



Australasian Forensic Science  
Assessment Body



# AFSAB FINGERPRINT EXAMINATION CANDIDATE GUIDE

VERSION 3.2 DECEMBER 2023

# AFSAB FINGERPRINT CANDIDATE GUIDE

## PURPOSE

This document provides guidance for candidates preparing to undergo the AFSAB assessment in Fingerprint Examination. Details are provided regarding core and discipline competencies to be assessed, assessment structure and recommended resources.

## BACKGROUND

AFSAB is committed to enhancing confidence in forensic science service delivery by certifying individuals to an agreed professional standard. The AFSAB assessment process is used to determine competency, focusing on demonstrable ability around eight core competencies. Each component of the assessment will examine the candidate's skills, knowledge, reasoning, and abilities in tasks relevant to the operational requirements and practices, standards, and contemporary issues relevant to the discipline. Core competencies that will be assessed are:

- ▶ Decision making
- ▶ Communication
- ▶ Critical thinking
- ▶ Problem solving
- ▶ Sequencing of examinations
- ▶ Technical knowledge
- ▶ Uncertainty
- ▶ Understanding limitations

These core competencies will be assessed in light of the discipline specific competencies, which represent the knowledge and skills required for a fingerprint expert to meet competency requirements to perform their day-to-day role. A focus will be placed on both underpinning knowledge and principles, as well as jurisdictional processes where applicable and appropriate.

## ASSESSMENT STRUCTURE

The AFSAB Fingerprint assessment will consist of the following:

Assessment Component	Maximum Length	Format	Pass Mark	Total Available Marks
<b>Written</b>	3 hours	30 x multiple choice 20 x short answer 2 x long answer	75%	105
<b>Practical</b>	3 days	One-to-one Comparisons Gallery Comparisons Case Scenario (Many-to-Many Comparisons)	Competent/Not Competent	N/A
<b>Oral</b>	3 hours	Panel discussion based on three casefiles submitted by the candidate	75%	200

It is expected that candidates will sit each assessment in the order presented in the table on the previous page. Each component will be assessed by a panel of three assessors – two from the candidate's own jurisdiction and one external to the jurisdiction.

Candidates must achieve at least 75% to pass each of the written and oral components. The average mark across the three assessors will be rounded to the nearest whole number. For the practical component candidates will be deemed 'Competent' or 'Not Competent'. Specific pass requirements related to the practical assessment are outlined in further detail in the 'Practical Assessment' section.

Candidates must pass each component before progressing to the next assessment. In the event a candidate fails a component, they may apply to re-sit that component, and do not have to re-sit previously passed components if all assessments are completed within a two-year period. For further information on unsuccessful certification attempts refer to the *AFSAB Policy and Processes for Certification* (<http://www.anzpaa.org.au/forensic-science/resources/afsab>).

## DISCIPLINE SPECIFIC COMPETENCIES

Six discipline specific competencies will be assessed over the written, practical, and oral assessments. The weighting of competencies across each assessment component is determined by how the knowledge or skills would be presented or used by the candidate when performing their day-to-day role. A breakdown of each discipline specific competency is provided below:

### FINGERPRINT DATABASES

- ▶ Processing of latent and tenprints through automated database systems
- ▶ Understanding of the relevant fingerprint databases and their ability to input data and search the database.

### FINGERPRINT COMPARISON AND IDENTIFICATION METHODOLOGY

Understanding of fingerprint analysis, comparison, evaluation, and verification techniques. Factors covered may include:

- ▶ Fingerprint orientation
- ▶ Identification, comparison, and interpretation of fingerprint characteristics
- ▶ Latent print distortion
- ▶ Skin and fingerprint physiology
- ▶ Variability of fingerprints between people
- ▶ Variability of latent prints originating from the same finger
- ▶ Communication of findings.

### INCIDENT SCENE AND EXHIBIT PROCESSING

Knowledge and principles of fingerprint detection, capture, development, and enhancement, including evidence handling procedures. This includes (but is not limited to) the following:

- ▶ Identification and application of appropriate enhancement methods for the surface or matrix
- ▶ Inference of activity associated with the deposition of a latent print
- ▶ Mode of latent print deposition
- ▶ Significance of questionable latent features in forming an opinion of forgery
- ▶ Suitability of a latent print for collection and comparison.



## **DECEASED PERSONS**

Fingerprint examination knowledge as it relates to deceased individuals, including considerations, limitations, and difference between living and deceased individuals.

