Captivating the Jury

Hillary Daluz

Instructor, Tri-Tech Forensics

Forensic Specialist, Forensic Identification Services

Author, CRC Press

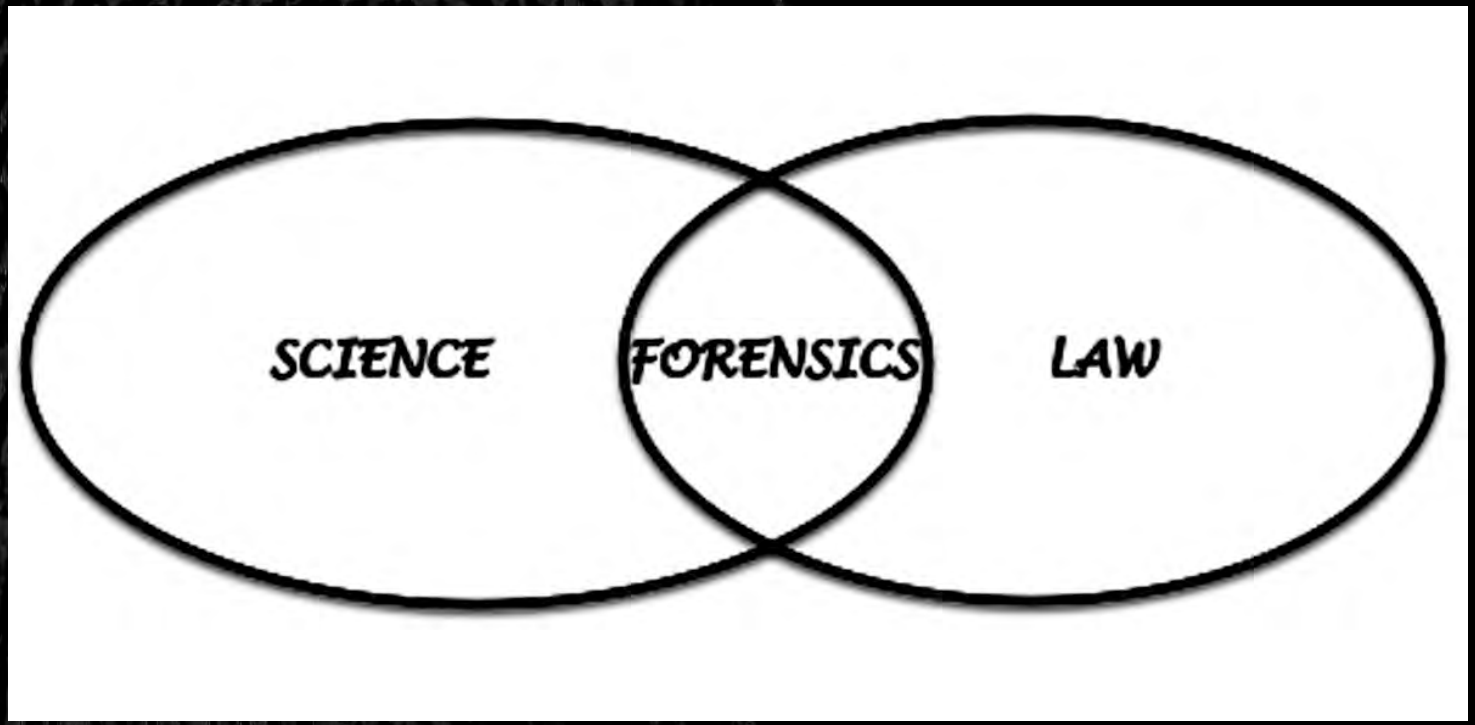
Overview

- The scientist
- Testifying as teaching
- How people (jurors) learn
- Visual aids
- Examples and anecdotes
- Explaining scientific concepts to the layperson

