



ACCREDITED FOR  
**TECHNICAL  
COMPETENCE**

Biological Criminalistics inc DNA  
Chemical Criminalistics  
Fingerprint Examination  
Forensic Document Examination

**2023**



**forensic**  
**FOUNDATIONS™**  
ISO 9001 & ISO/IEC 17043

ISO 9001

**BUREAU VERITAS**  
Certification



# Proficiencytesting @ forensicfoundations



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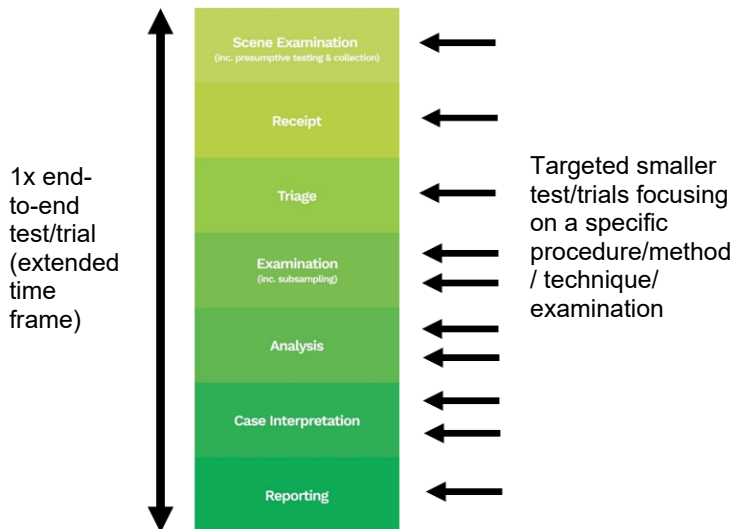
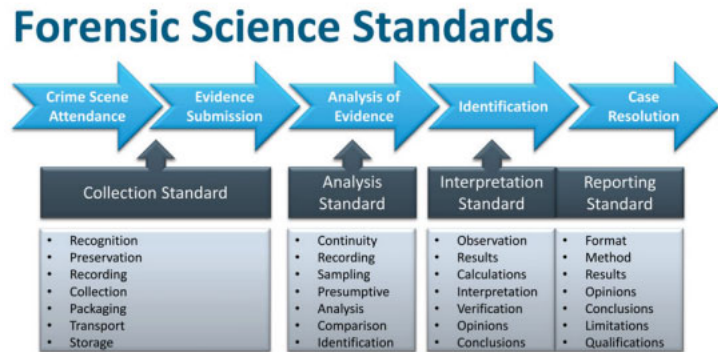
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## Background, rationale and test design

# Proficiencytesting@forensicfoundations

**Empowering an organisation to demonstrate the proficiency of their systems and their personnel.**

The Forensic Foundations' Proficiency Testing program is designed to allow forensic science facilities to test their end-to-end forensic examination process. The AS 5388 and ISO 21043 series of Standards describe the forensic examination process from collection to reporting. This figure<sup>1</sup> illustrates the inter-relatedness of all the steps in this process and was used as the basis of the Australian Standards' development. The figure is also used as the basis of the development of Forensic Foundations' Proficiency Tests.



Annually, within each discipline, there is one end-to-end Proficiency Test which commences with item collection and/or receipt and includes all the subsequent examination / analysis steps, culminating in the reporting of results, the process therefore reflects actual forensic casework.

In addition, within each discipline, there are a number of Proficiency Tests which examine one or more activities within the end-to-end process.

Forensic Foundations' Proficiency Tests are designed to address the following issues:

- Relevance to forensic science laboratories
- Limitations of any potential contextual information
- Knowledge of the 'ground truth' of the samples
- Cost affordability for the laboratories.

<sup>1</sup>James Robertson, Karl Kent & Linzi Wilson-Wilde (2013) The Development of a Core Forensic Standards Framework for Australia, Forensic Science Policy & Management: An International Journal, 4:3-4, 59-67

Forensic Foundations' Proficiency Tests encompass the requirements of:

- ISO17025:2017 General requirements for the competence of testing and calibration laboratories
- NATA General Accreditation Criteria Proficiency Testing Policy (2018)
- NATA Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Legal (including Forensic Science) – Appendix (2018)
- ANAB ISO/IEC 17025:2017 – Forensic Science Testing and Calibration Laboratories Accreditation Requirements (2019)
- ANAB Accreditation Manual for Forensic Service Providers (2019)
- Guidance on the Conduct of Proficiency Tests and Collaborative Exercises Within ENSFI (2014).