## **LEGAL FRAMEWORK**

Knowledge of the legal framework pertaining to a fingerprint examiner giving evidence in court, including both factual and opinion evidence.

## **CONTEMPORARY ISSUES**

Knowledge and awareness of contemporary issues relating to the discipline of fingerprints, or which have an impact on forensic science holistically.

Candidates are encouraged to read the resources listed at the end of this document to aid in preparation for their AFSAB assessments. Assessment material may be drawn from these resources.

## WRITTEN ASSESSMENT

Core and discipline specific competencies will be assessed in a three-hour written assessment which will be supervised by one of the candidate's internal assessors or other AFSAB approved supervisor. Questions will be presented in three forms:

### Multiple choice

Each multiple-choice question will be worth 1 mark. They will be presented as a question followed by four possible answers (A, B, C or D). Unless otherwise stated, candidates should select a single response.

### Short answer

Short answer questions will consist of a brief prompt that requires a written response varying in length from one sentence (minimum) to several sentences or a paragraph. Short answer questions will be clearly marked as being worth either 2 or 5 marks depending on the complexity of the question and answer.

### Long answer

Long answer questions will consist of a complex prompt that requires a written response that can vary in length but should be no longer than one page. All long answer questions will be worth 10 marks.

Question Style	Marks Available	Discipline Specific Competencies
<b>Multiple Choice</b>	1 mark	Fingerprint Databases
		Fingerprint Comparison and Identification Methodology
		Incident Scene and Exhibit Processing
		Deceased Persons
		Legal Framework
		Contemporary Issues
<b>Short Answer</b>	2 marks	Fingerprint Databases
		Fingerprint Comparison and Identification Methodology
		Incident Scene and Exhibit Processing
		Deceased Persons
		Legal Framework
		Contemporary Issues
<b>Long Answer</b>	5 marks	Fingerprint Comparison and Identification Methodology
		Incident Scene and Exhibit Processing
		Contemporary Issues
<b>Long Answer</b>	10 marks	Fingerprint comparison and identification methodology
		Incident Scene and Exhibit Processing

## PRACTICAL ASSESSMENT

The purpose of the practical phase is to measure a candidate's ability to analyse, compare and evaluate friction ridge impressions, in a range of tasks that represent those encountered in their day-to-day role.

The practical assessment will be conducted across three, eight hour working days, and be supervised by one of the candidate's internal assessors or other AFSAB approved supervisor. The candidate will be provided with all assessment material at the beginning of day one and will be required to manage their own time across the three days. Candidates are advised to note that the tasks generally take longer to complete as you progress through the assessment.

Candidates will be required to complete all assessment tasks and must provide a conclusion for each comparison. An erroneous identification across any of the tasks will result in the candidate being deemed not competent. If a candidate is deemed not competent in one task, they will be required to re-sit all practical tasks.

The candidate should perform the comparisons using the same jurisdictional processes that you would use for case work. This includes utilising software/tools that are used in everyday latent fingerprint cases (i.e. FCS or similar). All automated searching methods and systems, however, must not be utilised. Any candidate found to have utilised an automated searching technique will be deemed not competent. In addition, any use of automated searching throughout the assessment will be investigated in relation to breaching of the AFSAB Code of Ethics and Professional Conduct as contained within the *AFSAB Policy and Processes for Certification*.

The practical assessment will take the following form.

### Task 01 (One-to-One Comparisons)

Task 01 replicates the decision-making skill required in the comparison process. Candidates will be provided with 15 pairs of impressions (latent to tenprint). The candidate is required to determine if they share a common source or not.

One of the following three conclusions must be provided for each one-to-one comparison:

- ▶ Identification - the latent and tenprint are from the same source
- ▶ Inconclusive - unable to make an identification or exclusion
- ▶ Exclusion - the latent and tenprint are not from the same source.

If 'Inconclusive' is chosen as the conclusion, the candidate must select one of the following reasons in support of the determination:

- ▶ Inconclusive due to area not present on tenprint
- ▶ Inconclusive due to insufficient information
- ▶ Inconclusive, but with corresponding features noted.

An incorrect reason for the decision of 'Inconclusive' will result in the comparison being marked as incorrect.

### Task 02 (Gallery Comparisons)

In Task 02 candidates will be provided with 20 gallery comparisons. Each comparison consists of a single unknown friction ridge impression (latent) and a gallery of ten known impressions for comparison. The candidate must indicate which, if any, of the ten known comparison images share a common source with the unknown latent impression. Candidates are to note that Task 02 is **open set**, (ie. some latent impressions may not have corresponding known impressions and some latent impressions may have multiple corresponding known impressions). All possible sources should be considered, and all relevant conclusions provided.