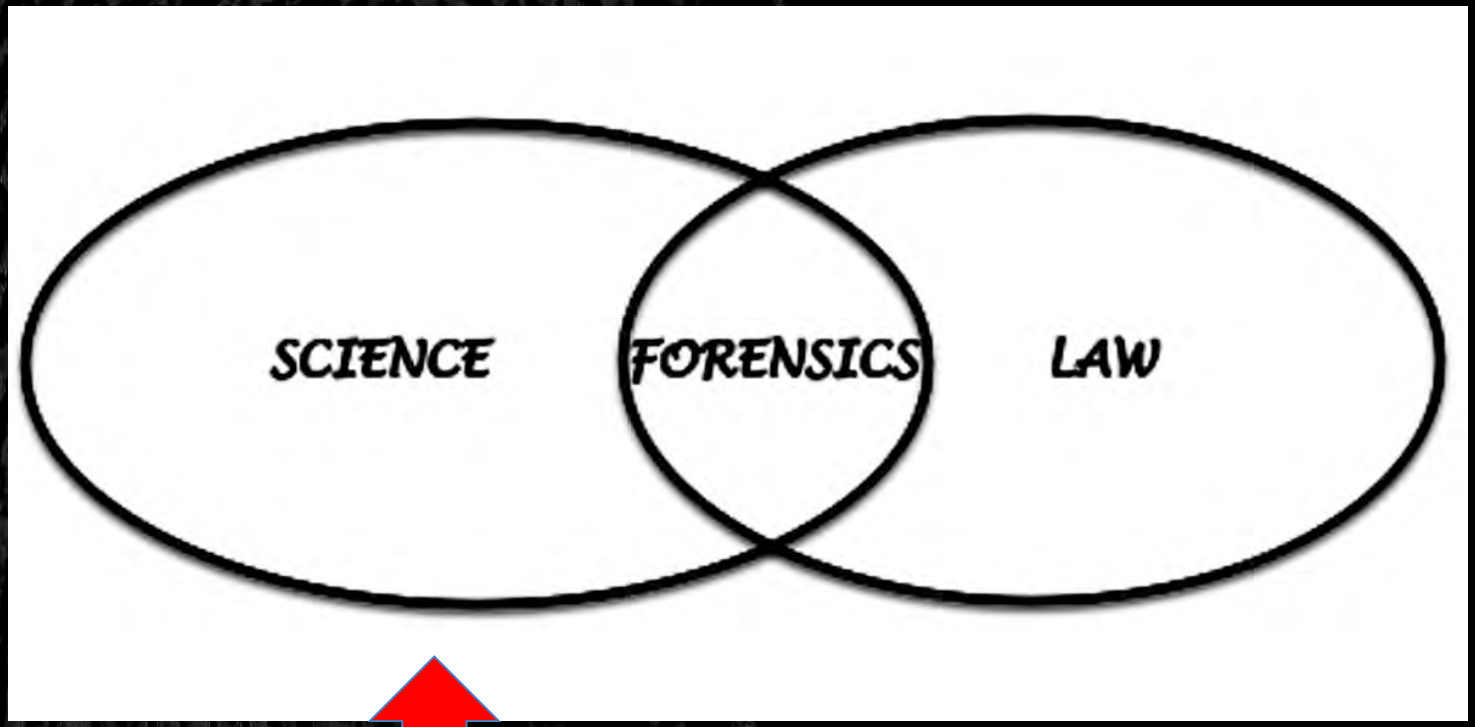
The Scientist

- Trained in scientific methodology
  - Analytical skills
  - Research
  - Specialization

