



**EXAMINER TRAINING
PROGRAM IN BLOODSTAIN
PATTERN ANALYSIS**



**DNA ANALYSIS UNIT I
FBI LABORATORY**



TRAINING CURRICULUM FOR THE EXAMINER TRAINING PROGRAM IN BLOODSTAIN PATTERN ANALYSIS

BACKGROUND

The basic purpose of bloodstain pattern analysis (BPA) in a criminal investigation is to, as nearly as possible, identify the sequence of events that created the stains and stain patterns which are present on physical evidence and/or at a crime scene.

The field of BPA routinely requires a great deal of analysis time because the BPA Examiner (BPAE) must learn the case from whatever means are available. This may include an in-person scene examination, photographs, documents, sketches, physical evidence, or any combination of these. A detailed understanding of the scene, orientation of objects, known movements of an individual(s), the locations and nature of bloodstain patterns within the scene, and any known post-incident alterations of the scene is essential. In most if not all cases, a complete review of all the available information/evidence is necessary, as a single fact or pattern may have great significance.

SCOPE

This document supplements the requirements for qualification as an examiner in DNA Analysis Unit I (DNAUI) of the FBI Laboratory and describes the additional requirements for achieving qualification as an examiner in BPA. The intent of this document is to furnish the DNAUI Examiner seeking qualification in BPA with an organized approach to gaining the knowledge and experience necessary to evaluate bloodstain pattern evidence and provide accurate expert testimony on the subject.

The training regime delineated here represents a tool for the accumulation of the knowledge and experience necessary for the proper evaluation and usage of bloodstain pattern information. It is the responsibility of the individual BPA Examiner Trainee to use this tool in the manner most appropriate for properly preparing himself/herself towards this end. Because qualification in the area of BPA is not a required element for qualification as an examiner within DNAUI, and will represent casework responsibilities in addition to traditional case working serology and or DNA analysis duties of a DNAUI Examiner, it is anticipated that the individual examiner seeking BPA qualification will be highly motivated and will pursue this opportunity with genuine vigor. It is to be noted that the nature of BPA is such that the gaining of as much practical experience in the examination of bloodstain patterns present at crime scenes, on evidentiary items, or depicted via other documentary materials is of the utmost importance to the BPA Examiner Trainee,

experienced or otherwise.

PREREQUISITE

To be eligible for training as a BPAE, the trainee must meet and successfully pass the qualification requirements for a case working Serology and/or DNA Examiner within DNAUI.

TRAINING CURRICULUM

To become qualified as a BPAE, the candidate must complete the BPA Training Curriculum through the successful completion and mastery of the skills encompassed in the following training standards.

1. BPA terminology
2. Basic BPA/ERT training courses
3. Administrative, quality assurance, and safety knowledge
4. Principles of math and physics
5. Technical knowledge of BPA
6. Casework examination
7. Review of completed BPA cases
8. BPA oral board examination
9. Moot court exercise
10. BPA competency test

A BPA Training Log will be used to record the successful completion of each training standard. This log will contain a description of the relevant standard, completion date, and signature of the BPA Training Coordinator. Upon completion of the training, the BPA Training Log will be maintained as part of the permanent training records of the BPAE.

TRAINING STANDARDS

1. BPA Terminology

Objective: The mastery and understanding of the terminology used in BPA examinations is essential if the trainee is to successfully demonstrate a comprehension of the procedures used and effectively communicate their findings to others. The examiner trainee will study a list of common BPA terminology to develop an understanding of the terms as used in the context of BPA. (Note: an objective is a skill which one must master).

Procedure: Using the list of BPA terminology found in Appendix A, the BPA Examiner

Trainee will direct themselves during the completion of this objective. Questions regarding BPA terminology will be addressed by the BPA Training Coordinator.

Assessment: Successful completion of this standard will be demonstrated by the proper use of the terminology in discussions with the BPA Training Coordinator, in preparation of written training materials, during oral examinations, and moot court exercises. Successful completion of the BPA examiner training program will serve as documentation that this standard was successfully completed.

2. Basic BPA Training Courses

Objective: Through participation in BPA training workshops, the BPA examiner trainee will learn the practices and procedures used for the collection, analysis and reporting of BPA examinations.

Procedure: The trainee must attend the following:

- 2.1 The forty (40) hour basic BPA training workshop conducted by DNAUI
- 2.2 A forty (40) hour non-FBI basic BPA training workshop taught by an instructor, or instructors, actively engaged in the field of BPA. The course content and instructor roster of any non-FBI course must be approved by the BPA Training Coordinator prior to the BPA Examiner Trainee attending that particular course.

