

# **Instructor Manual for Criminal Profiling: Introduction to Behavioral Evidence Analysis, Fourth Edition**

## **Chapter 1: A History of Criminal Profiling**

Inferring the traits of individuals responsible for committing criminal acts has commonly been referred to as *criminal profiling*. Criminal profiling has a legal history that can be traced back to the blood libel of Jews in Rome, 38 CE.

### **History of Criminal Profiling**

#### *Blood Libel*

One of the first documented uses of criminal profiling involves the demonization of the Jews. The “blood libel,” or false accusation of ritual killing, is an early and persistent form of criminal profiling because it involves a predetermined set of crime-related characteristics used to infer and consequently accuse a particular suspect pool --- namely the Jews. A general profile used includes one or more of the following elements:

- A young Christian male goes missing
- A Jewish community is nearby
- The child goes missing on or just prior to Passover
- The body may have injuries that appear to be the result of a ritual
- The body may have lost a great deal of blood or may simply appear so

The inference is then drawn that the Jewish community has effected a ritual abduction, torture, and murder, and this fear is fanned by some preexisting anti-Semitic sentiment.

#### *Witches*

One of the first published texts that offered explicit instruction on the subject and practice of profiling criminal behavior is *The Malleus Maleficarum*. When the text was written, and years since, the Catholic Church held that witches and other heretics were in a league with the Devil. Witches were described primarily as women who:

- Have a spot, scar, or birthmark, sometimes on the genitals and sometimes invisible to the Inquisitor’s eye
- Live alone
- Keep pets (a demon in animal form known as a *familiar*)
- Suffer the symptoms of mental illness
- Cultivate medicinal herbs
- Have no children

During the time of these Medieval Inquisitions, one could be branded a witch or heretic by mere accusation, tried by an Inquisitors’ court, tortured, and ultimately burned at the stake.

### *The Spanish Inquisition*

The Spanish Inquisition was ordained by the Catholic Church to assist the Spanish government with the identification of *converses*, mainly Muslims and Jews, who had pretended to convert to Christianity but secretly continued the practice of their former religion. Religious behavioral profiling was a tool used to help Catholics better inform on their heretical neighbors.

## **Modern Profilers: A Multidisciplinary Historical Perspective**

Over the past 200 years, professionals engaged in the practice of criminal profiling have included a broad spectrum of investigators, behavioral scientists, social scientists, and forensic scientists. It has never been the province of a single discipline or agency.

### **Criminologist**

#### *Cesare Lombroso (1835-1909)*

Cesare Lombroso is generally thought to have been one of the first criminologists to attempt to formally classify criminals for statistical comparison. By comparing information about similar offenders such as race, age, sex, physical characteristics, education, and geographic region, Lombroso reasoned, the origins and motivations of criminal behavior could be better understood and subsequently predicted.

### **Investigative Criminologists**

#### *Sir Arthur Conan Doyle (1859-1930)*

In *A Study in Scarlet*, through the character of Dr. John Watson, Conan Doyle outlined the evidence-based method of inference and deduction that would become the defining element of Sherlock Holmes's fictional reconstruction and criminal profiling casework.

#### *Dr. Johann (Hans) Baptist Gustav Gross (1847-1925)*

Gross is arguably the founding father of modern criminal profiling. In 1893, Gross published *Criminal Investigation, A Practical Textbook for Magistrates, Police Officers, and Lawyers*. Gross proclaimed the virtues of science against intuition, and a systematic approach to holistic crime reconstruction and criminal profiling against uninformed experience and overspecialization. The success of this groundbreaking textbook was unparalleled in the history of forensic science, crime reconstruction, and criminal profiling.

#### *O'Connell and Soderman (1935)*

In 1935, the first edition of *Modern Criminal Investigation* was published by John J. O'Connell and Harry Soderman. The text provides detailed profiles of different types of criminals. The emphasis of the text is on recognition and reconstruction of physical evidence.

### **Forensic Scientists**

#### *Dr. Paul L. Kirk (1902-1970)*

In 1953, Kirk published *Crime Investigation*, a treatise on criminal investigation, crime reconstruction, and forensic examination that endures to this day as a foundational industry standard with few equals.