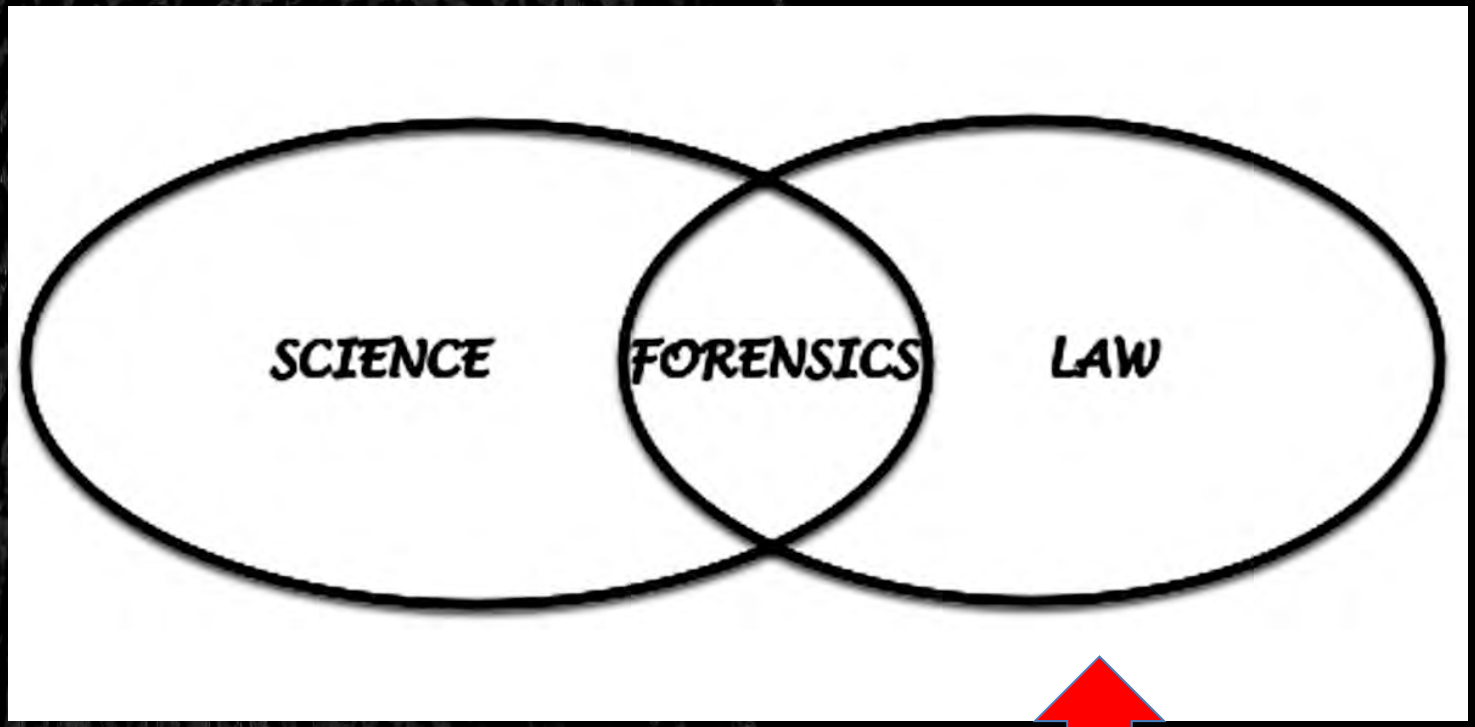
The Scientist



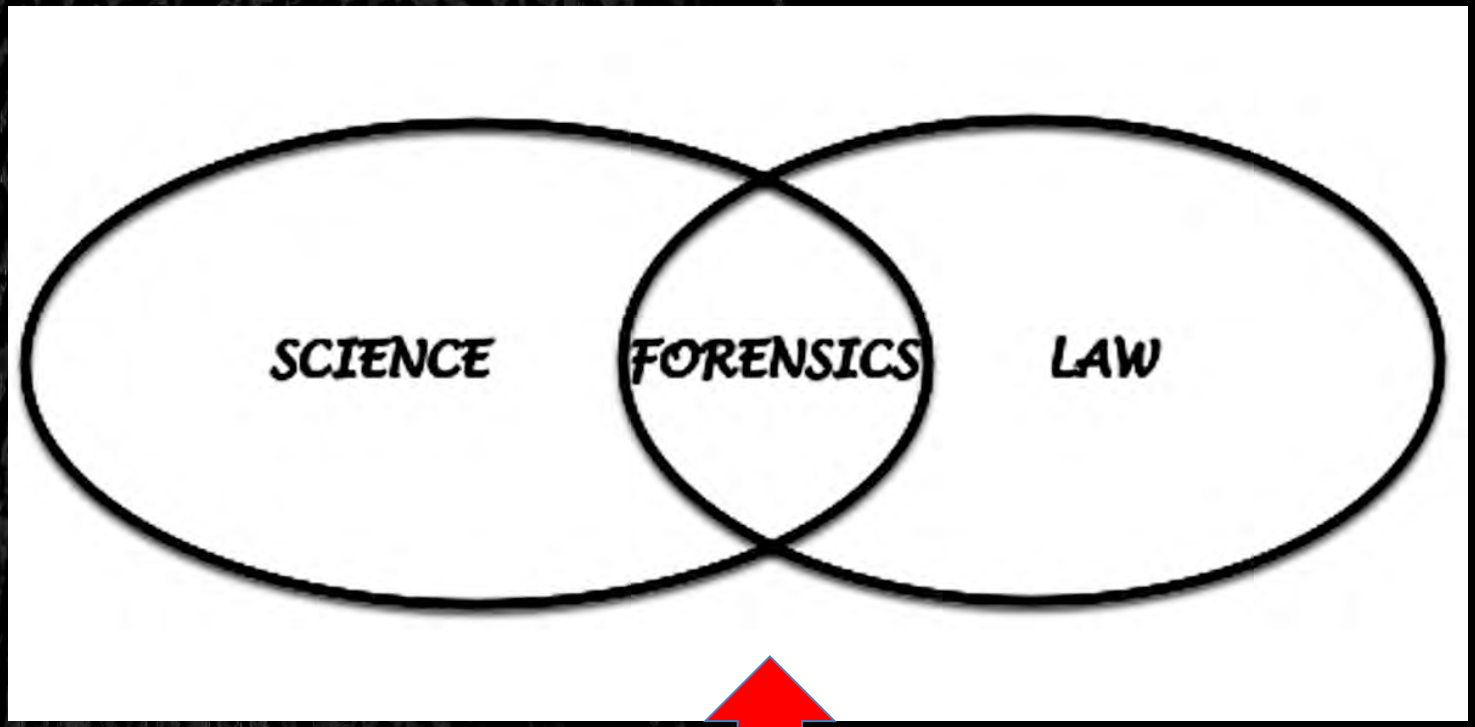
The Scientist



The Scientist



The Scientist



The Scientist

– "We call expert witnesses to testify about matters that are beyond the ordinary understanding of lay people… and then we ask lay judges and jurors to judge their testimony."
  - Professor Samuel Gross, University of Michigan Law

Testifying as Teaching

