

Neuroscience Axis and Forensics Club
present...

The Making of a Serial Killer

Upcoming Events

THE
DANA
FOUNDATION

non-profit organization that aims to bring awareness to the importance of brain research and brain disorder stigmatization

Brain Awareness Week: travel to local high school and middle schools to teach about neuroscience and brain health

- March 12th - 16th (spring break)
- Islip Middle School 5th graders -- Monday, March 12th
- Patchogue-Medford High School -- Thursday, March 15th
- More schools to come!



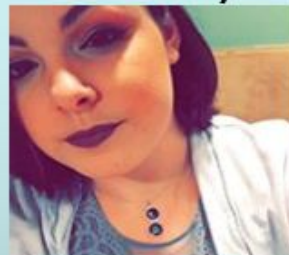
To inform and educate students about the reality of forensics and its impact on society; through media, politics, science, the justice system and everyday life. Our goal is to portray the many faces of forensics and provide vast knowledge on the topic.

President



Ingram Tam

Secretary



Camille Morelli

Vice President



Brooke Strahley

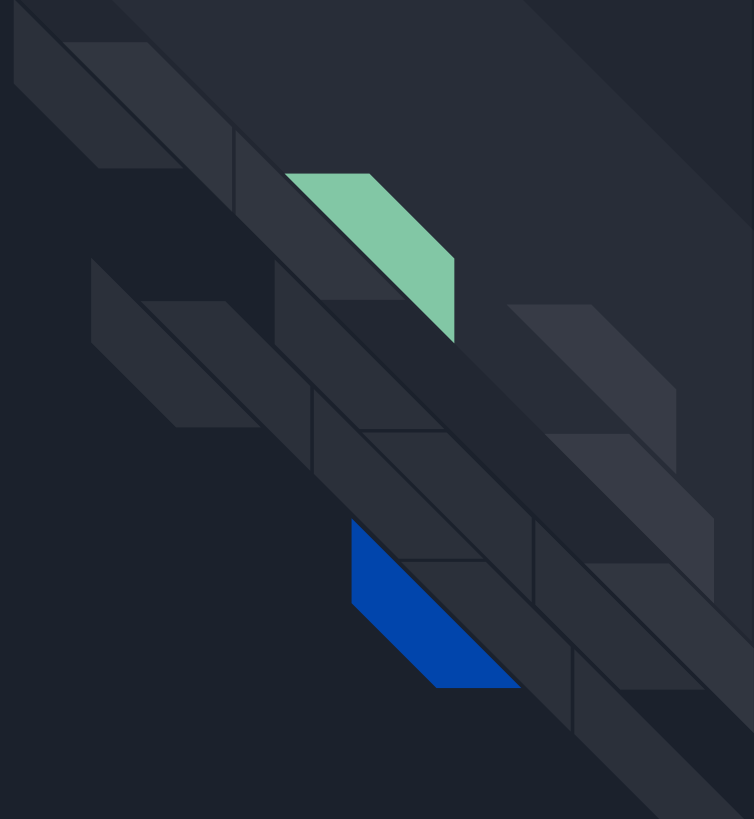
Treasurer



Muhammad Hassan

What Forensic Science Consists of

- Toxicology
- Entomology
- Serology
- Arsons and Explosives
- Fingerprinting
- Blood Spatters
- Impression Analysis
- **Psychology**



Forensic Psychology Career

- They are licensed psychologists with a graduate degree (PhD or PsyD)
- Applies psychological knowledge to legal matters, both in criminal and civil cases
- There's an emphasis on written report and court testimony
- Requires a good science background and solid investigatory skills
- They observe, question, and interpret how people relate and react in certain situations
- Annual wage
 - \$38,502-112,719 (median: \$62,863)



Methods of Forensic Psychology

- **Research**

- Forensic psychologists develop and administer research on topics that apply to the legal system. For example, they might conduct research regarding the reliability of eyewitness testimony or sources of misidentification of police lineups due to tainting of witnesses.

- **Evaluate**

- Many criminal cases require psychological evaluation in order for a legal decision to be made. For example, whether a defendant convicted of a sexual crime must register under sex offender laws may depend on the assessment of whether the defendant is a sexual predator.

- **Consult**

- Tasks can vary. They can include recommending which opening statement is more likely to be accepted by a jury; which types of jurors should be rejected; administering mock trials to see how potential jurors will view a lawyer's arguments, strategy and tactics; conducting community surveys and establishing focus groups to discuss how the parties in a case may be perceived at trial.

