Neuroscience and Law
Exploring addiction and the application of brain-based and behavior science to law, finance, treatment, and public policy

April 30, 2019
Conference Program
Neuroscientific evidence is increasingly being encountered in the United States criminal justice system. This session will provide a concise and readily accessible introduction to human brain structure, brain function, and how structure and function are studied through modern neuroimaging techniques. **Learning objectives include:**

1. Introduction to the general organization of the human nervous system, and the terms used in science and medicine to describe basic brain locations and structures.
2. Explanation of how neurons communicate, and how this communication is related to human thought and behavior.
3. Explanation of why an understanding of psychological processes and experimental designs is necessary to evaluate brain function in imaging studies.
4. Discussion of guiding principles and questions that should be asked in order to effectively assess neuroimaging data when proffered in legal settings.

For additional background and reference, we recommend:

- Online resources to introduce the brain available at: http://lawneuro.org/resources.php
- Teneille Brown & Emily Murphy, *Through A Scanner Darkly:*
Neuroscience and law
**Presented by:** Francis X. Shen, J.D., Ph.D.

Dr. Shen will introduce recent and exciting developments at the intersection of neuroscience and law, with a focus on the judicial role in evaluating neuroscientific claims. Neuroscience is increasingly introduced in courtrooms in both criminal and civil contexts. This creates a pressing need for increased dialogue between neuroscience and law, and this session will enable that conversation. **After this session, participants will be able to:**

- Appreciate the emerging field of neurolaw, and the many ways in which neuroscience might affect law.
- Understand the ways in which neuroscience is being proffered as evidence in criminal and civil contexts.
- Recognize basic concerns about the use of neuroscientific evidence in courtroom proceedings related to substance use disorder.
- Discuss the promises and limitations of future uses of neuroscience in law, with special attention paid to addiction and rehabilitation.

In addition, for interested attendees, many full length videos of more extensive judicial education programs are available for free viewing at: https://www.youtube.com/user/LawNeuroOrg

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**2:30 - 3:45 Session 2: The Brain and Behavior; Treatment and Costs**

**Speaker Introductions:** Nicholas C. Conte, J.D., will introduce Warren Bickel, Ph.D., and Robert Trestman, Ph.D., M.D.

**Behavior and valuation of the future**
**Presented by:** Warren Bickel, Ph.D.

Understanding how an individual continues to engage in problematic and self-handicapping behavior is fundamental to solving the problem of addiction. Research has shown that addictive disorders are often linked
to impaired decision-making processes. A hallmark of addiction is delay discounting: the tendency to choose immediate gratification over longer-term, healthier benefits. Importantly, excessive discounting of the future, called immediacy bias, can determine the power of abused substances. In this session we will explore the impact of immediacy bias on substance abuse both in and outside of the United States criminal justice system.

Learning objectives include:

1. Introduction to the process of delay discounting, the measurement of immediacy bias.
2. Background on the history of delay discounting and its relationship to substance use disorder.
3. Explanation of how delay discounting can be used as a behavioral marker for addiction and target for intervention engagement.
4. Explanation of the role of delay discounting in the power of drug and prosocial rewards.
5. Evidence that modifying delay discounting can decrease the power of drugs and enhance the power of prosocial rewards.
6. Discussion of future implications related to the criminal justice system.

What is effective treatment?

Presented by: Robert L. Trestman, Ph.D., M.D.

Currently, success rates for diversion programs and drug court participants hovers around 10%. Reinterpreted, that means a 90% failure rate. This is unsustainable. How can we curate a successful treatment model to reduce recidivism and promote rehabilitation? By incorporating an understanding of the underlying science of addiction into our design of treatment programs, we can expect a greater number of successful outcomes and over time, a reduction in direct and indirect costs to the justice system and communities. Learning objectives include:

1. Designing an integrated approach taking into account the pragmatic factors of a variety of care delivery settings and limited treatment resources.
2. Incorporating the theory of delay discounting into an integrated approach to treatment.
3. Treatment programs in correctional environments versus hybrid models that incorporate court-monitored outpatient programs.
4. Addressing common skills deficits in the design of treatment programs for people who present in different environments at different times in their lives.
5. How Probation and Parole Officers can help their clients succeed in treatment.
**Session 3: Panel Discussion**

**Moderated by: Francis X. Shen, J.D., Ph.D.**

In this panel discussion, we will discuss pre-sentencing issues, post-sentencing challenges, and wrap-up with a question and answer period.