What are the qualities of an effective teacher?

Qualities of an Effective Teacher

- Knowledgeable

Qualities of an Effective Teacher

- Knowledgeable
- Relatable/approachable

Qualities of an Effective Teacher

- Knowledgeable
- Relatable/approachable
- Enthusiastic/passionate

Qualities of an Effective Teacher

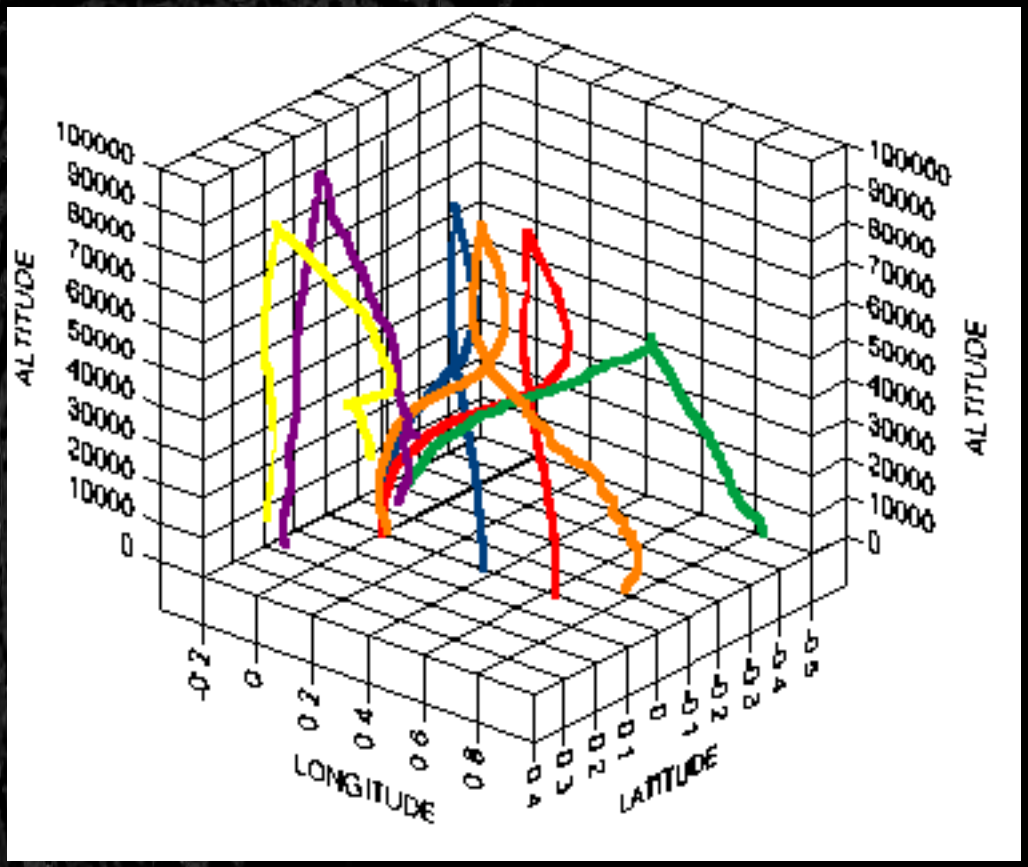
- Knowledgeable
- Relatable/approachable
- Enthusiastic/passionate
- Uses visual aids, anecdotes and examples

