2013 VMI STEM Education Conference

Tuesday & Wednesday, 8 & 9 October 2013

Virginia Military Institute – Center for Leadership and Ethics - Lexington

All sessions in Marshall Hall, unless otherwise noted

TUESDAY, 8 OCTOBER 2013

9:30 am	*Registration Opens (Gallery)*
10:30 – 11:55 am	*Opening Session (Gillis Theater)* *Welcoming Ceremonies – Posting of the Colors and National Anthem* *Host: COL David Miller, Interim Director, VMI Center for Leadership and Ethics* *Welcoming Remarks: BG Wane Schneiter, Deputy Superintendent for Academics, VMI* **The Amazing Human Brain and Future Frontiers** *Introductions: COL James Turner, Ph.D., Department Head and Professor, Biology, VMI* • William Casebeer, Ph.D., Defense Advanced Research Projects Agency • Amy Bernard, Ph.D., Allen Institute for Brain Science
12:00 – 12:45 pm	Buffet *Lunch (Hall of Valor)*
1:00 pm – 2:15 pm	**Workshop Session A** – *Various locations on post, see pages two & three*
2:30 pm – 3:45 pm	**Workshop Session B** - *Various locations on post, see pages two & three*
4:00 – 5:00 pm	**Learning and the Brain** *(Gillis Theater)* *Introduction: COL John Thompson, Ph.D., Department Head and Professor, Physics & Astronomy, VMI* Daniel Willingham, Ph.D., Professor of Psychology, University of Virginia; author of "*Why Don't Students Like School: A Cognitive Scientist Answers Questions about How the Mind Works and What It Means for the Classroom*" (*Jossey Bass*, 2010)
5:15 – 6:00 pm	*Book Signing with Dr. Willingham (Gillis Stage)* *Attendees – Dinner on your own*

WEDNESDAY, 9 OCTOBER 2013

7:00 – 8:00 am	*Buffet Breakfast (Hall of Valor)*
8:00 am – 9:00 am	**VMI STEM Showcase** *(Gillis Theater)* *Host: COL Thompson, Department Head and Professor, Physics & Astronomy, VMI*

- Applied Mathematics: Applied & Industrial Mathematics (AIM) Program, MAJ John David, Ph.D., Assistant Professor
- Biology: Academic Program Concentrations & Minors, COL Jim Turner, Ph.D., Department Head and Professor
- Chemistry: Liquid Crystals: Design and Synthesis, COL Daren Timmons, Ph.D., Department Head and Professor
- Computer and Information Sciences:
  - Cyber Warfare in the Classroom: Cadet Kitchen
  - User Eye-Tracking; COL Myke Gluck, Ph.D., Department Head and Professor
- Physics: Observational Astronomy at VMI: LTC Gregory Topasna, Ph.D., Associate Professor

9:15 am – 10:30 am **Workshop Session C** - *Various locations on post, see pages two & three*

11:00 am – 12:15 pm **Keynote Speaker (Cameron Hall)**
Steve Spangler, Author, Teacher, Toy Designer and the Creator of a Huge Soda Mess
Introduction by Alyssa E. Ford, Regimental S5 CAPT '14, Biology

12:30 pm – 1:15 pm *Buffet Lunch (Hall of Valor)*
1:30 pm – 2:45 pm **Workshop Session D** - *Various locations on post, see pages two & three*
3:00 pm – 4:15 pm **Workshop Session E** - *Various locations on post, see pages two & three*
4:30 – 5:30 pm Supper & *Remarks: COL Timmons, Department Head and Professor, Chemistry, VMI (Hall of Valor)*

Workshops

	Workshop A *Tuesday* *1:00 pm – 2:15 pm*	**Workshop B** *Tuesday* *2:30 pm – 3:45 pm*	**Workshop C** *Wednesday* *9:15 am – 10:30 am*	**Workshop D** *Wednesday* *1:30 pm – 2:45 pm*	**Workshop E** *Wednesday* *3:00 pm – 4:15 pm*
I	**Forensic Sciences** Julia Renberg, Maury-Brooke 202	**Forensic Sciences** Julia Renberg, Maury-Brooke 202	**The Science of Scent** Tyler Lorig, Ph.D., Preston Library, 300 Level Conference Room	**Unlocking the Mysteries of the Human Brain** COL Jim Turner, Mallory Hall 221	**Unlocking the Mysteries of the Human Brain** COL Jim Turner, Mallory Hall 221
II	**Collisions, Catalysts, & Activated Complexes** Tammy Stone, Mallory Hall 221	**Collisions, Catalysts, & Activated Complexes** Tammy Stone, Mallory Hall 221	**What Do You Eat? Signals to the Brain During Development** Helen I'Anson, Ph.D., Preston Library, Periodicals Room	**Making MOFs for Hydrogen Fuel Storage** COL Daren Timmons Maury-Brooke 316	**Making MOFs for Hydrogen Fuel Storage** COL Daren Timmons, Maury-Brooke 316
III	**Makerspace** George Meadows, Marshall Hall, Allegheny Room	**Makerspace** George Meadows, Marshall Hall, Allegheny Room	**Makerspace** George Meadows, Marshall Hall, Allegheny Room	**Makerspace** George Meadows, Marshall Hall, Allegheny Room	**Makerspace** George Meadows, Marshall Hall, Allegheny Room
IV	**Physics of the Very Large and Very Small** Christopher McGrath, Maury-Brooke 203	**Physics of the Very Large and Very Small** Christopher McGrath, Mallory Hall 313	**Mathematical Structures of Marriages** Mallory Hall 407	**Comprehending Biological Enzyme Action Using Active Learning Simulations** MAJ Pieter deHart, Maury-Brooke 208	**Comprehending Biological Enzyme Action Using Active Learning Simulations** MAJ Pieter deHart, Maury-Brooke 208