These tests provide a mechanism for participating laboratories to review their results and those of other laboratories to facilitate<sup>2,3&4</sup>:

- Management of risk (see Appendix 1)
- An evaluation and appraisal of their performance including:
  - comparison of a facility's performance with other facilities
  - monitoring of a facility's long-term performance
- Continuous improvement including:
  - staff education, training, and competence monitoring
  - evaluation of methods, including the establishment of method precision and accuracy
  - contribution to a facility's overall risk management process
- Corrective action (where required)
- Confidence building with interested parties (e.g. customers, accreditation bodies, regulators, and specifiers).

## Assessment and final reports

Assessment of submitted results are undertaken to ensure:

- Relevance
- Validity
- Reliability

Final reports will be distributed approximately two months after the report submission date.

The Final Reports from Forensic Foundations Proficiency Tests are publicly available via the Forensic Foundations' web site however the identity of individual laboratories will remain confidential. Participating laboratories may use the report as outlined in their respective laboratory policies.

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<sup>2</sup> ISO17025 (2017) General requirements for the competency of testing and calibration laboratories.

<sup>3</sup> NATA (2021) General Accreditation Criteria Proficiency Testing Policy

<sup>4</sup> ANAB ISO/IEC 17025:2017 – Forensic Science Testing and Calibration Laboratories Accreditation Requirements (2019)

## Pricing structure

The pricing structure has been calculated to be affordable and flexible.

Purchase of the test will include design, sample selection, pretesting, item creation, distribution and assessment.

Description		USD Shipping not included
<b>Proficiency Test (end-to-end)</b>	Test samples and associated paperwork will be provided.  Results to be submitted and reviewed.  Final report including manufacturer's information provided for each test.	450
<b>Proficiency Test (examination / analysis specific)</b>		200
<b>Inter-laboratory collaborative trial (end-to-end)</b>		400
<b>Inter-laboratory collaborative trial (examination / analysis specific)</b>		150
<b>Individual laboratory report</b>	In addition, a report specific to the individual participant containing a review of the laboratory's performance, can be included.	25

## Ordering

Orders may be placed either online at <https://www.forensicfoundations.com.au/proficiency-testing/2023-proficiency-tests/> or by emailing [admin@forensicfoundations.com.au](mailto:admin@forensicfoundations.com.au).

Payment can be made by credit card (online) or via purchase order and/or invoice.

Orders for tests should be made at least one month before the distribution date.

Shipping costs will be added at the time of the order, contact Forensic Foundations for an approximate shipping cost.

2023BioEE  
End-to-end biological examination including biological material ID and DNA

Test ID and description	Scenario	Participants will receive	Examination / Analysis required	Distribution
<b>2023BioEE</b> End-to-end biological examination including biological material ID and DNA	Sexual Assault:  The complainant alleges that she has been sexually assaulted at a family event. She alleges that a non-biological relative had attacked her while she was sleeping, held her down once she awoke, then raped her. During the assault, she believes she scratched the offender. There are conflicting versions of the events.	The complainant's medical samples and reference sample.  Bedding.  Reference samples from three suspects.	Assessment of packaging / receipt.	April
			Description of items.	<b>Results submitted</b>
			Comparison of DNA profile obtained from medical samples with the reference samples.  Could any of the suspects be the assailant?  Interpretation and reporting of the results.	

2023Bio1-6 Focusing on specific components of the forensic process

Test ID	Participants will receive	Examination / Analysis required	Distribution	Results submitted
<b>2023Bio1</b> Bloodstain pattern analysis	Detailed high-resolution photographs of the scene, with and without scales.	Examination and analysis of the photographs. Identification of blood deposition patterns. Reconstruction of possible mechanisms of blood deposition.	February	April
<b>2023Bio2</b> DNA profiling - Y Filer	The complainant's medical samples and reference sample. Reference samples from three suspects.	Comparison of DNA profiles obtained from medical samples with the reference samples. Could any of the suspect(s) be the assailant(s)?	March	May
<b>2023Bio3</b> Kinship (DNA)	Reference samples from individuals allegedly biologically related.	Kinship analysis using DNA profiles.	June	August
<b>2023Bio4</b> Biological examination inc. biological material ID	Two pieces of clothing.	Examination of clothing and location of any biological material.	July	September
<b>2023Bio5</b> Hair examination	Five hairs individually mounted on microscope slides.	Human / non-human. Somatic origin. Stage of growth (from root morphology).	August	October
<b>2023Bio6</b> Biological examination inc. biological material ID and DNA	Swabs collected from the crime scene Reference samples.	Identification of biological material. Could any of the suspect(s) be the source of the biological material?	September	November

2023CCEE  
End-to-end Chemical examination including glass examination and analysis

