OSAC 2022-N-0010 Standards for Development of a Bloodstain Pattern Analyst Certification Program

Bloodstain Pattern Analysis Subcommittee
Physics/Pattern Interpretation Scientific Area Committee
Organization of Scientific Area Committees (OSAC) for Forensic Science

OSAC Proposed Standard

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Prepared by
Bloodstain Pattern Analysis
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Standards for Development of a Bloodstain Pattern Analyst Certification Program

1 Foreword

A bloodstain pattern analyst certification program is a way to improve the competency, reliability, and quality of the work product of a bloodstain pattern analyst. This document provides guidance in the preparation and participation in an accredited certification program for the discipline of bloodstain pattern analysis (BPA) and for bodies providing certification examination programs. Administration of the process should be governed and conducted by an International Organization for Standardization (ISO) accredited body.

2 Scope

This document targets those persons who have successfully completed the "Standards for a Bloodstain Pattern Analyst's Training Program, ANSI/ASB Standard 032, 1st Edition, 2020" planning to pursue BPA certification and for those entities providing the certification examination program. Administration of the process shall be governed and conducted by an ISO accredited body while the certification scheme owner shall be a standard development organization (SDO).

3 Normative References

Standards for a Bloodstain Pattern Analyst's Training Program, ANSI/ASB Standard 032, 1st Edition, 2020 (http://www.asbstandardsboard.org/wp-content/uploads/2020/05/032_Std_e1.pdf).

4 Terms and Definitions

4.1 Terms

The following terms are meant to convey the meanings specified.

4.1.1
shall - used to indicate that a provision is mandatory (unless otherwise documented for non-compliance).

4.1.2
should - used to indicate that a provision is not mandatory but recommended as good practice.

4.2 Definitions

For purposes of this document, the following definitions and acronyms apply.

4.2.1
applicant - person who has submitted an application for admission into the certification process.

4.2.2
assessment - process that evaluates a person's fulfillment of the requirements of the certification scheme.

4.2.3
bloodstain pattern analyst - An individual who has successfully completed the training program set forth in "Standards for a Bloodstain Pattern Analyst's Training Program, ANSI/ASB Standard 032, 1st Edition, 2020".

4.2.4
candidate - applicant who has fulfilled specified prerequisites and has been admitted to the certification process.

4.2.5
certification - The recognition by an independent certification body that an individual has acquired and demonstrated specialized knowledge, skills, and abilities in the standard practices necessary to execute the duties of his or her profession.

4.2.6
certification process - activities by which the certification exam provider determines that a person fulfills certification requirements, including application, assessment, and certification, recertification.

4.2.7
certification scheme - competence and other requirements related to specific occupational or skilled categories of persons.

4.2.8
certification requirements - set of specified requirements, including requirements of the scheme to be fulfilled in order to establish or maintain certification.

4.2.9
competency - demonstration that a forensic science practitioner has acquired and demonstrated specialized knowledge, skills, and abilities in the standard practices necessary to conduct examinations in a discipline or category of testing prior to performing independent casework.

4.2.10
examination - mechanism that is part of the assessment which measures a candidate's competence by one or more means, such as written, oral, practical, and observational, as defined in the certification scheme.

4.2.11
forensic science practitioner - an individual who (1) applies scientific or technical practices to the recognition, collection, analysis, or interpretation of evidence for criminal and civil law or regulatory issues, and (2) issues test results, provides reports, or provides interpretations, conclusions, or opinions through testimony with respect to such evidence.

4.2.12
knowledge, skills, and abilities (KSA) - the level of information, qualifications, and experience needed to perform assigned tasks.

4.2.13
proctor - person, authorized by the certification exam provider, who administers or supervises a certification test, but does not evaluate the competency of the candidate.

5 Job and Task Description

Bloodstain pattern analysis involves documentation, evaluation, and analysis of bloodstain patterns; specifically, the size, shape, distribution, appearance, and location of the bloodstains, as well as the surfaces upon which the blood was deposited. The bloodstain pattern analyst uses their knowledge, skills, training, and experience to evaluate the bloodstain(s) and relevant case evidence through application of the scientific method.

6 Application and Administration

Application and administration of the certification program shall be the responsibility of the certification exam provider.

6.1 Application Process

6.1.1
The applicant shall file an application in accordance with the certification examination provider's requirements.

6.1.2
The applicant shall provide proof of having successfully completed the "Standards for a Bloodstain Pattern Analyst's Training Program, ANSI/ASB Standard 032, 1st Edition, 2020".

6.2 Assessment Process

6.2.1

The certification process shall consist of four examination components developed by bloodstain pattern analysts in consultation with experts in standardized testing. All certification examinations shall be proctored.

6.2.1.1

Proctor is approved and designated by the certification exam provider.

6.2.1.2

Candidate has eight (8) hours to complete the examination. The examination shall be divided into the following four components:

6.2.1.2.1

Pattern Classification: classify a minimum of twenty (20) bloodstain patterns representative of the full range of patterns that may be encountered in case work, in terms of complexity and difficulty.

6.2.1.2.2

Practical Exercise: a minimum of 1 (one) Area of Convergence/Area of Origin Determination.