## **The Federal Bureau of Investigation (FBI)**

The FBI's involvement in profiling began during the 1960s, with a few courses taught by self-trained

FBI-employed profilers, based on their own education and experience. During the 1980s, the FBI formalized its profiling efforts and methods with the development of the Behavioral Science Unit, which was involved in profiling-related research, training, and case consultation. In 2000, the BAU was formed within and then separated physically from the BSU, owing to cultural disagreements between its law enforcement and psychologist factions. These tensions have continued throughout the subsequent decade, despite internal efforts to reform. The future of FBI profiling is, at present, unclear.

Modern criminal profiling is, owing to a diverse history, grounded in the study of crime and criminal behavior (criminology), the study of mental health and illness (psychology and psychiatry), and the examination of physical evidence (the forensic sciences). In its many forms, it has always involved the inference of criminal characteristics for investigative and judicial purposes. The reasoning behind those inferences, however, has not always been consistent. It ranges from a basis in statistical argumentation, to examining specific criminal behaviors, to subjective intuitive opinions based on personal belief and experience.

### *Key Terms*

*Academy of Behavioral Profiling*: the first international, independent, multidisciplinary professional organization for professionals engaged in criminal profiling or students of related disciplines. Developed and adopted the first ethical guidelines and practice standards for the criminal profiling profession to be published.

*Blood libel*: a false accusation of ritual killing made against one or more persons, typically of the Jewish faith.

*Criminal profiling*: inferring the traits of individuals responsible for committing criminal acts.

*Criminology*: the study of crime, criminals, and criminal behavior.

*The Malleus Maleficarum*: one of the first published texts that offered explicit instruction on the subject and practice of profiling criminal behavior---essentially a rationale and guide for those involved with the Inquisition to assist in the identification, prosecution, and punishment of witches.

*Pseudo-rational attribution*: a form of false deduction defined as the practice of falsely suggesting that traits, conditions, phenomena, or causal relationships exist because they can be traced to a divine or authoritative source---usually written---which was actually penned in response to a prejudiced belief rather than proving it with evidence and reason.

*Pseudo-rational attribution effects*: any of the various consequences of pseudo-rational attribution, including false accusations, witch hunts, and miscarriages of justice such as wrongful arrests, convictions, and executions.

*Salem Witch Trials*: a series of court proceedings and trials in the furtherance of prosecuting those alleged to have committed acts of witchcraft in Massachusetts from 1692 to 1693. Expert “scientific” testimony on the profiles of witches allowed as evidence in court for the first time in what would eventually become the United States.

*Spanish Inquisition*: the formal authorization of the Catholic Church to assist the government with the identification of converses, mainly Muslims (Moors) and Jews (*marranos*), who had pretended to convert to Christianity but secretly continued the practice of their former religion.

### *Multiple Choice Questions*

1. What is the name of the first published text that offered explicit instruction on the subject and practice of profiling criminal behavior?
  - a. The Malleus Hammer
  - b. The Witches' Maleficarum
  - c. **The Malleus Maleficarum**
  - d. None of the above
2. Modern criminal profiling is grounded in the study of what?
  - a. Crime and criminal behavior (criminology)
  - b. The study of mental health and illness (psychology and psychiatry)
  - c. The examination of physical evidence (the forensic sciences)
  - d. **All of the above**
3. Criminology is defined as the study of what?
  - a. Crime
  - b. Criminals
  - c. Criminal behavior
  - d. **All of the above**
4. Which of the following is *not* a type of criminal suggested by Cesare Lombroso's research?
  - a. Born criminals
  - b. **Nurtured criminals**
  - c. Insane criminals
  - d. Criminaloids
5. Ernst Kretschmer proposed that there is a high degree of correlation between body type, personality type, and criminal potential. What body type represents those with well-developed muscles and is associated with crimes of violence?
  - a. Leptosome or asthenic
  - b. **Athletic**
  - c. Pyknic
  - d. Dysplastic or mixed
6. Which of the following criminologists authored Sherlock Holmes?
  - a. **Sir Arthur Conan Doyle**
  - b. Hans Gross
  - c. Cesare Lombroso
  - d. John O'Connel
7. Which of the following criminologists is known as the founding father of modern criminal profiling?
  - a. Sir Arthur Conan Doyle
  - b. **Hans Gross**
  - c. Cesare Lombroso
  - d. John O'Connel
8. Paul Kirk developed a typology for what type of crime?