Chemical  
Criminalistics

Test ID and description	Scenario	Participants will receive	Examination / Analysis required	Distribution
<b>2023CCEE</b> End-to-end examination including evidence recovery and examination and analysis of glass	Burglary: A window has been broken in the course of a burglary. The offender was alleged to be wearing fabric gloves.	Gloves seized from a number of suspects.  Reference glass sample from the broken window.	Assessment of packaging / receipt.	March
			Description of items.	<b>Results submitted</b>
			Recovery of any glass fragments.  Comparison of glass fragment with the reference sample.  Interpretation and reporting of the results.	July

2023CC1-6 Focusing on specific components of the forensic process

Test ID	Participants will receive	Examination / Analysis required	Distribution	Results submitted
<b>2023CC1</b> Personal lubricant analysis	Swabs collected from complainant and three suspects.	Identification of substances consistent with personal lubricants. Determination of any associations between any of the substances identified.	February	April
<b>2023CC2 (a component of 2023FDEEE)</b> Ink analysis	Documents with alterations and obliterations.	Examination and analysis of inks located on the documents.	April	June
<b>2023CC3</b> Fibre examination and analysis	A tape lift taken from the victim's clothing. Samples of clothing from suspects.	Examination and analysis of fibres on the tape lift. Determination of any associations between any of the fibres retrieved and the clothing of the suspects.	May	July
<b>2023CC4</b> Ignitable fluid residue analysis	Samples cut from burnt carpet. Control samples of carpet from unburnt areas.	Analysis of carpet samples and identification of any ignitable fluid residues present.	June	August
<b>2023CC5</b> Automotive paint analysis	Samples of paint collected from accident scene. Sample of paint collected from suspect vehicles.	Examination and analysis of paint samples. Determination of any associations between any of the paint samples.	July	September
<b>2023CC6</b> Pepper (capsicum) spray / chemical irritant	Swabs collected from clothing of the alleged victim and assailant(s).	Identification of substances consistent with pepper spray.	August	October

2023FDEEE

End-to-end document physical document examination

## Forensic Document Examination

Test ID and description	Scenario	Participants will receive	Examination / Analysis required	Distribution
<b>2023FDEEE</b> End-to-end examination including of physical document examination with optional ink analysis	Fraud: An anonymous note has been received about a crime which discusses information which has not been disclosed publicly	Physical documents with both printed and handwritten entries.	Assessment of packaging / receipt. Description of items. Physical examination of documents. Interpretation and reporting of the results.	April
				<b>Results submitted</b>
				August

2023FDE1 Focusing on specific components of the forensic process

Test ID	Participants will receive	Examination / Analysis required	Distribution	Results submitted
<b>2023FDE1</b> Signature analysis	High resolution images of questioned signatures. High resolution images of specimen signatures.	Examination and analysis of the signatures. Are any / all signatures genuine? What other explanations could there be?	October	December



2023FP  
End-to-end fingerprint examination on physical documents

Fingerprint  
Examination

Test ID and description	Scenario	Participants will receive	Examination / Analysis required	Distribution
<b>2023FPEE</b> End-to-end examination including of treatment of physical documents.	Homicide: Documents have been located in the possession of 2 individuals currently suspects in a homicide enquiry.	3 x documents. 10 print sets taken from the deceased. 10 print sets taken from 2 suspects.	Assessment of packaging / receipt.  Description of items.  Enhancement and detection of latent fingerprints on the documents.  Comparison of latent fingerprints with reference ten print sets.  Interpretation and reporting of the results.	August
				<b>Results submitted</b>
				December

2023FP Focusing on specific components of the forensic process

Test ID	Participants will receive	Examination / Analysis required	Distribution	Results submitted
<b>2023FP1</b>	Images of dusted marks and the enhanced marks.  10 print sets taken from deceased and deceased's flat mate.  10 print sets taken from 2 suspects.	Comparison of latent fingerprints with reference ten print sets.	April	June

2023DFEE  
End-to-end mobile phone examination

**Digital Forensics  
Inter-laboratory collaborative  
trials\***

Test ID and description	Scenario	Participants will receive	Examination / Analysis required	Distribution
2023DFEE End-to-end examination of a mobile phone	Drug investigation: A mobile phone has been seized from a suspect in a drug importation investigation.	A mobile phone.	Assessment of packaging / receipt.	July
			Description of item.	<b>Results submitted</b>
			Access and examination of data stored on the phone.	November
			Interpretation and reporting of the results.	

2023DF1 Focusing on specific components of the forensic process

Test ID	Participants will receive	Examination / Analysis required	Distribution	Results submitted
<b>2023DF1</b> Examination of 'small media'	One or more items of small media (e.g. USB/thumb drives, SD cards).	Examination and analysis of items.	May	July

\* Interlaboratory Collaborative Trials are offered where the test is still in the development phase and/or the test is in a niche area of expertise.