For the gallery search, a conclusion of Hit or No Hit must be selected. For this task the following definitions apply:

- ▶ Hit - latent identified to a source or sources. The source(s) of the identification must be provided.
- ▶ No Hit - latent could not be identified to a known source or latent can be excluded from the sources.



### Task 03 (Case Scenario)

Task 03 replicates the searching skills required in case work. The candidate will be provided with a set of 20 latents and 20 tenprints. The candidate must determine which, if any, latents originate from any of the known tenprints. Candidates are to note that in Task 03 there may be latents that have no corresponding tenprints or more than one latent may be attributed to a tenprint.

The candidate should perform the comparisons using the same jurisdictional processes that you would use for case work. This includes utilising software/tools that are used in everyday latent fingerprint cases (i.e. FCS or similar). All automated searching methods and systems, however, must not be utilised. Any candidate found to have utilised an automated searching technique will be deemed not competent. A reminder that any use of automated searching throughout the assessment will be investigated in relation to breaching of the AFSAB Code of Ethics and Professional Conduct as contained within the *AFSAB Policy and Processes for Certification*.

One of the following three conclusions for each comparison must be provided:

- ▶ Identification - the latent and tenprint are from the same source. A finger/palm nomination must be provided
- ▶ Inconclusive - unable to make an identification or exclusion
- ▶ Exclusion - the latent and tenprint are not from the same source.

If 'Inconclusive' is chosen as the conclusion, the candidate must select one of the following reasons in support of the determination:

- ▶ Inconclusive due to area not present on tenprint
- ▶ Inconclusive due to insufficient information
- ▶ Inconclusive, but with corresponding features noted. [If selected a nomination must also be provided].

An incorrect reason for the decision of 'Inconclusive' will result in the comparison being marked as incorrect.

### Pass Requirements

An erroneous identification across any of the tasks will result in the candidate being deemed not competent.

The following criteria are required to successfully pass each task.

**Task 01** – No more than one false 'exclusion' or false 'inconclusive' (combined total)

**Task 02** – No more than two false 'No Hits'

**Task 03** – No more than three false 'exclusion' or false 'inconclusive' (combined total)

In addition to each task having a specific criteria to pass, a maximum combined total of 4 errors is permitted across all three tasks. More than four errors will result in the candidate being deemed not competent across the practical assessment.

For example, a candidate may have one false exclusion in task 1 and three false exclusions in task 3 and be deemed competent across the assessment. If the candidate made an additional false 'no hit' in task 2 the cumulative total of errors is five and therefore exceeds the assessment requirement of a maximum of four errors. Although the maximum number of errors for task 2 was not exceeded the overall combined number of errors will result in the candidate being deemed not competent.



## ORAL ASSESSMENT

The oral assessment will take the form of a panel discussion assessed by two internal and one external assessors. The candidate is required to submit copies of three finalised cases, covering work undertaken by them relating to scene attendance, latent comparison, and friction ridge impression development. At least one of the cases must be of a complex nature. The candidate should only submit the forensic examination component of the brief of evidence. The cases must be submitted to the internal jurisdictional contact no less than two weeks prior to the confirmed oral assessment date.

1. Collectively, the three casefiles shall demonstrate experience in the following areas:
  - ▶ Scene examination (if appropriate for your jurisdiction)
  - ▶ Friction ridge enhancement and development
  - ▶ Assessment of sufficiency/quality of impressions
  - ▶ Comparison of impressions
  - ▶ Comparison of friction ridge impressions resulting in a range of conclusions.
2. Each casefile shall include, where relevant:
  - ▶ A selection of photographs that best demonstrate the scene and evidence (maximum 30)
  - ▶ A copy of the scene examination notes, exhibit list and any examination results
  - ▶ Comparison notes
  - ▶ Comparison charts (fully marked with features used for comparison)
  - ▶ Statement or technical report (if case file concerns a scene examination, a statement or technical report addressing the scene examination must be included)
  - ▶ Verification/peer review details
3. The case does not need to be finalised in court, however all case examinations must be complete.
4. The candidate should be the lead examiner, or adopt the role of lead examiner, for any statement included in the three casefiles.
5. The panel may assess the candidate on any aspect of all three cases. In addition, candidates may be asked questions on any or all of the core discipline competencies.



