promoting drug abstinence and other health behavior.

I am exploring mobile and video game-based interventions to promote smoking abstinence in adult smokers. In addition, I have investigated novel approaches to increasing adherence with recommended medical regimens, as well as physical activity, particularly among individuals diagnosed with diabetes. My research can be understood within the framework of Behavioral Economics, with a particular focus on delay discounting and immediate incentives for healthy behavior. In the past, I have conducted pre-clinical basic research investigating the effects of nicotine on responding for environmental stimuli to identify why nicotine dependence is so difficult to treat.

Honors and Awards:
APA Division 25 B.F. Skinner New Researcher Award (Applied)
University of Florida Pioneer Award
SABA Experimental Analysis of Behavior Fellowship

Member of:
Association for Behavior Analysis International
Society for Research on Nicotine and Tobacco
American Psychological Association

Recent Academic Projects:
*Up from the Ashes: A computer videogame-based smoking cessation intervention
*Breathe Free: A smartphone videogame-based smoking cessation intervention

Recent Publications:
Raiff BR, Arena A, Meredith SE, Grabinski MJ (2017) Feasibility of a Mobile Group Financial-Incentives Intervention Among Pairs of Smokers with a Prior Social Relationship. Psychol Rec. 67:231-239.

Dallery J, Raiff BR, Kim S, Marsch L, Stitzer M, Grabinski M (2017) Nationwide access to an Internet-based contingency management intervention to promote smoking cessation: A randomized controlled trial. Addiction 112:875-883.

Raiff BR, Jarvis BP, Dallery J (2016) Text-message reminders plus incentives increase adherence to antidiabetic medication in adults with Type 2 diabetes. J Appl Behav Anal. 49:947-953.

Christina Simmons

Assistant Professor
Psychology

simmonsc@rowan.edu

Education:
BA (Psychology; Spanish Language, Literature, & Culture), Syracuse University
MA (School Psychology), University of Georgia
PhD (School Psychology), University of Georgia
Post-doctoral (Severe Behavior), Munroe-Meyer Institute, Univ. of Nebraska Medical Center

Research Expertise:
Severe Behavior | Autism Spectrum Disorder | Behavior Analysis

My research focuses on promoting socially valid outcomes for individuals with autism spectrum disorder and other developmental disabilities who engage in severe behavior. Toward that goal, I am exploring how to best facilitate caregiver involvement in the assessment, treatment, and maintenance of treatment effects through research comprising three areas: (a) refinements to the assessment of problem behavior, (b) parent and teacher training in behavioral interventions, and (c) implementation of evidence-based practice across settings. I have contributed to the development of novel indirect and direct assessment measures to identify tasks that evoke problem behavior and am currently evaluating caregivers' accuracy at demand identification and evaluating alternative instructional methods that do not rely on physical guidance.

Honors and Awards:
2016 Certificate in Interdisciplinary Care in Developmental Disabilities, Munroe-Meyer Institute
2012 Del Jones Memorial Award, University of Georgia
2010 Fulbright English Teaching Assistantship to Spain

Member of:
Association for Behavior Analysis International (https://www.abainternational.org)
International Society for Autism Research (http://www.autism-insar.org/)
National Association of School Psychologists (https://www.nasponline.org/)

Recent Publications:
Fisher WW, Greer BD, Fuhrman AM, Saini V, Simmons CA (2017) Minimizing resurgence of destructive behavior using behavioral momentum theory. J Appl Behav Anal. In press.

Barger BD, Campbell JM, Simmons CA (2016) The relationship between autistic regression, epilepsy, and epileptiform EEGs: A meta-analytic review. J Intellect Dev Disabil. 42:45-60.

Call NA, Alvarez JP, Simmons CA, Lomas Mevers JE (2016) Clinical outcomes of behavioral treatments for elopement in individuals with autism and other developmental disabilities. Autism. 21:375-379.

Call NA, Simmons CA, Lomas Mevers JE, Alvarez JP (2015) Clinical outcomes of behavioral treatments for pica in individuals with developmental disabilities. J Autism Dev Disord. 45:2105-2114.