Assessment: To successfully complete this training standard, the trainee must attend all required workshops/schools, complete required work assignments and receive a certificate of attendance. Copies of the workshop certificates will be maintained as part of the BPA Examiner Trainee's training records.

3. Administrative, Quality Assurance, and Safety Knowledge

Objective: Through participation in the DNAUI examiner training program in serology and/or DNA analysis, the BPA Examiner Trainee will learn the administrative, quality assurance and safety practices and procedures used in the Laboratory Division and DNAUI.

Procedure: The BPA Examiner Trainee must successfully complete the examiner training program in serology and/or DNA analysis for DNAUI Examiners.

Assessment: Completion of this training standard will be demonstrated by the successful completion of a course of instruction resulting in the qualification as a case working

serology and/or DNA analysis examiner within DNAUI. This requirement must be documented prior to beginning BPA examiner training.

4. Principles of Math and Physics

Objective: For qualification in BPA, the examiner trainee must possess a fundamental knowledge of the principles of math and physics that underlie and support the use of BPA to reconstruct the physical events which may, or may not, have created the bloodstains and/or bloodstain patterns present.

Procedure: The examiner trainee must have successfully completed undergraduate course work in math and/or physics.

Assessment: To successfully complete this training standard, the trainee must receive a passing grade in the required course work documented by means of academic transcript(s). A copy of these transcript(s) will be maintained as part of the BPA Examiner Trainee's training records.

5. Technical Knowledge of BPA

Objective: The examiner trainee must demonstrate the technical knowledge and skills necessary to recognize, document, interpret, and report the results of the analysis of bloodstain pattern evidence.

Procedure: The examiner trainee will review the current DNAUI SOP for the analysis of bloodstain pattern evidence and complete initial instruction by a qualified BPAE. The instruction provided by the BPAE will cover each topic area listed in the SOP table of contents. Specific areas of instruction include, but are not necessary limited to, the following:

- A. Recognition of, and appreciation for, the significance of bloodstain distributions.
- B. Determination of droplet line-of-flight using stain directionality.
- C. Estimation of angle of impact for an individual bloodstain.
- D. Recognition of general bloodstain pattern types.
- E. Recognition of impact patterns.
- F. Determination of the point of convergence (POC) for impact patterns.
- G. Determination of the point of origin (POO) for impact patterns.
- H. Characterization of the force applied to produce an impact pattern.
- I. Determination of the direction from which a force was applied to produce an impact pattern.
- J. Characterization of the object used to apply the force that produced an impact

- pattern .
- K. Sequencing of multiple deposited bloodstain patterns.
 - L. Estimation of the number of blows applied to a blood source.
 - M. Reconstruction of the relative spacial relationships of objects at the time of bloodstain deposition.
 - N. Recognition of blood source movement.
 - O. Recognition of void areas.
 - P. Design and performance of situational recreations attempting to reproduce observed bloodstain patterns both by theorized as well as alternative actions.
 - Q. Application of bloodstain pattern information to investigative reconstruction efforts.

Assessment: The BPAE will document that the BPA Examiner Trainee has completed the required review of the BPA SOP and has received the necessary instruction in the appropriate areas of BPA.

6. Casework Studies

Objective: The BPA Examiner Trainee will develop the necessary analytical and interpretive skills required to apply the basic principles of BPA to complex, multiple event situations.

Procedure: Under the supervision of a qualified BPAE in DNAUI, the BPA Examiner Trainee will conduct casework examinations, generate appropriate supporting documentation, and compile all relevant information into an acceptable report format on a minimum of five (5) active BPA cases. In the absence of such opportunities, and/or in partial fulfillment of the previously stated minimum, the BPA Examiner Trainee will examine selected archival BPA cases and perform all of the above tasks possible on the case materials provided, i.e. photographs, crime scene sketches, etc.

The questions the BPA Examiner Trainee should consider in his/her assessment of the BPA cases examined include:

- A. What was the position (i.e., standing, sitting, reclining, etc.) of the victim(s) and/or suspect (s)?
- B. Does the scene display evidence of a struggle (i.e., blood trails, footprints, swipes, wipes, fabric impressions, etc.)?
- C. Is a particular sequence of events indicated?
- D. How many impacts, if any, are indicated? Can any of these observed impact patterns be reconstructed?
- E. Does the scene display evidence of alteration?

- F. Are the bloodstain patterns consistent with other information provided (i.e., blood staining on clothing, participant statements, medical reports, laboratory reports, etc.)?