**Panelists:**
- The Hon. Thomas T. Cullen, United States Attorney, Western District of VA
- The Hon. J. Christopher Clemens, 23rd Judicial Circuit of Virginia
- Sheriff Kevin Hall, Alleghany County, Virginia
- Dr. Robert L. Trestman, Senior Vice President, Professor, and Chair of Psychiatry for Carilion Clinic and Virginia Tech Carilion School of Medicine
- Mr. Terrance Engles, Treatment Consultant, American Addiction Centers, Former Major League Baseball Player
- Ms. Christine Baldwin, Certified Peer Recovery Coach, Administrator for the Roanoke Valley HOPE Initiative
- Ms. Anne Barker, Regional Administrator for Community Corrections for the Eastern Region

**Incarceration costs and treatment costs: What is our ROI?**

Presented by: Jennifer Williams

The probation office supervises individual released by the court and monitors an individual’s compliance with conditions of release. This session will provide an overview of incarceration and supervision costs for federal and state agencies, and an overview of the supervision of defendants with treatment services needs. **Learning objectives include:**

- Exploring cost comparisons of detention versus release.
- Examining conditions of release that have a financial component.
- A synopsis of treatment in detention and in the community.

**Speaker Introductions:** The Hon. Michael J. Urbanski will introduce Ms. Jennifer Williams.

**Summary**

**The Hon. Michael F. Urbanski**

**Closing Remarks**

**Michael J. Friedlander, Ph.D.**

Please join us for a reception in the atrium following the conference. The reception is sponsored by Anderson & Friedman, Attorneys at Law.
Christine Baldwin

Ms. Baldwin is a 30-year-old in recovery from substance use disorder, who struggled with addiction for 15 years through marriage, pregnancy and jail. She graduated the Drug Court Program in June 2018, and has been clean for more than two years and is a Certified Peer Recovery Specialist. Ms. Baldwin is currently the administrator for the Roanoke Valley HOPE Initiative, guiding those suffering from substance use disorder along a path to treatment and recovery. Previously, she worked for On Our Own of Roanoke Valley as well as Blue Ridge Behavioral Health as a recovery coach, reaching out to those seeking a new way of life. Ms. Baldwin also works with the Prevention Council of Roanoke where she shared her story in the community reaching high schools, college students, and family members. Her passion in life is recovery and showing the sick and suffering addict that there is a way out. She is the proud mother of three children who are thrilled to have their mom back in their lives. Her goal in life is to be an outstanding mother and to continue giving those with substance use disorder the most crucial necessity – hope.

The Hon. Robert S. Ballou

Judge Ballou has served as a magistrate judge for the United States District Court for the Western District of Virginia since October 2011. Judge Ballou earned a bachelor’s degree from the University of Virginia in American Government and Economics in 1984 and graduated from the University of Virginia School of Law in 1987. Following law school, Judge Ballou clerked for the Honorable Peter H. Beer, United States District Court for the Eastern District of Louisiana, and then practiced for three years with Christian, Barton, Epps, Brent & Chappell in Richmond, Virginia. In January 1992, Judge Ballou returned to his hometown in Roanoke to join Johnson, Ayers & Matthews where he had a trial practice focused on insurance defense, construction and commercial litigation.

Anne Barker

Ms. Barker has worked for the Virginia Department of Corrections (DOC) since November 1988, and is currently the regional administrator for Community Corrections with the Eastern Regional Office of the Department of Corrections. She previously held the positions of probation officer, senior probation officer, deputy chief probation officer, and chief probation officer with the District 33 Probation & Parole Office in Warsaw, Virginia. Prior to the
Warren K. Bickel, Ph.D.