The oral assessment will be run over a maximum of three hours, and will be marked by the three assessors according to the following rubric:

Mark	Equivalent Percentage Scale	Criteria
7-8	≥76%	<ul style="list-style-type: none"> <li>▶ Demonstrated advanced technical knowledge</li> <li>▶ Succinctly communicated all details</li> <li>▶ Displayed exceptional ability to critically analyse, interpret and evaluate</li> <li>▶ Comprehensive ability to apply established theories to the specifics of their discipline</li> </ul>
5-6	51% to 75%	<ul style="list-style-type: none"> <li>▶ Demonstrated sound technical knowledge</li> <li>▶ Communicated key details</li> <li>▶ Displayed sound ability to critically analyse, interpret and evaluate</li> <li>▶ Adeptly applies established theories to the specifics of their discipline</li> </ul>
3-4	26% to 50%	<ul style="list-style-type: none"> <li>▶ Demonstrated basic technical knowledge</li> <li>▶ Communicated some detail</li> <li>▶ Displayed some ability to critically analyse, interpret and evaluate</li> <li>▶ Some ability to apply established theories to the specifics of their discipline</li> </ul>
1-2	≤25%	<ul style="list-style-type: none"> <li>▶ Demonstrated limited technical knowledge</li> <li>▶ Communicated limited detail</li> <li>▶ Displayed little ability to critically analyse, interpret and evaluate</li> <li>▶ Minimal ability to apply established theories to the specifics of their discipline</li> </ul>

## NOTIFICATION OF ASSESSMENT OUTCOME

All assessment items will be reviewed by all three assessors. Candidates will be provided with their assessment results and any relevant feedback within ten business days of completing each assessment.

If a candidate does not agree with an assessment result or certification recommendation, they are permitted to lodge an appeal or grievance in accordance with the AFSAB Certification Appeals and Grievance Process (contained within the *AFSAB Policy and Processes for Certification*).



## RESOURCES

Candidates should review the following information prior to undergoing assessment. The material is focused on expanding a candidate's knowledge of legal factors and contemporary issues. Assessment material may be drawn from these documents.

1. Code of conduct/rules of expert evidence relevant to your jurisdiction
2. Forensic Science Regulator. 2020. Cognitive Bias Effects Relevant to Forensic Science Examinations Issue 2. [https://assets.publishing.service.gov.uk/media/5f4fc26ce90e074695f80977/217\\_FSR-G-217\\_Cognitive\\_bias\\_appendix\\_Issue\\_2.pdf](https://assets.publishing.service.gov.uk/media/5f4fc26ce90e074695f80977/217_FSR-G-217_Cognitive_bias_appendix_Issue_2.pdf). Sections 1, 2, 3 and 8 recommended as a minimum
3. President's Council of Advisors on Science and Technology. 2016. Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods. [https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast\\_forensic\\_science\\_report\\_final.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf). Sections 1, 4, and 5.4 recommended as a minimum.
4. AAAS. 2017. Forensic Science Assessments: A Quality and Gap Analysis – Latent Fingerprint Examination. Report prepared by Thompson W, Black J, Jain A, Kadane J. [https://www.aaas.org/sites/default/files/s3fs-public/reports/Latent%2520Fingerprint%2520Report%2520FINAL%25209\\_14.pdf](https://www.aaas.org/sites/default/files/s3fs-public/reports/Latent%2520Fingerprint%2520Report%2520FINAL%25209_14.pdf)
5. Ulery, B. T., Hicklin, R. A., Buscaglia, J., and Roberts, M. A. 2011. Accuracy and reliability of forensic latent fingerprint decisions. *Proceedings of the National Academy of Sciences of the United States of America*. 108. 7733-7738. <https://doi.org/10.1073/pnas.101870710>
6. Tangen, J. M., Thompson, M. B., and McCarthy, D. J. 2011. Identifying fingerprint expertise. *Psychological Science*. 22. 995-997. <https://doi.org/10.1177/09567976114147>
7. Thompson, M. B., Tangen, J. M., and McCarthy, D. J. 2013. Human matching performance of genuine crime scene latent fingerprints. *Law and Human Behavior*. 38(1). <https://doi.org/10.1037/lhb0000051>
8. Thompson, M. B., Tangen, J. M., and McCarthy, D. J. 2013. Expertise in fingerprint identification. *Journal of Forensic Sciences*. <https://doi.org/10.1111/1556-4029.12203>
9. Eldridge, H., De Donno, M., and Champod, C. 2021. Testing the accuracy and reliability of palmar friction ridge comparisons – A black box study. *Forensic Science International*. 318 (2021) 110457. <https://doi.org/10.1016/j.forsciint.2020.110457>