



College of Science and Mathematics Seminar Exchange Program

Fall 2011

The College of Science and Mathematics (CSAM) Seminar Exchange Program is designed to advance the sharing of new knowledge and key research findings with colleagues at the region's institutions of higher learning and relevant STEM industries.

The challenges we face today as scientists and educators are enormously complex. It is imperative to speed the connection of new knowledge among leading institutions as a primary means of fostering research, cultivating tomorrow's leading researchers, challenging students, and finding solutions to society's most vexing challenges.

The College of Science and Mathematics is home to over 100 faculty members spanning multiple disciplines and pursuing important research in an array of cutting edge arenas.

To arrange for a CSAM faculty member to present a seminar at your institution, please contact Ms. Susan Brunda, Dean's Office, at brundas@mail.montclair.edu or call 973-655-5352. To participate in the exchange program please send a similar list of potential speakers and topics from your institution to Ms. Brunda as well.

CSAM faculty participants and their respective seminar topics for Fall 2011 include:

Issues of Environment

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| Dr. Stefanie Brachfeld | Larsen Ice Shelf System, Antarctic (LARISSA) Program: An International Polar Year Project along the Antarctic Peninsula Understanding the Mars Magnetic Anomalies using Experimental Petrology and Rock Magnetism |
| Dr. Mark Chopping | Mapping Carbon: Canopy Biomass from Spaceborne Multiangle Imagers |
| Dr. Yang Deng | Nanomaterials for Groundwater Cleanup Management of Landfill Leachate to Prevent Groundwater Pollution |
| Dr. Huan Feng | Urban Estuarine and Coastal Environmental Study |
| Dr. Josh Galster | Measuring Land-use and Stream Channel Changes using Historic Aerial Photographs |
| Dr. Matt Gorring | Ridge Collision Tectonics and Volcanism in the Southern Patagonian Andes Late Ottawan Ductile Shearing and Granitoid Emplacement in the Hudson Highlands, New York |
| Dr. Mike Kruge | Pollution in Brooklyn's Gowanus Canal - Insights from an Environmental |

Forensics Approach

- Mr. Kevin K. Olsen** Can a City of 5 Million People Recycle 60% of its Organic Food Waste? Lessons from New York in 1910
- The Search for Clean Water, Employing the Cutting Edge Analytical Technology of 1876
- Dr. Duke Ophori** A Computer Analysis of Some Effects of Groundwater Pumping on the Environment - Passaic River Basin, New Jersey
- Dr. Sandra Passchier** Response of Polar Ice Sheets to Climate Change and Possible Sea Level Effects: Questions and Constraints
- Reconstruction of Eocene to Miocene Antarctic Surface Temperature, Aridity, and Paleoceanography from Bulk Sediment Geochemistry of Continental Margin Drillholes
- Dr. Greg Pope** Fire's Impact on Soils: In Search of Pyrosols
- Dr. Dibyendu Sarkar** Arsenic in Urban Environments: A Promising Remedial Alternative to an Emerging Public Health Issue
- Student Research in Green Technology at Montclair State
- Dr. Robert Taylor** How can Cities be made more Sustainable?
- Dr. William Thomas** The Forest Stewards Project: Conserving Wild Lands and the Cultures that have shaped them in New Guinea
- Dr. Danlin Yu** What is GIS?
- Analyzing Regressed Relationships with Geographic Data: Varying vs. Constant Relationships

Computational, Mathematical and Statistical Sciences

- Dr. Jonathan Cutler** Trees through Specified Vertices (Graph Theory)
- Entropy Applications in Combinatorics
- Dr. Jerry Alan Fails** Mobile Collaboration for Young Children: Reading and Creating Stories
- Co-design Methods for Designing Technologies with and for Children and Families
- Dr. Eileen Fernandez** Online Education in Mathematics: Exploring New Methods in the Teaching and Learning of Mathematics
- Dr. Eric Forgoston** Discovering How Epidemics Become Extinct