Dr. Bickel joined the Fralin Biomedical Research Institute at VTC in 2011 and serves as director of the institute’s Addiction Recovery Research Center and co-director of its Center for Transformative Research on Health Behaviors. In recognition of his extraordinary contributions to research and scholarship achievements, Dr. Bickel was recently awarded the Virginia Tech Carilion Behavioral Health Research Endowed Professorship. He received his Ph.D. in developmental and child psychology from the University of Kansas and completed postdoctoral training at the Johns Hopkins University School of Medicine. He has taught and led research programs at the Albert Einstein College of Medicine, the University of Vermont, and the University of Arkansas for Medical Sciences. The National Institutes of Health has funded his work continuously since 1987. His accolades include receipt of the 2011 APA International Don Hake Translational Research Distinguished Contributions to Basic Research Award and the 2012 Brady-Schuster Award for Outstanding Behavioral Science Research in Psychopharmacology and Substance Abuse, Division 28 of the American Psychological Association (APA). Dr. Bickel was honored to be the recipient of the 2016 Nathan B. Eddy Award from the College on Problems of Drug Dependence. He has served as President of the College on Problems of Drug Dependence, President of APA Division 28, and President of APA Division 50. Dr. Bickel was editor of the journal, Experimental and Clinical Psychopharmacology, has co-edited five books, and has published over 400 papers and chapters. Dr. Bickel’s work is frequently cited and receives national and international recognition.
The Hon. Thomas T. Cullen

Mr. Cullen was confirmed as United States Attorney for the Western District of Virginia on March 22, 2018, after being nominated by President Donald J. Trump on February 27, 2018. He took office on March 30, 2018. As U.S. Attorney, Mr. Cullen is the highest-ranking federal law enforcement official in the Western District of Virginia, a judicial district that includes 46 counties and 17 cities in the western half of the Commonwealth. He directs approximately 70 employees, including more than 30 Assistant U.S. Attorneys and Special Assistant U.S. Attorneys. Prior to becoming U.S. Attorney, Mr. Cullen was a partner at Woods Rogers PLC in Roanoke, where he led the firm’s white collar and government investigations practice and represented individuals and organizations in criminal

Nicholas C. Conte, J.D.

Mr. Conte, executive vice president and general counsel, joined Carilion Clinic in 2016. In addition to his responsibilities as Chief Legal Counsel, Mr. Conte also has responsibilities relating to the Carilion Clinic Foundation, Governmental and Legislative Affairs and is heavily involved with Virginia Tech Carilion initiatives and Carilion’s rural health strategies. Prior to joining Carilion, Mr. Conte served as the Chairman and CEO of Woods Rogers PLC, western Virginia’s largest law firm, with offices in Roanoke, Richmond, Charlottesville and Lynchburg. His practice included providing legal counsel to public, private and non-profit entities, boards of directors and executive teams. Mr. Conte is a member of the board of directors of the Virginia Health Care Foundation and is active on the boards of various other community organizations.

The Hon. J. Christopher Clemens

Judge Clemens served as a General District Court Judge for the 23rd Judicial Circuit from May 2008. He was then appointed to the Circuit Court bench in May of 2016. Judge Clemens earned his bachelor of arts degree from Roanoke College in Political Science in 1987. He graduated from the University of Richmond with his law degree in 1990. Judge Clemens practiced with Gentry Locke Rakes & Moore, and with Guynn & Clemens, until he went into practice with his father to form Clemens & Clemens PC, handling trial practice in plaintiff’s matters, criminal cases and domestic disputes. He currently serves as the 23rd Judicial Circuit Drug Court Judge, a position he has held since 2017.

The Hon. Thomas T. Cullen

Mr. Cullen was confirmed as United States Attorney for the Western District of Virginia on March 22, 2018, after being nominated by President Donald J. Trump on February 27, 2018. He took office on March 30, 2018. As U.S. Attorney, Mr. Cullen is the highest-ranking federal law enforcement official in the Western District of Virginia, a judicial district that includes 46 counties and 17 cities in the western half of the Commonwealth. He directs approximately 70 employees, including more than 30 Assistant U.S. Attorneys and Special Assistant U.S. Attorneys. Prior to becoming U.S. Attorney, Mr. Cullen was a partner at Woods Rogers PLC in Roanoke, where he led the firm’s white collar and government investigations practice and represented individuals and organizations in criminal
matters, internal investigations, and complex litigation. Before entering private practice, he served as the Deputy Criminal Chief and an Assistant United States Attorney in the Western District of Virginia, where he directed numerous multi-agency investigations and prosecutions, supervised Assistant United States Attorneys, and coordinated with officials at the Department of Justice in Washington D.C. Mr. Cullen began his career as a federal prosecutor as an Assistant U.S. Attorney in Charlotte, NC. As a former prosecutor and defense attorney, Mr. Cullen has investigated, prosecuted, and defended matters involving healthcare fraud, financial fraud, tax offenses, embezzlement, public corruption, racketeering, drug conspiracy, money laundering, and violent crimes. Mr. Cullen, a Richmond native, received his J.D., Order of the Coif, from William and Mary Law School, and his B.A. from Furman University. Following his graduation from law school, he clerked for United States District Judge Robert E. Payne in the Eastern District of Virginia, and then for Judge Roger L. Gregory, now Chief Judge of the United States Court of Appeals for the Fourth Circuit.