Learning Styles

Visual Aids

- Types
  - Photos
  - Charts, tables and graphs
  - PowerPoint Presentations
  - Show & tell demos
  - Drawings
  - Models
  - CAD programs

Visual Aids


ALTITUDE
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
LONGITUDE
-.2
0
.2
.4
.6
.8
LATITUDE
.0
.1
.2
.3
.4
.5
ALTITUDE
100000
90000
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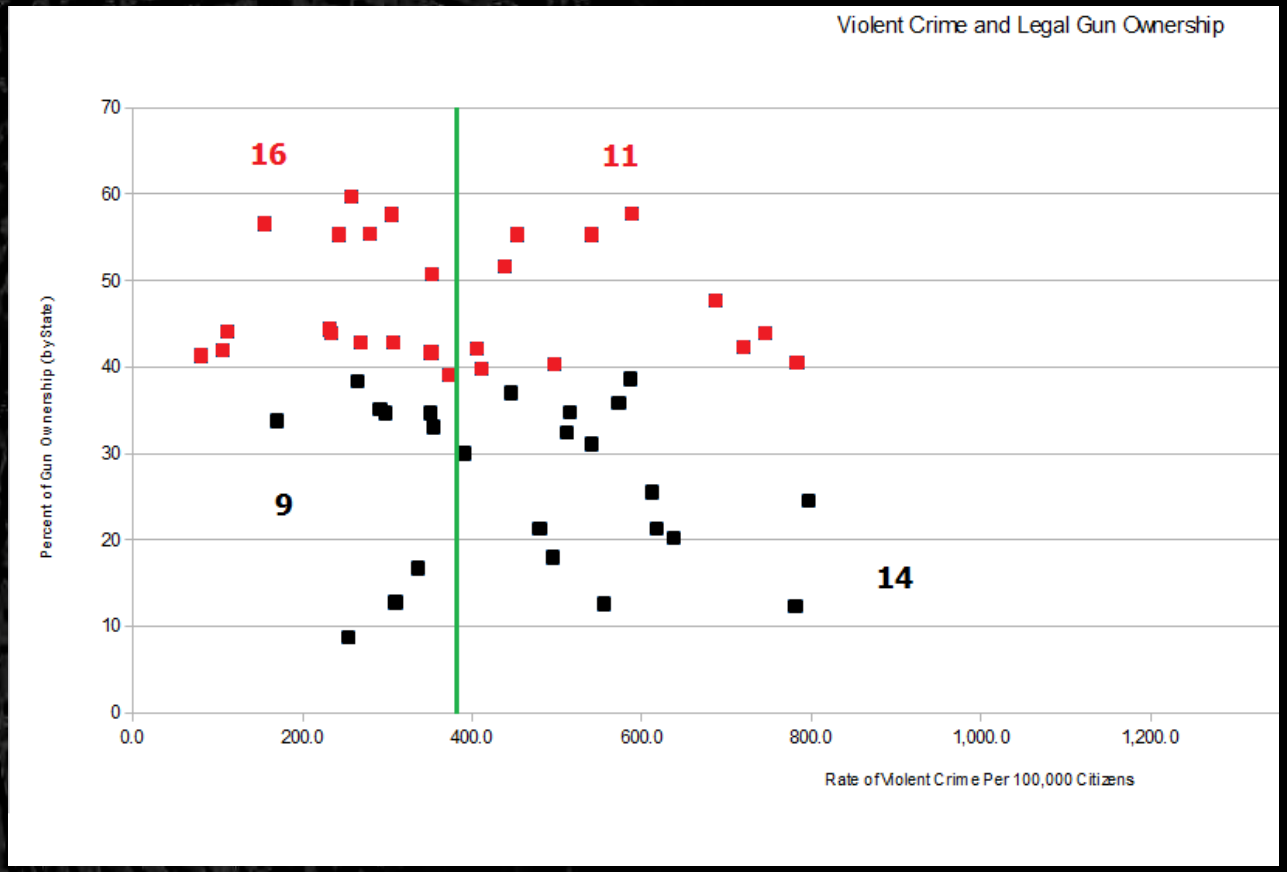
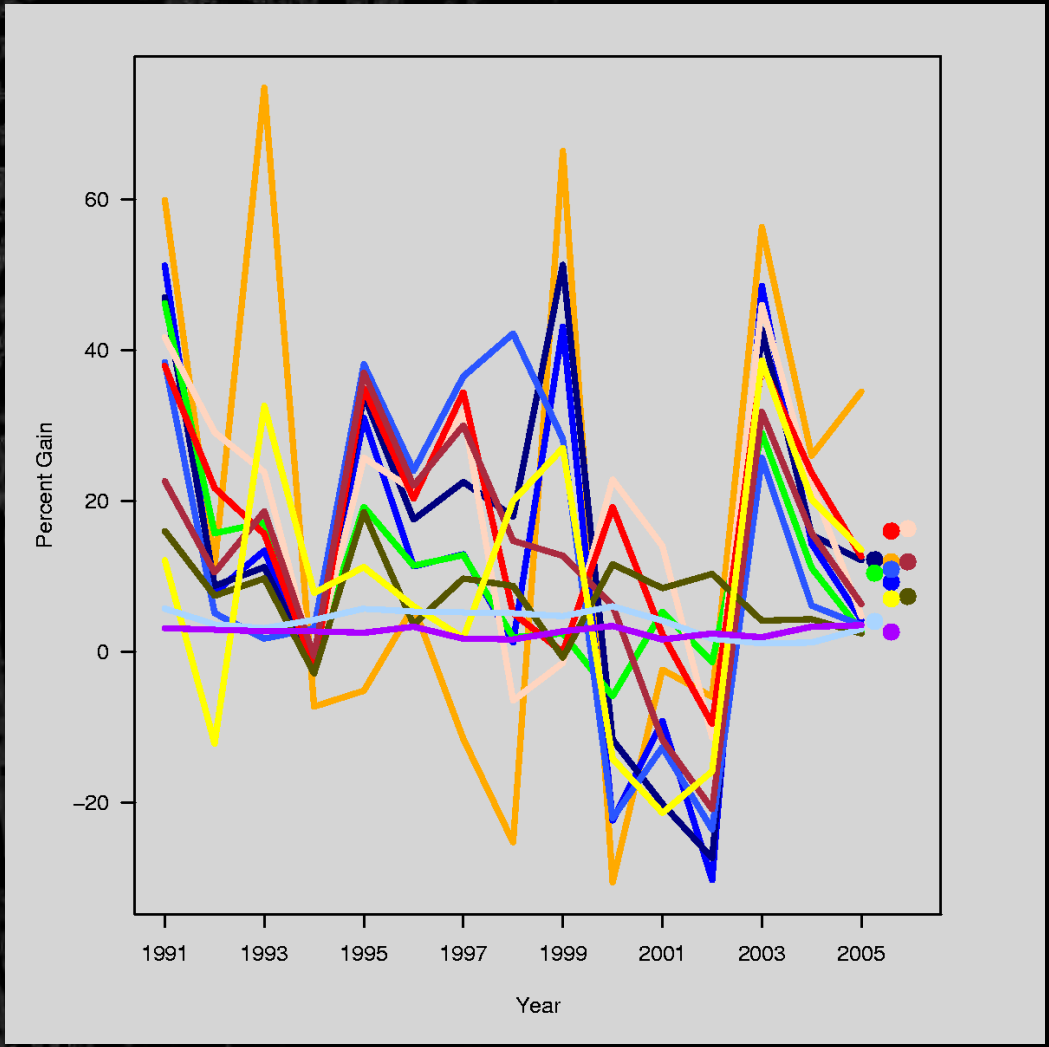
10000
0