Michelle Ennis Soreth
Associate Professor
Psychology

soreth@rowan.edu
https://academics.rowan.edu/csm/facultystaff/listing/soreth.html

Education:
BA (Psychology), Rollins College
PhD (Experimental Psychology), Temple University

Research Expertise:
Applied Behavior Analysis | Autism Spectrum Disorder | Early Intensive Behavioral Intervention | Parent-Implemented Interventions | Telehealth Service Delivery | Experimental Analysis of Behavior

My research is theoretically grounded in behavior analysis, the scientific study of behavior and learning processes. The majority of my current research in Applied Behavior Analysis (ABA) focuses on treatment outcomes of early intensive behavioral intervention (EIBI) for young children diagnosed with autism spectrum disorder (ASD). In collaboration with Dr. MaryLouise Kerwin, our team is currently studying how distinct teaching methods used in EIBI (e.g., Discrete Trial Training, Natural Environment Training) affect individual responses to intervention. I am also interested in parent-implemented interventions based on ABA for children diagnosed with behavioral and developmental disorders, as well as telehealth delivery of behavioral interventions.

Member of:
Association for Behavior Analysis International (www.abainternational.org)
International Society for Autism Research (www.autism-insar.org/)
Association for Professional Behavior Analysts (www.apbahome.net/)

Recent Academic Projects:
Using SMART Adaptive Treatment Design to Evaluate Center-Based Discrete Trial Teaching and Verbal Behavior on Social and Verbal Communication in Preschool Children with Autism (PI: Kerwin). This clinical research is funded in part by the New Jersey Governor's Council for Medical Research and Treatment of Autism & the NJ Department of Health.

Efficacy of Relationship Development Intervention and Parent-implemented Applied Behavior Analysis/Verbal Behavior on Joint Attention and Communication of Preschool Children with Autism (PI: Kerwin). This clinical research is funded in part by the New Jersey Governor's Council for Medical Research and Treatment of Autism & the NJ Department of Health.

Recent Publications:
Soreth ME (2011) Against the dichotomy of morality and self-interest. Behavior and Social Issues. 20:32-43.

Soreth ME, Hineline PN (2009) The probability of small schedule values and preference for random-interval schedules. J Exp Anal Behav. 91:89-103.

Overton WF, Ennis MD (2006) Cognitive developmental and behavior analytic theories: Evolving into complementarity. Hum Dev. 49:143-172.

Patrice (Polly) Tremoulet

Associate Professor
Psychology

tremoulet@rowan.edu

Education:
BSE (Civil Engineering and Operations Research), Princeton University
MS (Operations Research), Stanford University
MS & PhD (Psychology), Rutgers University

Research Expertise:
Human Factors | Cognitive Psychology | Clinical Informatics

My research uses information about human behavior, abilities and limitations to design and evaluate tools that improve safety, productivity, and/or health. I have over two decades of applied human factors research experience in industry where I developed expertise in designing, evaluating and improving technologies and work processes, including building prototypes to demonstrate how novel technologies can be leveraged to enable more effective human-system performance. I am currently leading an effort at Children's Hospital of Philadelphia exploring how to ensure that children can ride safely in self-driving vehicles and I recently completed a project funded by ECRI Institute that focused on improving the usability of the discharge documents that are generated by electronic health records.

Honors and Awards:
Honors Night Award (highest division award for superior performance – Lockheed Martin) 2006
Twelve Lockheed Martin Special Recognition Awards for engineering excellence 2003-2012
National Institute of Health (NIH) Graduate Fellowship 1999-2000
"Best in state" MS thesis award, NJ-American Psychological Association (APA) 1997
Fellow, Summer Institute in Cognitive Neuroscience, University of California Davis 1995
Rutgers Excellence Fellowship 1994-1996

Member of:
Human Factors and Ergonomics Society (http://www.hfes.org//Web/Default.aspx)
Association for the Advancement of Medical Instrumentation (AAMI) (http://www.aami.org/index.aspx)

Recent Publications:
Tremoulet PD, McManus M, Baronov D (2017) Rendering ICU data useful via formative testing of Tracking, Trajectory, Trigger (T3) software. In Proc 2017 Int Sym Human Factors Ergonomics in Healthcare pp. 50-56, Washington, DC: Sage Publishing.

Bonnette B, Suggs J, Tremoulet PD (2017) How useful are handheld ECG monitors? In Proc 2017 Int Sym Human Factors Ergonomics in Healthcare pp 154-158, Washington, DC: Sage Publishing.

Craven PL, Tremoulet PD, Regli SH (2017) Incorporating Human Systems Engineering in Advanced Military Technology Development. In Cognitive Systems Engineering: An Integrative Living Laboratory Framework M McNeese, PK Forster, eds. pp. 341-362, Boca Raton, FL: CRC Press.

RowanUniversity

COLLEGE OF SCIENCE & MATHEMATICS
SCHOOL OF HEALTH PROFESSIONS

201 Mullica Hill Road
Glassboro, NJ 08028
856-256-4850
www.rowan.edu/csm

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