Terrence Engles

Mr. Engles joined American Addiction Centers in May 2015. He currently works as a treatment consultant in the Roanoke Virginia area. He is a former Major League Baseball player, drafted in the 20th round by the Washington Nationals. Mr. Engles spent six years in the major leagues as a member of both the Washington Nationals and Seattle Mariners organizations. The same passion and enthusiasm he once brought to the baseball field, Mr. Engles now brings to the recovery field through his work in the Roanoke area. His own personal experience with substance use disorder and working the 12 steps has helped fuel his desire to lead other individuals along a path towards a better way of life.

Michael J. Friedlander, Ph.D.

Dr. Friedlander joined the Fralin Biomedical Research Institute at VTC in 2010 as its inaugural executive director, where he currently provides leadership to 26 premier research teams working to prevent, diagnose, and treat major health challenges. Institute faculty members hold more than $100 million in ongoing research grants. In addition, he serves as vice president for health sciences and technology at Virginia Tech, where he leads the development of the university’s Faculty of Health Sciences and the growth of the Academic Health Center in Roanoke. His personal research program is directed at understanding the processes that regulate alterations in synaptic efficiency between neurons within the cerebral cortex – synaptic plasticity – and how these cellular processes...
Sheriff Kevin W. Hall

Sheriff Hall started his law enforcement career on Feb. 1, 1986, with the Covington Division of Police. He is a 1989 graduate of Dabney S. Lancaster Community College with an associate’s degree in Administration of Justice. While employed by Covington, he was a patrolman, shift sergeant, Dare officer, school resource officer, Drug Task Force Detective, and left as a Detective Sergeant in Criminal Investigations. He was elected Sheriff of Alleghany County/City of Covington in November 2007 and is now serving his third four year term in that capacity. Presently he serves on the Virginia E-911 Services board appointed by Gov. Terry McAuliffe, and the Virginia Sheriff’s Association in 2015. Sheriff Hall was appointed by Gov. Ralph Northam to the Opioid Commission in 2018.

Read Montague, Ph.D.

Dr. Montague’s work focuses on computational neuroscience - the connection between physical mechanisms present in real neural tissue and the computational functions that these mechanisms embody. His early theoretical work focused on the hypothesis that dopaminergic systems encode a particular kind of computational process, a reward prediction error signal, similar to those used in areas of artificial intelligence like optimal control. In pursuit of testing these ideas in humans, Dr. Montague founded the Human Neuroimaging Lab at Baylor College of Medicine.
Francis X. Shen, J.D., Ph.D.

Dr. Shen is the executive director of the Harvard Massachusetts General Hospital Center for Law, Brain, and Behavior, and an associate professor of Law, McKnight Presidential Fellow, and faculty member in the Graduate Program on Neuroscience at the University of Minnesota. He directs the Shen Neurolaw Lab, whose motto is, “Every story is a brain story.” He serves as the executive director of education and outreach for the MacArthur Foundation Research Network on Law and Neuroscience, and speaks nationally and internationally to legal and scientific audiences. Dr. Shen is currently a member of the National Institutes of Health Neuroethics Subgroup. He received his bachelor’s degree from the University of Chicago, his juris doctor degree from Harvard Law School, and his doctoral degree from Harvard University. Dr. Shen conducts empirical and legal research at the intersection of law and neuroscience and is a nationally recognized speaker and legal educator, and has provided judicial education and training in programs sponsored by organizations such as the Federal Judicial Center, National Judicial College, American Bar Association, National Association of State Judicial Educators, American Judges Association, and the American Association for the Advancement of Science. He has co-authored 3 books, including the
first Law and Neuroscience casebook (Aspen). He has also published articles on neurolaw topics, including memory and lie detection, cognitive enhancement, criminal justice, brain injury, evidentiary admissibility, sports concussion, juror decision-making, criminal mental states, dementia, and mental health. He is currently a co-lead principal investigator on a neuroethics administrative supplement grant exploring the ethical implications of mobile neuroimaging by embedding neuroethics research into the parent NIH BRAIN grant “Imaging Human Brain Function with Minimal Mobility Restrictions” (Mike Garwood, PI).

