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**Standards for a Bloodstain Pattern Analyst's Training
Program**

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Standards for a Bloodstain Pattern Analyst's Training Program

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410 North 21st Street
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Foreword

A bloodstain pattern analyst training program is necessary to ensure the competency and quality of the work product. This standard was drafted to provide guidance to forensic service providers providing bloodstain pattern analysis services for the establishment and maintenance of such a program. The Subcommittee expects to develop additional documents to provide further guidance in select topic areas addressed in this summary treatise.

This document was revised, prepared, and finalized as a standard by the Bloodstain Pattern Analysis Consensus Body of the AAFS Standards Board. The draft of this standard was developed by the Bloodstain Pattern Analysis Subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science. This document originated as a product of the Scientific Working Group on Bloodstain Pattern Analysis (SWGSTAIN)¹

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¹ Scientific Working Group on Bloodstain Pattern Analysis: Scientific Working Group on Bloodstain Pattern Analysis: *Educational Model for Introductory Bloodstain Pattern Analysis Training*, SWGSTAIN.org

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Standards for a Bloodstain Pattern Analyst's Training Program

1 Scope

This document provides minimum pre-training educational requirements for an individual currently in, or entering into, a bloodstain pattern analyst training program and the minimum training requirements that a trainee must successfully complete prior to practicing as a bloodstain pattern analyst.

2 Normative References

The document contains no normative references.

3 Terms and Definitions

3.1 Terms

The following terms are meant to convey the meanings specified.

3.1.1

shall

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

3.1.2

should

Used to indicate that a provision is not mandatory, but recommended as good practice.

3.2 Definitions

For purposes of this document, the following definitions apply.

3.2.1

active practitioner

An analyst actively involved in providing bloodstain pattern training and/or BPA casework and/or performing technical reviews of BPA casework.

3.2.2

assessment

A method used to evaluate an individual's knowledge, skills, and abilities in BPA.

3.2.3

bloodstain pattern analysis trainee

An individual who is actively working toward meeting the requirements as described in this document.

3.2.4

bloodstain pattern analyst

An individual who has successfully completed the prescribed course of study.

3.2.5**competency test**

A method used to demonstrate successful completion of a BPA trainee's course of study. The competency test(s) may be administered incrementally and/or cumulatively.

3.2.6**demonstrate**

The trainee shall be able to accurately express the subject matter clearly and effectively through practical exercise, in addition to written or oral examinations.

3.2.7**describe**

The trainee shall be able to accurately express the subject matter clearly and effectively through written and/or oral examinations.

3.2.8**mentor**

A mentor shall be an analyst active in the field of BPA through ongoing training, casework, and/or technical reviews and have a minimum of three years of casework experience as a bloodstain pattern analyst.

3.2.9**recognize**

The trainee shall be able to recall subject matter through the use of notes or lecture materials.

3.2.10**technical review**

An evaluation of reports, images, notes, data, and other documents to ensure there is an appropriate and sufficient basis for the scientific conclusions.

4 Personnel and Qualifications**4.1 Educational Requirements**

The candidate should have a Bachelor's degree and shall have coursework in trigonometry and science related coursework and laboratory work in biology, physics, and chemistry from an accredited institution².

NOTE This standard is intended to be applied prospectively and not retroactively.

4.2 Minimum Training Requirements

4.2.1 The training program shall be overseen by someone who qualifies as a mentor.

4.2.2 At the completion of training, the bloodstain pattern analyst trainee shall be able to comply with the Minimum Training Requirements section.

² Section 4.1 will change from "should" to "shall" five (5) years after the original publication date for this standard.

4.2.3 Recognize and describe the health and safety issues associated with BPA including:

- a) bloodborne pathogens and other health hazards;
- b) biohazard safety equipment and procedures;
- c) chemical safety hazards, procedures for protection, and remediation of chemical hazards.

4.2.4 Recognize and describe the elements of the forensic service provider's quality system.

4.2.5 Describe the history of BPA.

4.2.6 Recognize and describe the application of the scientific method, to the development of experiments and record keeping, and the principles relating to BPA including the following:

- a) problem identification,
- b) data collection,
- c) hypothesis formation,
- d) data evaluation,
- e) hypothesis evaluation,
- f) theory/conclusions.

