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Document Number: ANSI/ASB Std 105
Document Title: Minimum Education Requirements for Firearm and Toolmark Examiner Trainees, Second Edition

Comment #	Text Line # (s)	Document Section	Type of Comment	Current Document Wording	Proposed Revision	Revision Justification	Final Resolutions
3	23-24	3.3	T	A discipline of forensic science charged with conducting comparison examinations of tools and toolmarks and reporting the conclusion.	A forensic discipline charged with conducting comparison examinations of tools and toolmarks	the discipline is the comparison, and this improperly suggests a conclusion must always be expressed. Reporting a conclusion is a process or procedural requirement, not part of what defines a forensic discipline. Other edits are grammatical to reduce redundances	Reject: Forensic is the application of science for the investigation of matters of law. The reporting of results to the trier of fact is part of the profession.
4	24-25	3.3	T	When the tool is a firearm, the discipline also seeks to answer relevant questions about the firearms or ammunition components involved in an incident.	Either remove this clause in its entirety or specify what those questions are	This is vague and subjective and does not define nor even suggest what questions the discipline answers to be able to even assess if they are legally or scientifically appropriate and defensible, including whether emprically supported, within the method's intended use, and laboratory validation depends on task irrelevant information, in accordance with lab procedures, etc. "Relevant questions" is a subjective term that as used in this definition does not provide enough clairty or direction to know what it substantively entails or as determine by whom, let alone an ability to comment on the appropriateness of including it as part of a definition. It invites a method being used beyond it's intended limits without empirical support justifiying doing so, and potentially inappropriately at the direction of parties outside the laboratory for the purposes of litigation.	Reject: this sentence is integral to the definition and futher specifying what relevant questions could be asked is outside the scope of this document.
1	32	4.2	T	The degree should be in a natural science or engineering.	The degree should be in a natural science to include Biology, Chemistry, physics, Forensic Science or engineering	Only listing "natural science" seems too vague and it is unclear if it included Forensic Science	Reject: Natural science is defined to include biology, chemistry, and physics. Forensic science degrees may or may not be included, depending on the specific degree program. This sentence uses should, so that it is a recommendation for types of degrees and not a requirement for a specific degree program. Sections 4.3 and 4.4 further cover course requirements.
2	33-35	4.3	T	The degree shall include the successful completion of coursework in chemistry and physics that includes a laboratory component, as well as the successful completion of coursework in statistics.	The degree should include the successful completion of coursework in chemistry and physics that includes a laboratory component, as well as the successful completion of coursework in statistics.	Requiring this coursework specifically would limit promoting NIBIN techicians who often have Criminal Justice Degrees and is too restrictive; This coursework, if needed later, can be expensive and time consuming; The way this is currently worded may conflict with some state's licensure program	Reject: Section 4.4 allows for the completion of this coursework during the examiner training period, so that someone who does not yet have those courses can still be hired. It is up to the FSSP to determine if the cost and time is appropriate. No state licensure programs that the working group reviewed have a specific conflict with this requirement.
5	33-34	4.3	T	The degree shall inlcude the successful completion of coursework in chemistry and physics that includes a laboratory component	Include an explanation of the substantive goals of this requirement, or the specitic components that course work should address	It is not clear why these two subjects out of the natural sciences are singled out as required coursework with a laboratory component. Neither the reason for these two areas of science nor the laboratory work. Both should be explained so that it is possible to see if this requirement sufficeintly achieves the purpose or goal of including the requirement. Otherwise it is not possible to determine if this is too narrow, too broad, or appropriate. For example, if this is intended to provide research experience to firearms examiners, this requirement does not necessarily achieve that goal.	Reject: Chemistry, Physics, and Statistics are the most meaningful courses for the firearm and toolmark discipline. The intent is to ensure participants have meaningful academic laboratory experience, including wet laboratory experience and using the scientific method. Providing an explanation within the document is not typical in a standard.