In Minnesota, Dr. Shen leads a statewide effort to improve youth sports concussion policy. Dr. Shen is also currently a member of the National Conference of Lawyers and Scientists (NCLS), a joint committee of the American Association for the Advancement of Science and the American Bar Association; serving on the board of directors for the Center for Science and Law; and serving on the Board of Scientific Advisors for the National Courts and Science Institute. In addition to his work on neurolaw, Dr. Shen has also published seven articles and a book on American war casualties, and is a member of the All-Volunteer Force Forum.

Robert L. Trestman, Ph.D., M.D.

Dr. Trestman joined Carilion Clinic in April 2017 as senior vice president, professor, and chair of psychiatry for Carilion Clinic and Virginia Tech Carilion School of Medicine. Dr. Trestman earned a bachelor’s degree in chemistry and psychology from Carnegie-Mellon University and his doctoral degree and medical degree from the University of Tennessee. He trained in psychiatry at the Mount Sinai Medical Center in New York. Dr. Trestman is a nationally recognized expert in psychiatry and population health and has an extensive background in education and research. Dr. Trestman previously was a tenured professor of medicine and psychiatry at the University of Connecticut School of Medicine, with a joint appointment as professor of nursing. He served as executive director of a division of the University of Connecticut Health Center that provided global health care to all inmates within the Connecticut Department of Correction. Prior to that, he served in numerous academic and leadership roles at the University of Connecticut, Mount Sinai Medical Center in New York, and the Bronx Veterans Affairs Medical Center. Dr. Trestman has lectured and consulted nationally and internationally, authored or coauthored over 150 peer reviewed articles, book chapters, and commentaries, and is the senior editor of the Oxford Textbook of Correctional Psychiatry. His interests include mental health services research and the neurobiology and treatment of people with severe mood and personality disorders. He serves on the American Psychiatric Association Councils of Health Systems and of Psychiatry and the Law, the Data Safety Monitoring Board of the National Institute of Mental Health, and as chair of the Research Committee for the American Academy of Psychiatry and the Law Institute for Education and Research.
The Hon. Michael F. Urbanski

Judge Urbanski took the oath of office as United States District Judge for the Western District of Virginia on May 13, 2011, and principally hears cases in the Roanoke and Harrisonburg Divisions. He became Chief United States District Judge for the Western District of Virginia on July 3, 2017. In 2018, Judge Urbanski led the development of a Drug Treatment Court in the Western District of Virginia. Judge Urbanski also has conducted a Reentry Court designed to aid the return to society of offenders recently released from federal prison. From 2004 to 2011, he served as United States Magistrate Judge. While in that role, he initiated a federal Veterans Treatment Court which continues today. Prior to judicial service, Judge Urbanski practiced law for 22 years with Vinson & Elkins in Washington, D.C. and Woods Rogers in Roanoke, Virginia. His practice focused on commercial litigation with substantial emphasis in the areas of business torts, antitrust, unfair competition and intellectual property law. Judge Urbanski graduated from the College of William and Mary in 1978 and the University of Virginia Law School in 1981. He served as a law clerk for The Honorable James C. Turk, then the Chief United States District Judge for the Western District of Virginia, after his graduation from law school.

Jennifer K. Williams

Ms. Williams has served in government criminal justice roles for more than 20 years. After serving in the Department of Corrections, Probation and Parole, in Roanoke for four years, Ms. Williams joined the U.S. Probation Office in 2001, where she currently serves at the Chief Probation Officer. She holds a Bachelor of Arts in Criminal Justice from Mansfield University.
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