- a. Burglary
  - b. Homicide
  - c. Kidnapping
  - d. Arson**
9. O'Connell and Soderman developed profiles of criminals in regards to what type of crime?
- a. Burglary**
  - b. Homicide
  - c. Kidnapping
  - d. Arson
10. Criminal profiling is a multidisciplinary community. Which of the following is *not* a profession from which profilers tend to hail?
- a. Investigators
  - b. Criminologists
  - c. Forensic scientists
  - d. All of the above are professions from which profilers tend to hail**
11. The Whitechapel murders are also known as which of the following?
- a. The Strangler
  - b. Jack the Ripper**
  - c. Mad Bomber
  - d. None of the above
12. Which of the following was the first comprehensive textbook to systematically cover the integrated philosophy and practice of scientific criminal investigation, forensic analysis, crime reconstruction, and criminal profiling?
- a. A study in Scarlet
  - b. Criminal Investigation, A Practical Textbook for Magistrates, Police Officers, and Lawyers**
  - c. Modern Criminal Investigation
  - d. Crime Investigation
13. In *A Study in Scarlet*, Conan Doyle outlined a(n) \_\_\_\_\_ method of inference and deduction.
- a. Inductive
  - b. Statistical
  - c. Evidence-based**
  - d. Faith-based
14. Which of the following is *not* part of the Behavioral Science Unit's "three legged stool" model?
- a. Conducting research
  - b. Providing education and training within the law enforcement community
  - c. Providing case consultations to support the efforts of police
  - d. All of the above are part of the model**
15. What is the name of the first international, independent, multidisciplinary professional organization for those who are profiling or who are studying profiling?
- a. Academy of Behavioral Profiling**
  - b. Criminal Profiling Academy
  - c. Academy of Deductive Profiling

d. American Academy of Criminalists

*True/False Questions*

1. One of the first documented uses of criminal profiling involves the demonization of Jews. **True** or False?
2. Criminal profiling identifies the specific individuals responsible for committing criminal acts. True or **False**?
3. Blood libel accusations against the Jewish community no longer exist today. True or **False**?
4. The Spanish Inquisition was originally ordained by the Catholic Church to assist the Spanish government with the identification of those who had pretended to convert to Christianity but secretly continued the practice of their former religion. **True** or False?
5. A leptosome or asthenic body type represents those who are tall and thin and is associated with crimes of violence. True or **False**?
6. According to Cesare Lombroso, insane criminals were offenders who suffered from mental or physical illnesses and deficiencies. **True** or False?
7. The Whitechapel murders were the first crimes in which investigators and forensic personnel engaged in wound pattern analysis. True or **False**?
8. Forensic pathology is the branch of medicine that applies the principles and knowledge of the medical sciences to problems in the field of law. **True** or False?
9. The Federal Bureau of Investigation (FBI) was the first to develop and publish criminal profiling techniques. True or **False**?
10. The Federal Bureau of Investigation's (FBI) Behavioral Analysis Unit (BAU) is synonymous with the Behavioral Science Unit (BSU). True or **False**?

*Essay Questions*

1. Define *Salem Witch Trials*. Explain the impact the trials had on the history of criminal profiling.
  - **The Salem Witch Trials were a series of court proceedings and trials in the furtherance of prosecuting those alleged to have committed acts of witchcraft in Massachusetts from 1692 to 1693. Expert "scientific" testimony on the profiles of witches allowed as evidence in court for the first time in what would eventually become the United States.**
  - **Before the Salem Witch Trials came to an end, 20 people had been executed, at least 5 had died in prison, and more than 150 had been jailed.**
  - **The errors in logic and reasoning of the forensic experts during the Salem Witch Trials impacted the history of criminal profiling. These errors are repeated by profilers today.**
2. Explain the significance of the Whitechapel murders in Great Britain in 1888.

- During the Whitechapel murders, Dr. George B. Phillips engaged in a direct method of inferring criminal characteristics by relying on a careful examination of the wounds of particular offender's victims. He inferred a criminal's personality by examining the behavior of that particular criminal with his victim.
  - This practice speaks to the value placed, even then, on what is today referred to as wound pattern analysis.
  - The investigation of this case offers some of the earliest written documentation of the types of inferences drawn from violent, aberrant, predatory criminal behavior by those involved in criminal investigations.
3. Explain the significance of Dr. Paul Kirk's contributions to the area of criminal profiling.
- Kirk published *Crime Investigation*, a treatise on criminal investigation, crime reconstruction, and forensic examination that endures to this day as a foundational industry standard with few equals. He took a bold position on the importance of crime reconstruction and behavioral evidence analysis.
  - He viewed criminal profiling as the natural outcome of physical evidence examination, which is the foundation of the deductive profiling method of Behavioral Evidence Analysis.
  - Subsequent to his work, other forensic scientists have recognized the important role that physical evidence and crime reconstruction play in both criminal profiling and suspect development.