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6	34-35	4.3	T	as well as the successful completion of coursework in statistics	specifcy what kind of statistical coursework and how many courses, at what level, etc., including the intended knowledge/ information taught and the amount of coursework required.	Does not provide sufficient direction as to what the minimum knowledge of statistics should be. WIthout qualitatively or quantitatively specificying what kind of coursework is required, it renders the requirement meaningless and potentially burdensom. It fails to ensure any consistency or baseline knowledge achienved, for example examiners could satisfy this requirement with a course that does not provide the intended knowledge or could wind up taking courses that are well beyond what is necessary. The purpose of a min education requirement should be to ensure a baseline of information/ knowledge is achieved through the coursework and this requirement fails to ensure that.	Reject: a base level statistics course provides the foundations needed to understand and discuss validation study statistics. Any course higher than that would require the base level course to have been taken first, rendering the need to be more specific in this document moot.
7	36-38	4.4	T	If the coursework 4.3 is not included in the degree program, the trainee shall successfully complete coursework in chemistry and physics that includes a laboratory component, as well as successfully complete coursework in statistics, by the end of the training period.	specify what level of coursework is required to ensure that it is comesurate with that in the degree program.	This does not ensure that the coursework is comparable to that required by a bachelor's degree or at a college level. It does not ensure that the trainee is taking college level coursework. It also seems impractical to take a minimum of three college level courses including two laboratory components if not an enrolled student and while completing firearm examination training.	Reject: This standard requires the trainee hold a bachelor's degree (or international equivalent). It then requires specific coursework have either been included in the degree program or be completed prior to the end of the training program, which implies the coursework must be college level. The working group does not believe it is unreasonable or impractical to require the coursework during the training program.
8			Ballot Comment	I have yet to see a justification of the requirement of a bachelor's degree over an associate's or academic certificate, aside from the claim that it raises the bar. This claim seems to essentially be a bald assertion that more is better. If after five years, OSAC cannot articulate reasons why this, I suspect it is because there are none to offer. If OSAC can offer no material justifications, I can't imagine the agencies who will apply these standards have any better justification for the requirement. In addition to the usual drawbacks of poorly-justified standards, the implementation of poorly-justified educational requirements potentially expose these agencies to accusations of credentialism, degree inflation, and discriminatory hiring practices. This is particularly true given that the claims regarding a bachelor's degree seems to stand in opposition to existing research on the matter.Having seen no new justification for the statistics requirement, I will reiterate my previous statement on the matter: The practically-applicable information covered seems a rather small portion of what is part of an introductory stats class. Also, while saying exactly what the 3D/stats methods will be/require is still rather speculative, it currently seems that the math used will be outside what is covered in an intro stats class and end up being a part of a training program anyway. So, I would suggest that the practical aspects of stats might be just as well, if not more efficiently, addressed by making it part of training. It would be fine to make this suggested or recommended coursework, though. SEE ALSO: There is minimal evidence within wrongful convictions that educational level by itself may mitigate the risk of forensic errors. In fact, most forensic medical professionals, bitemark examiners, and forensic pathologists who are associated with forensic examinations in wrongful convictions have medical doctorates or the equivalent.Morgan J. Wrongful convictions and claims of false or misleading forensic evidence. J Forensic Sci. 2023; 68(3): 908961. https://doi.org/10.1111/1556-4029.15233 Degree inflation particularly hurts populations with college graduation rates lower than the national average, such as Blacks and Hispanics, age 25 years and older.Fuller, J., Raman, M., et al. (October 2017). Dismissed By Degrees. Published by Accenture, Grads of Life, Harvard Business School.https://www.hbs.edu/managing-the-future-of-work/Documents/dismissed-by-degrees.pd Educational Requirements - Certain educational requirements are obviously necessary for some jobs. However, if the educational requirement exceeds what is needed to successfully perform the job and if it disproportionately excludes certain racial groups, it may violate Title VII. https://www.eeoc.gov/laws/guidance/questions-and-answers-about-race-and-color-discrimination-employment			Reject: There should be a minimal level of subject understanding for which the training program can build on. The specific coursework required here are elements found in the firearm and toolmark discipline. This provides a foundation of scientific knowledge for a science-based discipline. We looked at Fuller et al. and noted the top "jobs at risk of degree inflation" lists non-technical, non-science-based jobs (e.g. supervisors of office workers, bookeeping, etc).