4.2.7 Describe the various principles and factors relating to or affecting BPA, including the following.

4.2.7.1 Blood components and related human anatomy and physiology.

4.2.7.2 Effects of surface characteristics on the resulting bloodstain patterns.

4.2.7.3 The effect of environmental factors on the formation and/or drying time of bloodstain patterns, including:

- a) air flow,
- b) humidity,
- c) ambient temperature,
- d) substrate temperature,
- e) substrate characteristics,
- f) animal/insect activity.

4.2.8 Describe the principles of physics (particularly fluid dynamics) relating to BPA, including:

- a) Newton's Laws of Motion,
- b) surface tension,
- c) viscosity,
- d) gravity,
- e) air resistance,
- f) velocity.

4.2.9 Describe the characteristics of blood in motion including:

- a) drop formation,
- b) oscillation,
- c) flight paths,
- d) accompanying drop,
- e) wave castoff,
- f) distribution of blood drops,
- g) kinetic energy.

4.2.10 Recognize and describe the mathematical principles that relate to BPA, to include knowledge of the methods used to measure bloodstains and bloodstain patterns, including:

- a) methods for the measurement of individual bloodstains,
- b) trigonometric functions as they relate to BPA,
- c) methods of area of origin estimation.

4.2.11 Recognize and describe the physical characteristics of bloodstain patterns (size, shape, distribution, appearance, and location) relating to the mechanism by which they were created.

4.2.12 Recognize and describe the effects of textiles and clothing on bloodstain pattern formation including:

- a) composition/construction,
- b) treatment,
- c) condition,

d) effect of fabric movement during interaction with blood.

4.2.13 Recognize and describe how to classify bloodstain patterns.

4.2.14 Recognize and describe clotting as it relates to BPA.

4.2.15 Demonstrate acceptable documentation methods of bloodstain pattern evidence, including but not limited to:

a) photography,

b) sketching,

c) note taking.

4.2.16 Describe the methods for the preservation and collection of bloodstain pattern evidence that allow for future examination(s) and other forms of analyses.

4.2.17 Recognize and describe the value of other forensic analyses available to BPA.

4.2.18 Describe bloodletting injuries, locations, and potential patterns produced by such injuries.

4.2.19 Recognize and describe chemical testing and enhancement techniques relating to bloodstains.

4.2.20 Recognize and describe the limitations and uncertainties of BPA.

4.2.21 Demonstrate the reconstruction of event(s) using BPA.

4.2.22 Demonstrate the ability to accurately, effectively, and objectively communicate findings, conclusions, and opinions by written and/or verbal methods.

4.2.23 Recognize and describe "cognitive bias" including:

a) contextual bias,

b) confirmation bias,

c) motivational bias,

d) expectation bias,

e) minimizing bias.

5 Training Files

All training shall be documented and the documentation shall be maintained by the forensic service provider. If the analyst is not employed by a forensic service provider, they shall maintain the records.

6 Mentorship and Assessments

6.1 Upon completion of initial training, it is up to the mentor to determine if the BPA trainee is ready to participate in a documented mentorship program. The BPA trainee shall participate in a documented mentorship program for no less than one year. Competency testing may be administered incrementally and/or cumulatively to allow the trainee to conduct some of the analyses independently. (For example, a mentor may allow the trainee to complete a competency test in the area of photography and then allow the trainee to photograph a scene independently.) This mentorship includes, but is not limited to, the evaluation of the required objectives, the study of completed casework, supervised assistance with BPA scene and laboratory work, and the observation of expert testimony.

6.2 A mentor should have fulfilled all previously stated requirements for a bloodstain pattern analyst.

6.3 A BPA trainee shall participate in and successfully complete a BPA training program prior to performing independent analyses and rendering expert opinions.

7 Continuing Training Requirements

7.1 A minimum of eight hours of documented training related to BPA shall be completed annually. This may include, but is not limited to, attending professional conferences, seminars, webinars, and/or workshops.

7.2 Successful completion of continuing training shall be documented and the documentation shall be maintained by the forensic service provider indefinitely. The employer shall keep the official training record for each employee and provide the trainee with a copy of or access to the records. It is recommended the analyst keep a personal copy of the continuing training records. If the analyst is not employed by a forensic service provider, he/she shall maintain the records indefinitely.

7.3 Analysts should stay abreast of current BPA literature.

7.4 A bloodstain pattern analyst should belong to a professional organization(s) related to BPA.

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Academy Standards Board
410 North 21st Street
Colorado Springs, CO 80904

www.asbstandardsboard.org