## Chapter 2: Criminal Profiling: Science, Logic, and Cognition

Criminal profilers need to understand how valid inferences are made. An *inference* is a particular type of conclusion based on evidence and reasoning. This is different from a *speculation*, which is a conclusion based on theory of conjecture without firm evidence. Valid inferences require the use of the scientific method, an applied understanding of the science of logic, and knowing how to know when you are wrong. It also requires some understanding of bias.

### Bias

The scientific observer is inherently imperfect. This stems from the fact that subtle forms of bias, whether conscious or unconscious, can easily contaminate their seemingly objective undertakings. *Observer effects* are present when the results of a forensic examination are distorted by the context and mental state of the forensic examiner, to include the examiner's subconscious expectations and desires.

The majority of practitioners in the forensic community routinely acknowledge the existence of overt forms of conscious bias. That is, they generally recognize and condemn forensic ignorance, forensic fraud, and evidence fabricators when they are dragged into the light and exposed for all to see. Although the forensic community is somewhat attenuated to the potential for extreme forms of outright fraud and overt bias, it tends to be wholly unaware when it comes to understanding and accepting that well-documented forms of covert bias can taint even the most impartial scientific examinations. This is disheartening for the simple reason that covert and subconscious biases represent a far greater threat to the forensic community than do the small percentage of overtly biased, dishonest, or fraudulent forensic examiners. This form of bias must be recognized and methods and mechanisms to blunt its effect must be embraced. A strict adherence to, and a full embrace of, the scientific method is the first in a series of steps that can blunt the effects of even the most pervasive forms of bias.

### Science and the Scientific Method

The relationship between scientists, the scientific method, and science is thus: Scientists employing the scientific method can work within a particular discipline to help create and build a body of scientific knowledge to the point where its theories become principles and the discipline as a whole eventually becomes a science. The discipline remains a science through the continued building of scientific knowledge, as this is regarded as a process rather than a result.

The *scientific method* is a way to investigate how or why something works, or how something happened, through the development of hypotheses and subsequent attempts at falsification through testing and other accepted means. The steps of the scientific method are as followed:

1. *Observation.* An observation is made regarding some event, fact, or object. This observation leads to a specific question regarding the event, fact, or object, such as where or when an object originated or how an object came to possess certain traits.
2. *Hypothesis.* A hypothesis, or educated estimate, is formulated regarding the possible answer. Often, there is more than one possible answer.
3. *Experimentation.* Experiments are designed and intended to disprove their hypothesis. The absolute cornerstone of the scientific method is *falsification*.

## Science as Falsification

*Falsification* is the act of refuting or disproving a hypothesis or theory. If a hypothesis remains standing after a succession of tests or experiments fail to disprove it, then it may become a *scientific theory*, which may be stated or presented with a reasonable degree of scientific certainty. Scientific theories that withstand the test of time and study eventually become *scientific principles*.

The correct use of the scientific method is impossible without critical thinking and the science of logic to accurately synthesize, interpret, and apply the results.

## Critical Thinking

*Critical thinking* refers to indiscriminately questioning all evidence and assumptions, no matter what their source. Critical thinking can be seen as having two components:

1. a set of skills to process and generate information and beliefs; and
2. the habit, based on intellectual commitment, of using those skills to guide behavior.

For the purposes of forensic examination (which, again, includes criminal profiling) the application of critical thinking to casework means a staunch refusal to accept any evidence or conclusions without sufficient proof. It involves the careful and deliberate determination of whether to accept, reject, or suspend judgment about any information or related findings. It means skeptical gathering of evidence, skeptical examinations, and the skeptical interpretation of results.

This includes the following tasks:

1. Evaluating the nature and quality of any information and its source
2. Recognizing bias in all of its forms, including all of the sources of bias
3. Separating facts from opinions
4. Distinguishing between primary sources of information (unaltered—direct from the source) and secondary sources of information (altered—interpreted or summarized through someone else)
5. Synthesizing information.