## Appendix A Risk management

ISO17025:2017 identifies risk management as an integral component of any scientific testing. Participation in Proficiency Testing and Inter-laboratory Collaborative Trials are an integral component of risk management in the practice of Forensic Science.

Risks occur at all stages of the forensic process. Some of the risks to be considered with the forensic process have been provided in the table below.

Phase	Internal context (Risk to organization)	External context (Risk to clients inc. justice system and community)
Scene / laboratory examination (inc. presumptive testing and collection)	<ul style="list-style-type: none"> <li>• Continuity               <ul style="list-style-type: none"> <li>○ transcription errors</li> <li>○ issues relating to sealing of items</li> <li>○ incorrect descriptions</li> <li>○ sample mix up / misidentification</li> </ul> </li> <li>• Examination / analysis               <ul style="list-style-type: none"> <li>○ samples not identified or incorrectly identified</li> <li>○ samples not collected for testing</li> <li>○ inappropriate examination / analytical method used</li> </ul> </li> <li>• Interpretation / reporting               <ul style="list-style-type: none"> <li>○ invalid or unsupported assumptions</li> <li>○ contextual bias</li> <li>○ incomplete process</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Absence of results where samples have not been collected and/or analyzed</li> <li>• False identification of substance / false inclusions or conclusions</li> <li>• False exclusion</li> <li>• Results deemed inadmissible</li> <li>• Incorrect weight given to evidence</li> <li>• Miscarriages of justice</li> </ul>
Receipt in organization or individual work unit		
Triage		
Analysis		
Case Interpretation		
Reporting		

## Appendix B 2023 Program in chronological order

Test ID	Subdiscipline	Examination	Last date for orders	Distribution	Results submitted	Final Report distributed
2023Bio1	Bloodstain pattern analysis	Analysis of images	January	February	April	June
2023CC1	Personal lubricant examination	Analysis	January	February	April	June
2023Bio2	DNA profiling - Y Filer	Analysis and interpretation	February	March	May	July
2023CCEE	Glass examination	End to end examination - burglary	February	March	July	September
2023BioEE	Biological examination inc. biological material ID and DNA	End to end examination - sexual assault	March	April	August	October
2023FDEEE	Document Examination	End to end examination -fraud	March	April	August	October
2023CC2	Ink analysis (a component of 2023FDEE)	Analysis and interpretation	March	April	June	August
2023FP1	Latent marks / ten print comparison	Analysis	March	April	June	August
2023CC3	Fibres examination	Evidence recovery and analysis	April	May	July	September
2023DF1	Digital Forensics	Analysis of small media	April	May	July	September
2023Bio3	Kinship (DNA)	Analysis and interpretation	May	June	August	October
2023CC4	Ignitable fluid residue analysis	Analysis and interpretation	May	June	August	October
2023Bio4	Biological examination inc. biological material ID	Evidence recovery	June	July	September	November
2023CC5	Automotive paint examination	Analysis and interpretation	June	July	September	November
2023DFEE	Digital Forensics	End to end examination – drug investigation	June	July	November	Jan-24
2023Bio5	Hair examination	Examination	July	August	October	December
2023CC6	Unknown chemicals/pepper spray	Evidence recovery and analysis	July	August	October	December
2023FPEE	Enhancement, detection & identification	End to end examination - homicide	July	August	December	Feb-24
2023Bio6	Biological examination inc. biological material ID and DNA	Analysis and interpretation	August	September	November	Jan-24
2023FDE1	Signature analysis	Analysis of images	September	October	December	Feb-24

## Appendix C Test development



[admin@forensicfoundations.com.au](mailto:admin@forensicfoundations.com.au)  
[www.forensicfoundations.com.au](http://www.forensicfoundations.com.au)

ABN 23 839 112 155 ACN 130 236 618

Forensic Foundations' Proficiency Tests are required to be fit-for-purpose. To assist us to provide the relevant fit-for-purpose tests, please use the following form to suggest further tests for development.

### Recommendation for Proficiency Test development

Contact	Name	
	Email	
	Phone	
Discipline/ subdiscipline		
Specific issues(s) to be addressed*. Note: The tests can be designed to be multidisciplinary.		
Suggested technical advisor (if known)		
Suggested manufacturer (if known)		

\* All Proficiency Tests will include the end to end process (receipt & continuity, triage, description, examination, analysis, data generation, interpretation, reporting) but one aspect may be of particular interest/focus.

This form can be emailed to [quality@forensicfoundations.com.au](mailto:quality@forensicfoundations.com.au) or you can discuss your suggestions on either +61 3 9018 8919 or +61 429 966 012.