How to Become a Forensic Psychologist

- Attain a doctoral degree in psychology
- Obtain a doctorate in Law (optional)
- Earn certification in forensic psychology from the American Board of Professional Psychology (ABPP)
 - Attend an accredited doctoral degree program.
 - Become a licensed psychologist in your state.
 - Complete a minimum of 100 hours of education, which can include supervision or continuing education, in forensic psychology.
 - Earn a minimum of 1,000 hours of postdoctoral forensic psychology experience.



Understanding Serial Killers

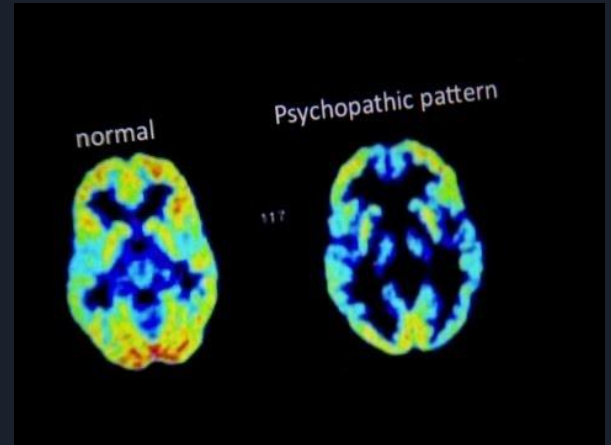
- More likely to have a history of criminal involvement, often in the form of petty criminality
- Some exhibit tell-tale signs of a psychopathic personality
- Many have a rich fantasy lives capable of fueling their appetite for murder with or without the aid of additional facilitative conditions such as drugs or alcohol
- They normally take something away from the crime scene or the victim as a trophy to not only help re-live the incident, but to fuel for future killings
- Motive for killing is usually sexually-related

Brain Differences in Serial Killers

- Psychopaths reliably exhibit behaviors such as superficial charm and a lack of empathy (for an inclusive list see Hare, 1990)
- Typically have a low resting heart rate (Lorber, 2004),
- Likely to have significant differences in their brain such as
 - reduced prefrontal gray matter (Raine et al., 2000)
 - amygdalar abnormalities (Blair, 2003), and
 - asymmetric hippocampi (Raine et al., 2004).
- One can only speculate how these brain differences could be implicated in psychopathic behavior, but it does mean that if we scanned the brain of a serial killer and measured their heart rate, these are the kind of differences we could expect to find.

James Fallon

- American neuroscientist
- Conducted PET scans on all his family to find out if any had brains similar to those of psychopaths since his family has a history of violence.
- Found out that there were deficiencies in brain regions such as orbitofrontal cortex and the inferior temporal cortex, among others.
- Also contributed to research concerning the MAOA gene, aka the warrior gene, which regulates serotonin in the brain.





Case study #1: Explosions at Radio City Music Hall

An ongoing series of bombings in NYC's Radio City Music Hall involved more than a dozen explosions between 1940 and 1950. This case proved to be so problematic for the police that it was one of the inspirations for the development of the FBI. **Psychologist James Brussel** was able to determine that due to the intricacy and knowledge of the explosives, the bomber was probably an engineer, most likely from Con Edison. This brought the police towards **George Metesky, aka the Mad Bomber**. He would bomb phone booths, storage lockers, and public buildings like Penn Station, Grand Central Station, and the Port Authority Bus Terminal. In theatres, he would cut into the seats and slip his explosives inside. He was found legally insane and placed in a state mental hospital.



Case Study #2: Andrei Chikatilo

Andrei Chikatilo, aka The Red (Rostov) Ripper, lived a difficult childhood and the only sexual experience he had as an adolescent led to much ridicule, which later led to sexually violent acts. Aside from living in famine throughout his childhood, he is also believed to have suffered from hydrocephalus at birth. His reign of terror had Russian police mystified for more than two decades, until it became one of these famous cases cracked by forensic psychologists. To date, Chikatilo has been linked with the murders of **53** Russian women and children. Growing frustrated with the lack of promising leads, **Viktor Burakov**, the case's chief investigator decided to employ a new method. He enlisted **Dr. Alexander Bukhanovsky's** help in compiling a psychological profile for the killer. This information proved invaluable in narrowing down their list of suspects down to Chikatilo himself, who confessed to his horrific crimes in 1990.

Solving TED-Ed Riddles