## The Science of Logic

*Logic* can be defined as the process of argumentation and the science of valid thought and reasoning. The following are the basic principles of logic:

1. *The principle of identity.* A thing is what it is. In criminal profiling, this principle may be used to argue for individually profiling particular crimes.
2. *The principle of the excluded middle.* Between being and nonbeing, there is no middle state. In terms of criminal profiling, either a crime has occurred, or it has not.
3. *The principle of sufficient reason.* There is sufficient reason for everything. With respect to criminal profiling, this bars the examiner from assuming facts for the purpose of analysis or from using Martians, UFOs, or Bigfoot to explain events.

## Induction and Deduction

There are two general categories of reasoning behind the criminal profiling process, as with most forms of

logic and argumentation. One can be described as *inductive*, referring to a comparative, correlational, or statistical process, often reliant on subjective expertise that is most often associated with the development of psychological syndromes. The other has been described by the author as *deductive* and refers to a forensic evidence-based, process-oriented method of investigative reasoning about the behavior patterns of a particular offender.

### *Induction*

An inductive argument is where the conclusion is made likely, a matter of some probability, by offering supporting conclusions. It is a prediction of what might be true. A good inductive argument provides strong support for the conclusions offered, but this still does not make the argument infallible.

There are 2 types of inductive arguments:

1. *Inductive generalization.* Argues from the specific to the general. Conclusions are formed about characteristics from observations of a single event or individual or a small number of events or individuals.
2. *Statistical argument.* The truthfulness of a statistical argument is a matter of probability.

### *Deduction*

Deductive reasoning involves arguments whereby, if the premises are true, then the conclusions must also be true. The conclusions flow directly from the premises given. It is designed so that it takes us from truth to truth.

## **Fallacies of Logic**

The most revealing indicator of the absence of analytical logic and the scientific method in a criminal profile is the presence of *logical fallacy*. Logical fallacies are errors in reasoning that essentially deceive those whom they are intended to convince. The following are examples of logical fallacies in criminal profiling:

### *Suppressed Evidence or Card Stacking*

A one-sided argument that presents only evidence favoring a particular conclusion and ignores or downplays the evidence against it.

### *Appeal to Authority*

Occurs when someone offers a conclusion based on the stated authority or expertise of themselves or others.

### *Appeal to Tradition*

Reasons that a conclusion is correct simply because it is older, traditional, or “has always been so.”

### *Argument ad Hominem, or “Argument to the Man”*

Attacks an opponent’s character rather than an opponent’s reasoning.

### *Emotional Appeal*

Attempts to gain favor based on arousing emotions or sympathy to subvert rational thought.

### *Post Hoc, Ergo Propter Hoc, or “After this, therefore because of this”*

Occurs when one jumps to a conclusion about causation based on a correlation between two events, or types of events, that occur simultaneously.

### *Hasty Generalizations*

Occurs when one forms a conclusion based on woefully incomplete information or by examining only a few specific cases that are not representative of all possible cases.

### *Sweeping Generalizations*

Occurs when one forms a conclusion by examining what occurs in many cases and assumes that it must or will be so in a particular case. This is the opposite of a hasty generalization.

### *False Precision*

Occurs when an argument treats information as being more precise than it really is.

## **Metacognition**

*Metacognition* refers to one's ability to estimate how well one is performing, when one is likely to be accurate, and when one is likely to be in error. At a fundamental level, metacognition can be conceived of as thinking about thinking. For metacognitive ability to engage, there must first be a level of self-awareness: This entails explicit knowledge that one exists separately from other people and full recognition of one's capabilities, strengths, weaknesses, likes, and dislikes. Then practitioners must possess the requisite knowledge relating to their particular field in order to perform competently; they must know the basic principles and practice standards that they should employ and be able to explain why. Finally, they must have the cognitive capacity to stop or pause during the performance of a task or examination, reflect on their work and results, apply critical thinking skills, and critique their own performance to that point.

*Metacognitive dissonance* refers to believing oneself capable of recognizing one's own errors in thinking, reasoning, and learning, despite either a lack of evidence or overwhelming evidence to the contrary. General examples include believing oneself to be knowledgeable despite a demonstrable lack of knowledge; believing oneself to be incapable of error despite the human condition; believing oneself to be logical in one's reasoning despite regular entrapment by logical fallacies; and believing oneself to be completely objective despite the persistence of observer effects.