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| | Improving Prediction of Random Epidemic Outbreaks |
| | Set-Based Corral Control in Stochastic Dynamical Systems |
| Dr. Evan Fuller | Understanding Mathematical Proofs: What does it mean and how can it be assessed? |
| Dr. Emily Hill | Developing Natural Language-based Software Analyses & Tools for Software Maintenance |
| Dr. Mark Hubey | Measurement, Assessment, Benchmarks, Rubrics and All That Why Almost All Jobs Must Be Boring |
| Dr. Soo Jin Lee | Operations and Units for Developing Fraction Division and Multiplication Concepts |
| Dr. Erin Krupa | Evaluating the Impact of Professional Development and Curricular Implementation on Student Mathematics Achievement |
| Dr. Aihua Li | Tracing Space Points - A View of Discrete Time Series Modeling Projects that Encourage Students to Talk/Write about Mathematics Montclair State University REU Programs in Mathematics Discrete Sturm-Liouville Problems with Nonlinear Parameter in the Boundary Conditions Symbolic Powers of Radical Ideals |
| Dr. Mika Munakata | Creativity in Math and Science (Joint presentation with Dr. Ashwin Vaidya) |
| Dr. Bogdan Nita | An Inverse Scattering Algorithm for Imaging and Inversion of Seismic Data |
| Dr. Michael Oudshoorn | Towards Autonomic Computing: Goals and Challenges |
| Dr. Jing Peng | Discriminant Learning Analysis: A Robust Approach to Dimensionality Reduction |
| Dr. Stephen Robila | Spectral Imaging Applications |
| Dr. Haiyan Su | Semi-parametric Hybrid Empirical Likelihood Inference for Two Sample Comparison with Censored Data |
| Dr. Diana Thomas | The Mathematics of Weight Change: Why is it so hard to lose weight? |
| Dr. Patrick Truitt | Investigations of Organic and Molecular Systems as Spintronic Materials |
| Dr. Ashwin Vaidya | Paradoxes in Fluid Mechanics |

Oscillations, Flutter and Autorotation: Experiments and Theory in Fluid-Solid Interaction

The Fluid Mechanics of the Human Eye

Creativity in Math and Science (Joint presentation with Dr. Mika Munakata)

Dr. Aparna Varde Time-Aware Query Translation for Terminology Evolution in Text

Dr. Dajin Wang High-Speed Ligand-GPCR Docking Using Cluster Computers

Chemical Sciences and Life Sciences

Dr. Paul Bologna Assessment of Seagrass Community Structure in New Jersey

Sea nettles, a Stinging Sensation.

Dr. Chunguang Du Maize Genome Organization and Diversity

Dr. Jack Gaynor Adventures in Nanotechnology

Genomes in Flux: Copy Number Variation in the Yeast Genome Under Oxidative Stress

Dr. Nina Goodey Enzyme Acrobatics - Relationship between Protein Motion and Catalysis

Prediction of Residues Involved in Inhibitor Specificity in the Dihydrofolate Reductase Family

Dr. Lisa Hazard Desert Tortoise Conservation: The roles of Juvenile Tortoise Behavior and Physiology

Salty Sneezes: Interspecific Variation in Control of the Nasal Salt Glands of Lizards

Surviving Salt: Impact of Road Deicers on New Jersey Amphibians

Dr. Shifeng Hou Chemistry of Graphene: New Nanomaterials Delivered from Chemistry Laboratory

Dr. Scott Kight Arthropod Parental Care: Do They Make Good Decisions?

Dr. David Konas What do We Really Eat? Laboratory Analysis of items served in the Foodservice Environment

Dr. Carlos Molina A Transgenic Mouse Model for Hyperovulation

Regulation of a Transcriptional Repressor by Phosphorylation, Ubiquitination and Subcellular Localization

Regulation of a Transcriptional Repressor by Transcriptional and Post-

translational Mechanisms

Gene Expression in Ovulation

Dr. Elena Petroff

Ion Channels and Brain Function

Dr. Robert Prezant

Remarkable Molluscan Diversity in a NJ Urban Pond

Dispersal of Sedentary Bivalves – Zoogeographic Implications of Drift

Population Dynamics of Mangrove Dwelling Laternulid Bivalves of Thailand

Dr. David Rotella

A Dual Target Approach for Treatment of Schizophrenia

Dr. Hans Schelvis

DNA Repair with Light: New Insight into the DNA Repair Mechanism of DNA Photolyase

Dr. John Siekierka

Drugs for Globally Neglected Diseases: Parasite Protein Kinases as Drug Targets

Viral-Host Interactions in HIV Infection: HIV Escape from Host Immune Responses

Dr. David Talaga

Protein Free Energy Landscapes Modulated by Ligand Binding: What a Little Sugar Can Do

Information Theoretical Analysis and Hidden Markov Modeling of Single Molecule Conformational Dynamics

Free Energy Landscapes of Amyloidogenic Protein Aggregation

Protein Unfolding during Electrophoretic Translocation through Solid State Nanopores

Global Spectroscopic Approaches to Model Discovery in Chemical Physics

Interfacial Effects on the Amyloidogenic Aggregation of the Parkinson's Related Protein Alpha-synuclein

Dr. Quinn Vega

Cell Signaling: Internal Cellular Responses to External Factors

Dr. Meiyin Wu

Feasibility of Ultrasonic Control for Aquatic Invasive Species Management