Assessment: To successfully complete this standard, the BPA Examiner Trainee must document the laboratory numbers of those cases completed in fulfillment of the requirements delineated in this standard.

7. Review Completed BPA Cases

Objective: This exercise is intended to furnish the BPA Examiner Trainee additional analytical and interpretive repetitions, as well as to expose him/her to the different casework approaches practiced by current and/or former FBI BPA examiners.

Procedure: The examiner trainee will review a minimum of five (5) completed BPA cases representing as many qualified examiners as is reasonably possible.

Assessment: To successfully complete this standard, the BPA Examiner Trainee must document the laboratory numbers of those cases completed in fulfillment of the requirements delineated in this standard.

8. BPA Oral Board Examination

Objective: This standard will test the BPA Examiner Trainee's basic knowledge of BPA policies, practices, and procedures used in the examination of BPA evidence.

Procedure: As specified by the FBI Laboratory Division, substantive oral boards must be held in each logical sub-category of the work to be performed by the examiner trainee.

Assessment: Accordingly, each BPA Examiner Trainee in DNAUI must successfully complete an oral examination in the subject area of BPA.

9. Moot Court Exercise

Objective: This standard will test the BPA trainee's ability to effectively communicate the findings obtained from the analysis of bloodstain pattern evidence so it may be understood and properly utilized by the criminal justice system.

Procedure: As specified by the FBI Laboratory Division, a moot court must be held for each of the major sub-disciplines an examiner trainee will handle. Because all qualified examiners in DNAUI have completed the requisite moot court sessions to gain general

qualification in DNA analysis, and because qualification in BPA prerequisites this, it is expected that those DNAUI examiners seeking BPA qualification will already possess the required skills to testify as an expert witness in judicial proceedings. As a result, it is at the discretion of the Unit Chief of DNAUI or his/her designee as to whether the BPA Examiner Trainee will be required to participate in a structured moot court session in the discipline of BPA. If deemed necessary, this milestone may take the form of a standard internal FBI moot court conducted in accordance with FBI Laboratory Division policy, it may be secured as a part of an external BPA training workshop, and/or it may be administered as a component of the required oral board examination.

Assessment: Accordingly, if required by the DNAUI Unit Chief or his/her designee, the BPA examiner trainee in DNAUI must successfully complete a moot court session in the subject area of BPA.

10. BPA competency test

Objective: This standard will test the BPA Examiner Trainee's knowledge and experience involving BPA casework.

Procedure: The BPA examiner trainee must complete a start-up competency test in BPA. When possible, this test will be administrated in the prevailing format of available proficiency tests in BPA. This test is to be completed in compliance with all current DNAUI policies, procedures, and practices for BPA casework

Assessment: The BPA Training Coordinator will verify and document that the conclusions rendered by the BPA Examiner Trainee are completed in compliance with all current DNAUI policies, procedures, and practices for BPA casework and that they are in accordance with the test results proved by any external proficiency testing provider utilized. Should another testing format be necessary, the BPA Training Coordinator will verify and document that the rendered conclusions are consistent with the manner in which the test is know to have been assembled.

BPA Examiner Training Record

Trainee's Name: _____
(Print)

Start Date _____

Training Coordinator: _____
(Print)

Curriculum Issue Date: _____

Rev. # _____

Standards

1. BPA Terminology
 Completed Yes No _____
BPAE Date

2. Basic BPA Training Courses

Training Course	Course Provider	Date

3. Administrative, Quality Assurance, and Safety Knowledge
 Completed Yes No _____
BPAE Date

4. Principles of Math and Physics
 Transcript(s) Provided Yes No _____
BPAE Date

5. Technical Knowledge of BPA

Completed Yes No

BPAAE _____

Date _____

6. Casework Examination

LABORATORY NUMBER	EXAMINER	LABORATORY NUMBER	EXAMINER

7. Review Completed BPA Cases

LABORATORY NUMBER	EXAMINER	LABORATORY NUMBER	EXAMINER

8. BPA Oral Board Examination

BPA Oral Board Exam Completion date: _____ BPAE: _____
Board Members:

9. Moot Court Session

BPA Moot Court Session Completion date: _____ BPAE: _____
Moot Court Members:

10. BPA competency test

Start-Up Competency Test Completion date: _____ BPAE: _____

Training Certification:

This certifies that BPAE Trainee _____ has completed the BPA Training Curriculum by successfully meeting the training standards required to become eligible to perform the duties of a BPAE in DNAUI.

Print

Position

Signature

Date