6.2.1.2.3

Comprehensive Scene Exercise: a section to test the candidate's analytical abilities regarding BPA principles where the candidate is provided bloodstain photographs and investigative questions. There shall be a minimum of ten (10) scenarios.

6.2.1.2.4

Written Examination: consisting of a minimum of 150 multiple choice and true-false questions. The written examination shall include the topic areas below with the questions apportioned as follows:

6.2.1.2.4.1

Physical properties of blood

a. Viscosity
b. Surface tension
c. Adhesive, cohesive properties - Capillary
d. Newtonian – Non-Newtonian

e. Function of blood
f. Circulatory system

6.2.1.2.4.2

Composition of Blood

a. Erythrocytes
b. Leucocytes
c. Thrombocytes
d. Plasma
e. Clotting of blood
f. Drying of blood

6.2.1.2.4.3

Physics

a. Newton's Laws of Motion
b. Gravity
c. Air resistance – Drag
d. Shear – see Non-Newtonian
e. Factors affecting blood in motion
    a. Oscillation
    b. Gravity
    c. Air resistance
f. Velocity
g. Characteristics of blood in motion
h. Target surface effects

6.2.1.2.4.4

Documentation

a. Notes
b. Use of scale and unique identifiers
c. Sketching
d. Road mapping
e. Photography
    a. Distance/Overall
    b. Mid-range
    c. Close-up

6.2.1.2.4.5

External Forces / Environment

a. Air movement
b. Humidity
c. Temperature

6.2.1.2.4.6
Determining Area of Origin
- a. Area of Convergence
- b. Trigonometry
    - a. Mathematical Equations

6.2.1.2.4.7
Wound Dynamics
- a. Blunt force trauma
- b. Stabbing/incised wounds
- c. Gunshot
- d. Role of the Forensic Pathologist
    - a. External Injuries
    - b. Internal Injuries

6.2.1.2.4.8
Bloodstain Evidence
- a. Standards of evidence
- b. Safety/PPE considerations
- c. Presumptive Testing and Chemical Enhancements
    - i. Methods of presumptive blood testing
    - ii. Detection
    - iii. Enhancement
    - iv. Chemical/ Alternate Light Source/Infrared
    - v. Documentation of testing
- d. Collection of biological fluids
    - i. Serological/DNA considerations

6.2.1.2.4.9
Bloodstained Clothing and Fabrics
- a. Fabric composition and construction
- b. Natural and synthetic
- c. Dyes
- d. Treatment
- e. Condition – new/old clothing

6.2.1.2.4.10
Bloodstain Patterns
- a. Characteristics

b. Pattern Classification
c. Overlapping Patterns
d. Cast-off Mechanism
e. Terminology
f. Report Writing
g. Limitations of Bloodstain Pattern Analysis

6.2.1.2.4.11
History
a. Contributors to BPA
b. Piotrowski
c. Balthazard
d. Paul Kirk

6.2.1.2.4.12
Bias in BPA
a. Contextual
b. Confirmation Bias
c. Motivational Bias
d. Expectation Bias

6.2.1.2.4.13
Ethics
a. Disclosure of exculpatory material to defense counsel
b. Working within professional competence
c. Providing clear and objective testimony
d. Avoiding conflicts of interest

6.2.1.3
Legal issues shall be tested on in the written exam portion. Suggested topics to be tested on are discovery and disclosure, Frye and Daubert Standards, and notable cases to the bloodstain pattern analysis community.

6.2.2
Assessment scoring shall adhere to the following guidance:

6.2.2.1
The minimum passing score on the written and pattern identification examination components shall be established by the certification exam provider. The recommended minimum passing score for both is 75%. The practical exercise and the comprehensive scene exercise shall be graded on a pass/fail basis.

6.2.2.2
If a candidate fails any one of the five components of the certification examination, the certification exam provider shall require a six-month waiting period to apply to retake the failed component. The six-month waiting period starts on the date the candidate was notified of their assessment score by the certification exam provider.

6.2.2.3
If a candidate fails two or more components of the certification examination, the certification exam provider shall require a 12-month waiting period to apply to retake the entire examination (all five components). The 12-month waiting period starts on the date the candidate was notified of their assessment score by the certification test provider.

7 Recertification Criteria

7.1
Certification shall be in effect for a period of five years from the date of issue. Application and administration of the recertification scheme shall be the responsibility of the certification exam provider.

7.2
The certification exam provider shall establish a minimum requirement for annual continuing education. It is recommended that there is an average of 8 hours of continuing education per year for a period of 5 years.

7.3
Applicants for recertification shall be required to:

7.3.1
Provide proof of continued involvement in the bloodstain pattern analysis discipline. Documentation of continued involvement in the bloodstain pattern analysis discipline shall be defined by the certification exam provider.

7.3.2
Participate in an examination demonstrating continued competency in the area of bloodstain pattern analysis. The examination shall consist of the following three components:

7.3.2.1
Pattern classification: classify ten (10) bloodstain patterns.

7.3.2.2
Practical Exercise: 1 (one) Area of Convergence/Area of Origin Determination utilizing Tangent Method.

7.3.2.3
Comprehensive Scene Exercise: a section to test the candidate's analytical abilities regarding BPA principles where the candidate is provided bloodstain photographs and investigative questions. There shall be a minimum of ten (10) scenarios.

7.3.2.4
All recertification examinations shall be proctored.