Joseph A. DeMaro

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**Education:**

**Marshall University** Huntington, WV

**M.S. 2017**

**Forensic Science** specializing inCrime Scene Investigation and DNA analysis

**Purdue University** West Lafayette, IN

**B.S. 2015**

**Biology** specializing inGenetics, Neurobiology, and Physiology

**Minors:** Forensics, Psychology, and Russian

**Relevant Coursework:**

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| --- | --- |
| * Advanced DNA Technologies * Firearms and Toolmarks Examination * Organic Chemistry I and II with Labs * Statistics for Biologists * Human Genetics | * Crime Scene and Death Investigation * Microscopy * Advanced Criminalistics * Genetics and Molecular Biology with Lab |

**Certificates/Online Coursework:**

2019 - Introductory Certification by American Gunsmithing Institute (in progress)

# 2019 - Coursera: Challenging Forensic Science: How Science Should Speak to Court (in progress)

2019 – FAA 107 – UAV Commercial License Training (in progress)

2018 - Bureau of Alcohol, Tobacco, and Firearms NIBIN Entry Training

2017 – ISO 17025 – Laboratory Management

2016 - National Institute of Justice Firearms Examiner Training (online)

**Work Experience:**

**Arkansas State Crime Laboratory Little Rock, Arkansas**

**Firearms Section Trainee**

April 2018 to August 2019

Specific duties included test firing firearms and generating cartridge cases for entry into the NIBIN database, evaluating cartridge cases for entry into NIBIN, generating lead and hit letters for law enforcement agencies, working with law enforcement to understand firearm analysis through oral and written communication and firearm function testing. Supervised casework included comparison examination of bullets, cartridge cases, and fired shotshell components, distance determination (gunshot residue and shot pattern analysis), and serial number restoration. Duties also included working in the laboratory environment using the Laboratory Information Management System, Six Sigma project management, and various reporting tools.

**Arkansas State Crime Laboratory Little Rock, Arkansas**

**DNA Section Trainee**

December 2017 to April 2018

Responsibilities included cutting of sexual assault kits and helping to resolve the backlog of kits Additional duties involved learning about forensic DNA analysis, assisting in stocking and maintaining laboratory rooms, and assisting in maintaining and storing samples.

**Marshall University Huntington, West Virginia**

**Department of Forensic Science Internship**

May 2016 to May 2017

Responsibilities included researching developing and implementing protocols for using an Unmanned Aerial Vehicle (drone) to document large and remote crime scenes. Internship incorporated developing and validating protocols to determine the most affordable and best practices in evaluating crime scenes. My project involved working closely with Huntington, West Virginia Police Department Crime Scene Division and the Director of the Marshall University Forensic Department.

**Marshall University Huntington, West Virginia**

**Department of Forensic Science Graduate Assistant**

August 2015 to May 2016

Responsibilities included autoclaving, UV’ing and stocking laboratory consumables. Maintained lab equipment for use by DNA analysts. Performed checks and maintenance on laboratory equipment.

**Purdue University West Lafayette, Indiana**

**Department of Entomology (Forensics) Interim Lab Manager**

May 2015 to August 2015

Responsibilities included bringing remote lab facility into working order, restructuring Death Investigation course, and assisting in teaching lab preparation. The Purdue University Forensics program has been looking to expand and develop recently and has begun offering more courses. In order to give students a realistic class without the need for expensive and time-consuming scheduling, set up, and tear down, Panoramic Photography was used to capture mock crime scenes used for teaching purposes.

March 2015 to May 2015

Responsibilities included organizing forensics lab, assisting in essential lab functions, making solutions for labs, and otherwise aiding Dr. Stamper in the activities within the forensics teaching lab.

**Saint Louis County Health Department Saint Louis, Missouri**

**Toxicology Laboratory Laboratory of Dr. Christopher Long**

May 2014 to May 2015

Responsibilities included logging and maintaining the chain of evidence for samples sent to the facility by medical examiners around the nation and testing blood samples for carbon monoxide in order to determine cause and mechanism of death. The position started as a volunteer job and evolved to being hired.

**Purdue University West Lafayette, Indiana**

**Department of Entomology (Forensics) Teaching Assistant**

January 2014 to May 2014

Responsibilities included advising on improving and restructuring labs, setting up and testing labs for students, presenting information on topics in forensics, and generating quizzes.

**Purdue University West Lafayette, Indiana**

**Department of Entomology (Forensics) Laboratory of Patrick Jones**

August 2013 to May 2014

The project involves taking panoramic photographs of buildings to construct interactive panoramas for use by emergency personnel and virtual touring. Entire buildings, exterior, and interior can be stitched to give a complete, realistic profile of the structure and furniture and other items in the building that could impede or prevent response by emergency personnel.

