Neuroscience

Friday, November 13th, 2015

University of Florida

Cancer Genetics Research Complex

8:15am - 4:00pm

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We are delighted you could join us for a day full of opportunities! Health care professionals and teachers are once again “Partnering for Tomorrow’s Health” by sharing knowledge and insight to better educate the scientists and health care leaders of the future. Mini Medical School is an opportunity for middle and high school teachers to experience some of the many facets of the University of Florida’s College of Medicine, much like a medical or graduate student would. Participants visit clinical and research sites, attend lectures, engage in thought-provoking discussions, share ideas and gain an appreciation for the breadth of knowledge and discovery at the University of Florida.

We hope you will find the day enjoyable and educational. Some of the most talented and gifted researchers and clinicians are housed at the University of Florida’s Health Science Center. We are fortunate to be able to spend time with some of them as a sampling of the fascinating work taking place at the University of Florida.

2015 marks the fifteenth year of Mini Medical School. Your feedback is particularly important in shaping Mini Medical School’s future – the constructive comments received from the evaluations will be a tremendous help in planning for next year. Please complete the evaluation and return it before leaving at the end of the day.

University of Florida Medical Guild
The University of Florida Medical Guild was founded in 1959 as a non-profit volunteer organization. Through the fundraising and volunteer efforts of Guild members, extraordinary support is made possible for the J. Hillis Miller Health Science Center. The funds support scholarships for students in the College of Medicine and for projects throughout the Health Science Center and UF Health – the guild has raised over $20,000 for these awards.

Since the Guild underwrote Mini Medical School IV in 1996, this annual event has attracted participants from school age to retirees. For the past twelve years, Mini Medical School has focused on science educators throughout Florida, as it is through them that students will come to know the opportunities available to them through the study of science.

University of Florida Center for Precollegiate Education and Training
UF CPET is the University of Florida’s “umbrella” for the articulation and transfer of current science, technology, engineering and mathematics (STEM) by linking research faculty and students with K-12 school teachers and students through a variety of campus and statewide programs. For more than half a century, CPET has offered discovery-based learning opportunities for secondary school students and, in more recent years, for teachers. The infrastructure of UF CPET allows efficient and effective use of resources to administer programs on campus and throughout Florida. CPET programs incorporate activities that connect teachers, researchers, and industry professionals in preparing and delivering effective STEM education and career opportunities from middle school through graduate school. National and state science education standards govern CPET instructional programs. Activities are designed around National Research Council and Florida criteria for students to learn skills and acquire knowledge, and for developing curricula.

As a center in Academic Affairs, CPET involves more than 300 UF scientists and engineers annually in its outreach programs. CPET also has an established history of collaborations with local, regional and state schools, and with educational and scientific professional societies. Professional development programs supported by HHMI, NIEHS, NIH, NSF, Woodrow Wilson Foundation and the University of Florida expand the content knowledge, skills, resources, and enthusiasm of in-service teachers. They also forge long-term relationships with researchers that result in converting new expertise into measurably successful new learning modules for students.

Please visit our website at: [http://www.cpet.ufl.edu](http://www.cpet.ufl.edu) for more information about our programs.
Mini Medical School is made possible by the following sponsors:

- Center for Precollegiate Education and Training
- UF Medical Guild
- UF Health

We would like to thank:

**Plenary Lecturers** – Thomas Pearson, Robert Leeman, David Ostrov, Michael Waters

**UF Medical Guild Volunteers** – Linda Allegra, Marissa Fernan-Taasan, Michelle Donnelly, Beth Anderson, Tina Rivkees, Gabriela Portugal-Bouza, and Susan Graham

**UF CPET**; Mary Jo Koroly (Director), Julie Bokor (Asst. Director), Mike Anthony, Grace Burmester, Rachel Damiani, Houda Darwiche, Harriet Ganious, Maggie Hernandez, Charles Lawrence, Sean McKenna, Katie Meese, and Christy Rodkin

Mini Medical School is coordinated by the UF Center for Precollegiate Education and Training through an award from the University of Florida Medical Guild, and sponsored in part by UF Health.