### *Key Terms*

*Critical thinking*: indiscriminately questioning all evidence and assumptions, no matter what their source.

*Deductive argument*: arguments in which, if the premises are true, then the conclusions must also be true. In a deductive argument, the conclusions flow directly from the premises given.

*Falsification*: the act of refuting or disproving a hypothesis or theory.

*Inductive argument*: when a conclusion is made likely, a matter of some probability, by offering supporting conclusions. It is at best a prediction about what might be true. Often based on statistics, comparisons, or experience.

*Inference*: a particular type of conclusion based on evidence and reasoning.

*Logic*: the process of argumentation and the science of valid thought and reasoning.

*Logical fallacies:* errors in reasoning that essentially deceived those whom they are intended to convince. They are brought about by the acceptance of faulty premises, bias, ignorance, and intellectual laziness.

*Metacognition:* one's ability to estimate how well one is performing, when one is likely to be accurate, and when one is likely to be in error.

*Metacognitive dissonance:* believing oneself capable or recognizing one's own errors in thinking, reasoning, and learning, despite either a lack of evidence or overwhelming evidence to the contrary.

*Non sequitur:* an inference that does not follow from the premises given or that is unrelated to them. It is an argument that is illogical.

*Observer effects:* a form of bias characterized by distortions resulting from the context and mental state of the forensic examiner, to include his or her employer, peer relationships, and subconscious expectations and desires.

*Science:* an orderly body of knowledge with principles that are clearly enunciated and reality oriented, with conclusions that are susceptible to testing.

*Scientific knowledge:* any knowledge, enlightenment, or awareness that comes from examining events or problems through the lens of the scientific method.

*Scientific method:* a way to investigate how or why something works, or how something happened, through the development of hypotheses and subsequent attempts at falsification through testing and other accepted means.

*Speculation:* a conclusion based on theory or conjecture without firm evidence.

### *Multiple Choice Questions*

1. \_\_\_\_\_ is the cornerstone of the scientific method.
  - a. Induction
  - b. Deduction
  - c. Falsification**
  - d. Observation
2. Scientific theories that withstand the test of time and study eventually become \_\_\_\_\_.
  - a. Scientific knowledge
  - b. Scientific facts
  - c. Scientific principles**
  - d. None of the above
3. \_\_\_\_\_ is the process of argumentation and the science of valid thought and reasoning.
  - a. Bias
  - b. Critical thinking
  - c. Metacognition
  - d. Logic**
4. If a hypothesis remains standing after a succession of tests or experiments fail to disprove it, then it may become a \_\_\_\_\_.

- a. Scientific principle
  - b. Scientific theory**
  - c. Scientific fact
  - d. None of the above
5. What are the two general categories of reasoning behind the criminal profiling process?
- a. Induction and deduction**
  - b. Critical thinking and logic
  - c. Speculation and inference
  - d. None of the above
6. Which of the following is *not* a step in the scientific method?
- a. Observation
  - b. Hypothesis
  - c. Experimentation
  - d. All of the above are steps in the scientific method**
7. Which logical fallacy is the opposite of a hasty generalization?
- a. Card stacking
  - b. Sweeping generalization**
  - c. False precision
  - d. Appeal to tradition
8. What is the most common logical fallacy because of its effectiveness?
- a. Argumentum ad hominem, or “argument to the man”**
  - b. Appeal to tradition
  - c. Appeal to authority
  - d. Suppressed evidence or card stacking
9. Which of the following is *not* a component of critical thinking?
- a. A set of skills to process and generate information and beliefs
  - b. The habit of using skills to guide behavior
  - c. The mere possession of a set of skills**
  - d. All of the above are components of critical thinking
10. Which of the following is *not* a basic principle of logic?
- a. The principle of identity
  - b. The principle of the excluded middle
  - c. The principle of critical thinking**
  - d. The principle of sufficient reason
11. What are the 2 types of inductive arguments?
- a. Statistical and inductive generalization**
  - b. Statistical and deductive generalization
  - c. Experiential and statistical
  - d. Experiential and probable
12. Of all the steps in the scientific method, which step separates scientific inquiry from all others?
- a. Hypothesis
  - b. Experimentation**