**Washington University School of Medicine Saint Louis, Missouri**

**Department of Medicine – Renal Division Laboratory of Dr. Sanjay Jain**

May 2013 to December 2013

The project involved the characterization and quantification of nociceptors in bladder epithelia in GDNF/+ urinary tract infection model mice by histological assays under the guidance of Amanda Knoten, Sanjay Jain, and Masato Hoshi. I worked mostly independently with advice from PI and other lab members.

Additionally, I continued to work on the DAT project, quantifying dopaminergic neurons in the small intestine of DAT model mice through immunohistochemical assays. I also made the images for the gut innervation and aided in writing and editing the paper, now in press.

**Washington University School of Medicine Saint Louis, Missouri**

**Department of Anesthesiology – Pain Center Laboratory of Dr. Robert Gereau**

March, May to August, and December 2012:

Project involved the characterization of the role of Extracellular signal-related kinases 1 and 2 in peripheral nerve development and innervation of P0 mice through behavioral and histological assays under the guidance of Daniel O’Brien. Closer supervision given the nature of the experiments, however after a few times doing the same assay, more independence was granted. Additionally, I continued to work on the DAT project described below. I wrote part of, and created figures for, the DAT paper. I have a second authorship position on the DAT paper.

Research during the summer months was on a volunteer basis, out of respect for monetary constraints. In order to see the DAT project through on my end, I spent a day or more and most of my breaks from school collecting and analyzing data collected from footprinting assays or editing the manuscript into its current form.

March and May to August 2011:

Responsibilities included:

* The collection and analyses of data from footprint assay.
* Continuation of footprint assay to collect data.

I worked entirely independently, providing assistance to lab members for data entry and statistical data analyses.

May to August 2010:

Projects involved:

* DAT research including the construction of apparatus to characterize gait and stance deficits in DAT mice under the instruction of Dr. Michael Montana and Dr. Judith Golden.
* Independent project in developing an assay to quantify gait and stance deficits. Some (important) input from colleagues and collaborators, mostly independent project.

May to August 2009:

Responsibilities included:

* Histological analyses of mGluR5 mice and locating receptors in dorsal root ganglia under the guidance of Dr. Michael Montana.
* Behavioral analyses of mGlu5 mice using scientifically established behavioral test including rotarod and Hargreaves.

It was at this juncture that I was first tasked with planning and executing my own experiments. Dr. Montana provided guidance and scientific and technical assistance as needed.

May to August 2008:

Responsibilities included:

* Lab tasks such as making solutions, cleaning equipment and glassware under the guidance of Mr. John Kaiser.
* Conducting behavior experiments under the guidance of Dr. Benedict Alter.

**Peer-Reviewed Publications:**

O’Brien, D., Alter, B., Satomoto, M., Morgan, C, Davidson, S., Vogt, S., Norman, M., Gereau, G., DeMaro 3rd, J., Landreth, G., Golden, J. and Gereau, R. ERK2 Alone Drives Inflammatory Pain But Cooperates with ERK1 in Sensory Neuron Survival. Journal of Neuroscience 24 June 2015. 35(25):9491-9507.

Golden J., DeMaro, J., Knoten, A., Pehek, E., Johnson, E., Gereau, R. and Jain, S. Dopamine-dependent compensation maintains motor behavior in mice with developmental ablation of dopaminergic neurons. Journal of Neuroscience 23 October 2013, 33(43):17095-17107.

**Presentations:**

2015 - American Academy of Forensic Sciences Meeting in Orlando, Florida. Presentation on Panoramic Crime Scene Photography

2016 – Huntington, WV Police Department. Presentation on Panoramic Photography and its application to Active Shoot Situations.

2016 – Marshall University Graduate Student Presentations. Are you safe here? Active shooter recognition, action plan, and prevention.

2017 - Marshall University Masters Thesis Presentations. Forensic Application Of The DJI Phantom 2 Vision Plus. Affordable, effective UAV solutions for law enforcement.

2018 – Arkansas State Crime Laboratory. Presentation on Remington and Sig Sauer Ammunition Plant Tours.

2019 – Arkansas State Crime Laboratory (Grand Rounds). Presentation on Panoramic Photography in the context of crime scene investigation and scene preservation.

**Accomplishments**:

Boy Scouts Achieved rank of Eagle Scout on 3/3/2011.

Junior Olympics Air Rifle Team 5th place team finish in 2011 and 2009