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**UF Center for Precollegiate Education and Training**

**UNIVERSITY of FLORIDA**

*Celebrating 50 Years of Science Outreach!*

334 Yon Hall
PO Box 112010
Gainesville, FL 32611
Phone: 352-392-2310
Fax: 352-392-2344
Email: cpet@cpet.ufl.edu
Web: www.cpet.ufl.edu

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Program Agenda

8:15am-9:00am  Check-In
Coffee and Light Breakfast available
Location: Cancer Genetics Research Complex (CGRC) Atrium

9:00am-9:45am  Welcome
Location: CGRC Auditorium (Room 101, North Wing)
Ms. Linda Allegra, President, UF Medical Guild
Dr. Houda Darwiche, MMS Coordinator, UF CPET
Dr. Mary Jo Koroly, Director UF CPET and
Research Associate Professor, Biochemistry & Molecular Biology

9:45am-10:00am  Introduction
Location: CGRC Auditorium (Room 101, North Wing)
Dr. Thomas Pearson, M.D., MPH, Ph.D.
Executive Vice President for Research & Education, UF Health Sciences Center

10:00am-10:45am  Presentation: Problem Substance Use: Predicting Who Is at Risk and Testing Novel Interventions
Location: CGRC Auditorium (Room 101, North Wing)
Dr. Robert Leeman, Ph.D.
Associate Professor, Department of Health Education & Behavior
College of Health & Human Performance

10:50am-11:30am  Presentation: Structure-Based Drug Design
Location: CGRC Auditorium (Room 101, North Wing)
Dr. David Ostrov, Ph.D.
Associate Professor, Center for NeuroGenetics
College of Medicine

11:40am-12:25pm  Breakout: Session One
Location: Various sites (see program book).

12:30pm-1:10pm  Lunch - Sponsored by UF Health
Location: Cancer Genetics Research Complex Atrium
2015 Mini Medical School

Neuroscience

1:15pm-2:00pm  Breakout: Session Two
   Location: Various sites (see program book).

2:10pm-2:55pm  Breakout: Session Three
   Location: Various sites (see program book).

3:00pm-3:40pm  Presentation: Spinocerebellar Ataxia 13
   Location: CGRC Auditorium (Room 101, North Wing)
   Dr. Michael Waters, M.D., Ph.D.
   Director, UF Health Comprehensive Stroke Center
   Associate Professor, Department of Neurology
   College of Medicine

3:45pm  Closing remarks and program evaluation
**Breakout Sessions**

In order to use the content from today’s workshop efficiently in your classrooms, CPET has provided four offerings for hands-on labs and activities.

The table below details the room locations for each session. For a listing of participants for each session, please see Breakout Session insert in your program folder.

<table>
<thead>
<tr>
<th>Session Title</th>
<th>Session Moderator</th>
<th>Session Description</th>
<th>Room Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury Poisoning</td>
<td>Katie Meese</td>
<td>Learn about the effects of mercury poisoning on the brain, and then model the flow of energy/toxins through an ecosystem</td>
<td>351A</td>
</tr>
<tr>
<td>Brain Reward Pathway</td>
<td>Rachel Damiani</td>
<td>Learn the role of the reward pathway and dopamine in addiction; compare the effects of various drugs on dopamine &amp; behavior</td>
<td>451A/B</td>
</tr>
<tr>
<td>Testing for Genetic Disorders that Cause Brain Damage</td>
<td>Maggie Hernandez</td>
<td>Newborn screening for genetic disorders; explore inheritance using punnet squares and simulated genetic tests</td>
<td>184</td>
</tr>
<tr>
<td>Brains Under the Influence</td>
<td>Grace Burmester</td>
<td>Conduct simulated blood alcohol tests; match mini-cases with parts of the brain; effects of binge drinking in teens</td>
<td>189</td>
</tr>
</tbody>
</table>
2015 Mini Medical School