V	**Unit Cell Structures** Susanne Dana, Marshall Hall, Shenandoah Room	**Unit Cell Structures** Susanne Dana, Marshall Hall, Shenandoah Room	**Controlling Greenhouse Gases?** Dr. Nino Ripepi, Moody Hall Board Room	**Making Waves** COL John Thompson, Mallory Hall 220	**Making Waves** COL John Thompson, Mallory Hall 220
VI	**Guided Inquiry and Mastery of Biochemistry** Amol Patel, Maury-Brooke 404	**Guided Inquiry and Mastery of Biochemistry** Amol Patel, Maury-Brooke 404	**Interactive EEG** Chip Audette Moody Hall, Activities Room	**The Sound of Mathematics: Pythagorean Music & Beyond,** MAJ Randy Cone, Mallory Hall 313	**The Sound of Mathematics: Pythagorean Music & Beyond,** MAJ Randy Cone, Mallory Hall 313
VII	**How to Talk Like a Scientist** Erika Nichols Marshall Hall, New Market Room	**How to Talk Like a Scientist** Erika Nichols Marshall Hall, New Market Room	**It's About the Problem!** Thomas Potgieter, Marshall Hall, Boardroom	**Biomechanics: The Analysis of Humans in Motion** LTC Mike Krackow, Marshall Hall, Blue Ridge	**Biomechanics: The Analysis of Humans in Motion** LTC Mike Krackow, Marshall Hall, Blue Ridge
VIII	**Ice Core Examples** Jeremy Dove, Maury-Brooke 216	**Genetics – Paternity Testing** Jeremy Dove, Maury-Brooke 216	**Oyster Biology & Restoration** Jackie Shannon, Marshall Hall, Shenandoah Room	**Oyster Biology & Restoration** Jackie Shannon, Marshall Hall, Shenandoah Room	**Mathematical Structures of Marriages** MAJ Meagan Herald, Mallory Hall 221
IX	**PIT Crew (Physiologists-In-Training) Program** Stephen Biscotte, Preston Library, Turman room	**PIT Crew (Physiologists-In-Training) Program** Stephen Biscotte, Preston Library, Turman room	**The Assessment of Human Bioenergetics** COL Tom Baur, Mallory Hall 221	**Sketch-Up and 3-D Printing** COL Troy Siemers, Mallory Hall 414	**Sketch-Up and 3-D Printing** COL Troy Siemers, Mallory Hall 414
X	**Using Patterns to Drive Guided Physics Inquiry** Heather Moore, Maury-Brooke 208	**Using Patterns to Drive Guided Physics Inquiry** Heather Moore, Maury-Brooke 208	**Web-Based Resources for Neuroscience** Amy Bernard, Marshall Hall, New Market Room	**An Exploration of the Electromagnetic Spectrum** LTC Merce Brooke, Mallory Hall 215	**An Exploration of the Electromagnetic Spectrum** LTC Merce Brooke, Mallory Hall 215
XI	**Developing Science & Engineering Practices** Tony Borash, Moody Hall Activities Room	**Models and Simulations in High School Science** Eric Rhoades, Mallory Hall 213	**Cognitive Cartography** Sayed Suhail Miri, Preston Library, Turman room	**Renewable Energy: Building a Solar Cell** MAJ Dan Harrison, Maury-Brooke 309	**Renewable Energy: Building a Solar Cell** MAJ Dan Harrison, Maury-Brooke 309
XII	**Can You Build it? Science with the Future in Mind,** Steve Shumaker, Marshall Hall, Blue Ridge	**Can You Build it? Science with the Future in Mind,** Steve Shumaker, Marshall Hall, Blue Ridge	**Can You Build it? Science with the Future in Mind,** Steve Shumaker, Marshall Hall, Blue Ridge	**Building Molecular Understanding Using 3D Building Toys** MAJ Emily Lilly, Maury-Brooke 308	**Building Molecular Understanding Using 3D Building Toys** MAJ Emily Lilly, Maury-Brooke 308