- c. Observation
  - d. Conclusion
13. Which principle of logic bars the examiner from assuming facts for the purpose of analysis or from using Martians, UFOs, or Bigfoot to explain events?
- a. The principle of identity
  - b. The principle of the excluded middle
  - c. **The principle of sufficient reason**
  - d. None of the above
14. Which principle of logic may be used to argue for individually profiling particular crimes---that is, treating each case as an individual event, rather than as an extension of “similar” crimes?
- a. **The principle of identity**
  - b. The principle of the excluded middle
  - c. The principle of sufficient reason
  - d. None of the above
15. If an examiner’s methods or results are influenced by the real or perceived expectations of his or her employer, this would be an example of \_\_\_\_\_.
- a. Observer effects
  - b. Context effects
  - c. Expectancy effects
  - d. **All of the above**

### *True/False Questions*

- 1. An inference is a particular type of conclusion based on theory or conjecture without firm evidence. True or **False?**
- 2. Logical fallacies are errors in reasoning that occur when the criminal profiler is being intentionally deceptive. True or **False?**
- 3. The scientific examiner is an imperfectly calibrated instrument. **True** or False?
- 4. The first step in the scientific method is observation. **True** or False?
- 5. The experimental stage of the scientific method attempts to prove the hypothesis. True or **False?**
- 6. The correct use of the scientific method is impossible without critical thinking and the science of logic to accurately synthesize, interpret, and apply the results. **True** or False?
- 7. Inductive arguments should contain qualifiers. **True** or False?
- 8. The principle of sufficient reason may also be called the principle of causality. **True** or False?
- 9. Deductive reasoning involves arguments whereby, if the premises are true, then the conclusions must also be true. **True** or False?
- 10. The majority of professionals are aware of the covert forms of bias, but need education in the overt forms of outright fraud. True or **False?**

### Essay Questions

1. Define the term *logical fallacy*. Provide 2 examples of common logical fallacies in criminal profiling and the forensic discipline.
  - **Logical fallacies are errors in reasoning that essentially deceived those whom they are intended to convince. They are brought about by the acceptance of faulty premises, bias, ignorance, and intellectual laziness.**
  - **Examples of common logical fallacies in criminal profiling and the forensic discipline include: Suppressed evidence or card stacking, Appeal to authority, Appeal to tradition, Argument ad Hominem, or "Argument to the Man," Emotional appeal, Post Hoc, Ergo Propter Hoc, or "After this, therefore because of this," Hasty generalizations, Sweeping generalizations, False precision.**
2. Define the *scientific method*. List the 3 steps of the scientific method and provide an example that applies to each.
  - **The scientific method is a way to investigate how or why something works, or how something happened, through the development of hypotheses and subsequent attempts at falsification through testing and other accepted means. The steps of the scientific method are as follows:**
    - i. **Observation.** An observation is made regarding some event, fact, or object. This observation leads to a specific question regarding the event, fact, or object, such as where or when an object originated or how an object came to possess certain traits.
    - ii. **Hypothesis.** A hypothesis, or educated estimate, is formulated regarding the possible answer.
    - iii. **Experimentation.** Experiments are designed and intended to disprove their hypotheses.
3. Outline the differences between *inductive reasoning* and *deductive reasoning*. Which category of reasoning is involved in behavioral evidence analysis? Explain.
  - **An inductive argument is where the conclusion is made likely, a matter of some probability, by offering supporting conclusions. It is a prediction of what might be true. A good inductive argument provides strong support for the conclusions offered, but this still does not make the argument infallible.**
  - **Deductive reasoning involves arguments whereby, if the premises are true, then the conclusions must also be true. The conclusions flow directly from the premises given. It is designed so that it takes us from truth to truth.**
  - **Deductive reasoning is involved in behavioral evidence analysis.**

### Case Study

Read the following criminal profile and answer the questions below.

The behavior at this crime scene indicates that the offender is a more mature male. We would expect him to be in his late 20s or early 30s at least. It should be noted that we mean the offender's emotional age, not necessarily his chronological age. Statistically speaking, absent any forensic or eyewitness evidence to the contrary, we believe the offender to be a white male. Most interpersonal violence is intra-racial. No suspect should be eliminated based on age or race alone. The FBI's Uniform Crime Report for 1998 (the most recent edition) indicates for white female victims of homicide, white males were the offenders in 86% of the cases.

1. What type of reasoning is evident in this profile? **Inductive**
2. List two examples of qualifiers used in this profile. **Statistically speaking, most, 86%**
3. Provide one disadvantage of this type of reasoning. **Answers will vary**