Neuroscience

Plenary Lecturers

Thomas A. Pearson, MPH, M.D., Ph.D.
Executive Vice President for Research and Education
Health Sciences Center
tapearson@ufl.edu
Dr. Pearson is a graduate of the University of Wisconsin in Madison. He earned his medical degree, master’s of public health, and doctorate from The Johns Hopkins University and then came to Gainesville in 1984 to complete residency training in anesthesiology and a research fellowship at UF, where he then joined the College of Medicine faculty in 1988. Dr. Pearson serves as the Executive Vice President for Research and Education at the University of Florida Health Sciences Center, with a faculty appointment with the Department of Epidemiology. He reports to Dr. David S. Guzick, senior vice president for health affairs and president of UF Health. Dr. Pearson’s position serves as a catalyst for optimizing approaches to research and education across the colleges, institutes and research centers of the UF Health Science Center. Direct reports to this position include the directors of the McKnight Brain Institute, the UF Health Cancer Center, the Institute on Aging, the Clinical and Translational Science Institute, which reports jointly to the UF vice president for research; the Institute for Therapeutic Innovation at Lake Nona; and the Center for Pharmacogenetics and Systems Pharmacology at Lake Nona. He also works with the associate deans for professional education, graduate education and research in various colleges.

Robert F. Leeman, Ph.D.
Associate Professor
College of Health and Human Performance
Department of Health Education and Behavior
robert.leeman@ufl.edu
Dr. Leeman’s current research interests concern young adult alcohol use and cocaine/opioid co-use. Regarding young adult alcohol use, he is particularly interested in associations between alcohol use and difficulties with self-control. An example of this is impaired control over alcohol use, which is the difficulty that some drinkers have with adhering to limits they have placed on their alcohol consumption. Dr. Leeman and his colleagues have developed a novel human laboratory paradigm to model impaired control (Leeman et al., 2013). One current use of this paradigm is to test a procedure to correct cognitive bias underlying frequent alcohol use. In another recent line of research, he and his colleagues are testing a different cognitive bias retraining procedure for opioid-maintained cocaine users. They have also adapted, for use in the United States, a very brief (10 minutes or less), web-based alcohol reduction intervention for undergraduates that has been utilized successfully in Australia and New Zealand. Dr. Leeman is also involved in several collaborative projects aimed at predicting risk of problem substance use, primarily among adolescents and young adults.
David Ostrov, Ph.D.
Associate Professor
College of Medicine
Center for Neurogenetics; Department of Pathology, Immunology, and Laboratory Medicine
ostroda@pathology.ufl.edu

Dr. Ostrov’s research group utilizes methods in structure-based drug design to discover and develop novel therapies for preventing and treating human diseases. The laboratory has experience employing a diverse set of biophysical techniques including X-ray crystallography to answer questions regarding immune recognition. The research team focuses on developing novel therapeutic approaches to treat esophageal cancer, breast cancer, drug resistant childhood leukemia, colon cancer, lung cancer, prostate cancer, lymphoma, Type I diabetes, Graft Versus Host Disease, Rheumatoid Arthritis, Autism Spectrum Disorders and drug resistant pathogens including HIV. The laboratory developed a unique rapid and economical method to combine in silico high-throughput screening with functional structure-activity-relationship testing in vitro and in vivo.

Michael F. Waters, M.D., Ph.D.
Medical Director, UF Health Comprehensive Stroke Center
Associate Professor
College of Medicine
Departments of Neuroscience and Neurology
michael.waters@neurology.ufl.edu

Dr. Waters received a master’s degree in genetics from Penn State University. He attended medical school at the University of Florida, where he also earned his Ph.D in biochemistry and molecular biology. He received formal neurology training at the David Geffen School of Medicine at the University of California, Los Angeles, and completed a fellowship in clinical and molecular neurogenetics at Cedars Sinai Medical Center. Dr. Waters joined the faculty at the University of Florida as an assistant professor in neurology and neuroscience in 2007. He directs the implementation of the American Stroke Association’s Get with the Guidelines national stroke database and quality assurance program and serves as the principal investigator for clinic trials designed to improve clinical outcomes in stroke. Additional programmatic accomplishments for UF Health include the American Stroke Association Sustained Gold Performance Award with Target Stroke recognition, Joint Commission Accreditation as a Primary Stroke Center, American Stroke Association two year Gold Performance Award and Agency for Health Care Administration Comprehensive Stroke Center Designation.
Resources

The CPET website has several resources available for both teachers and students. A special page has been created with resources specific to today’s program content, which can be accessed via the following URL – [http://www.cpet.ufl.edu/teachers/mms2015resources](http://www.cpet.ufl.edu/teachers/mms2015resources). You can also reach the website by scanning the following QR code using your smart phone or tablet. If you do not already have a code reader on your device, a free app can be downloaded from the app store as per your provider (please ask Houda if you have any questions about this).