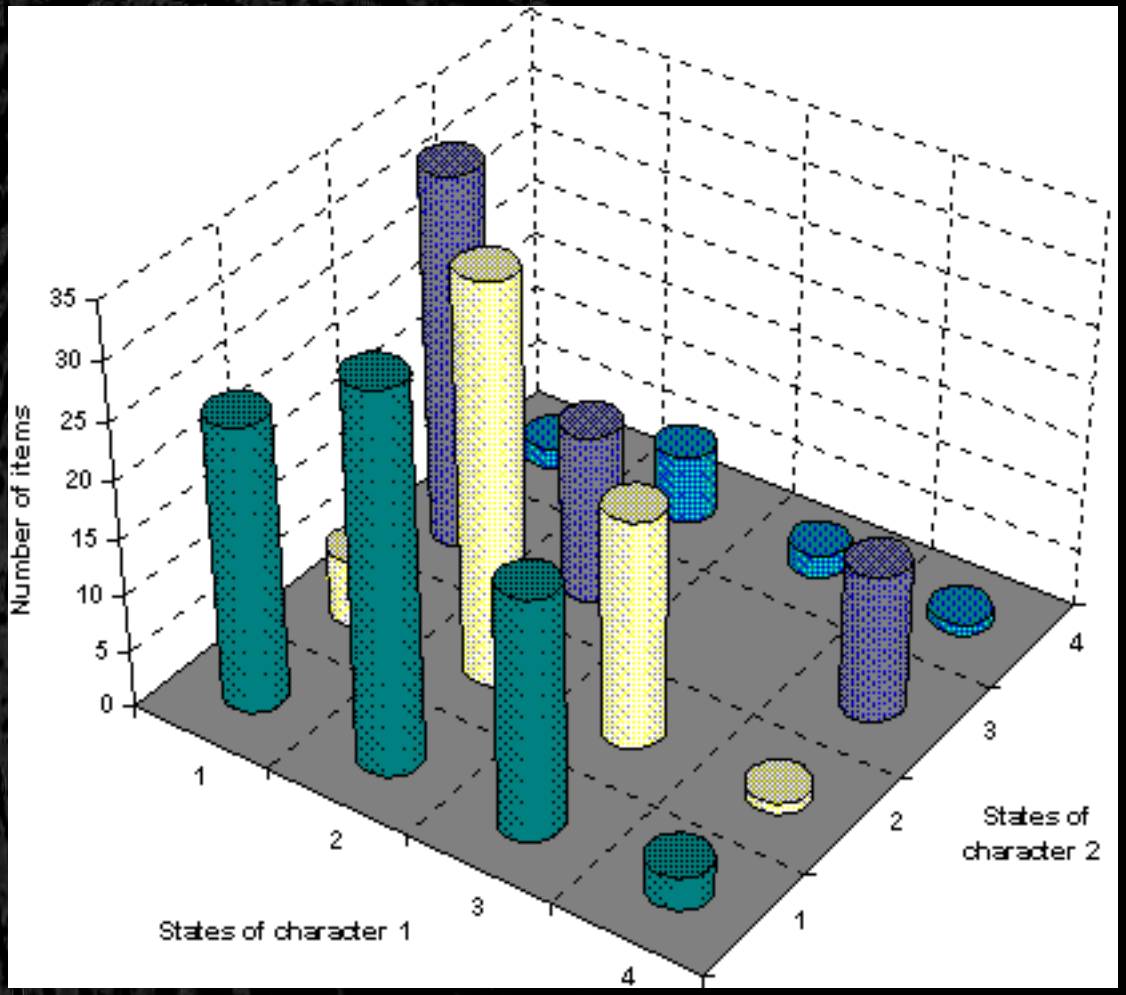
Visual Aids


Violent Crime and Legal Gun Ownership
Percent of Gun Ownership (by State)
70
60
50
40
30
20
10
0
16
11
9
14
0.0
200.0
400.0
600.0
800.0
1,000.0
1,200.0
Rate of Violent Crime Per 100,000 Citizens

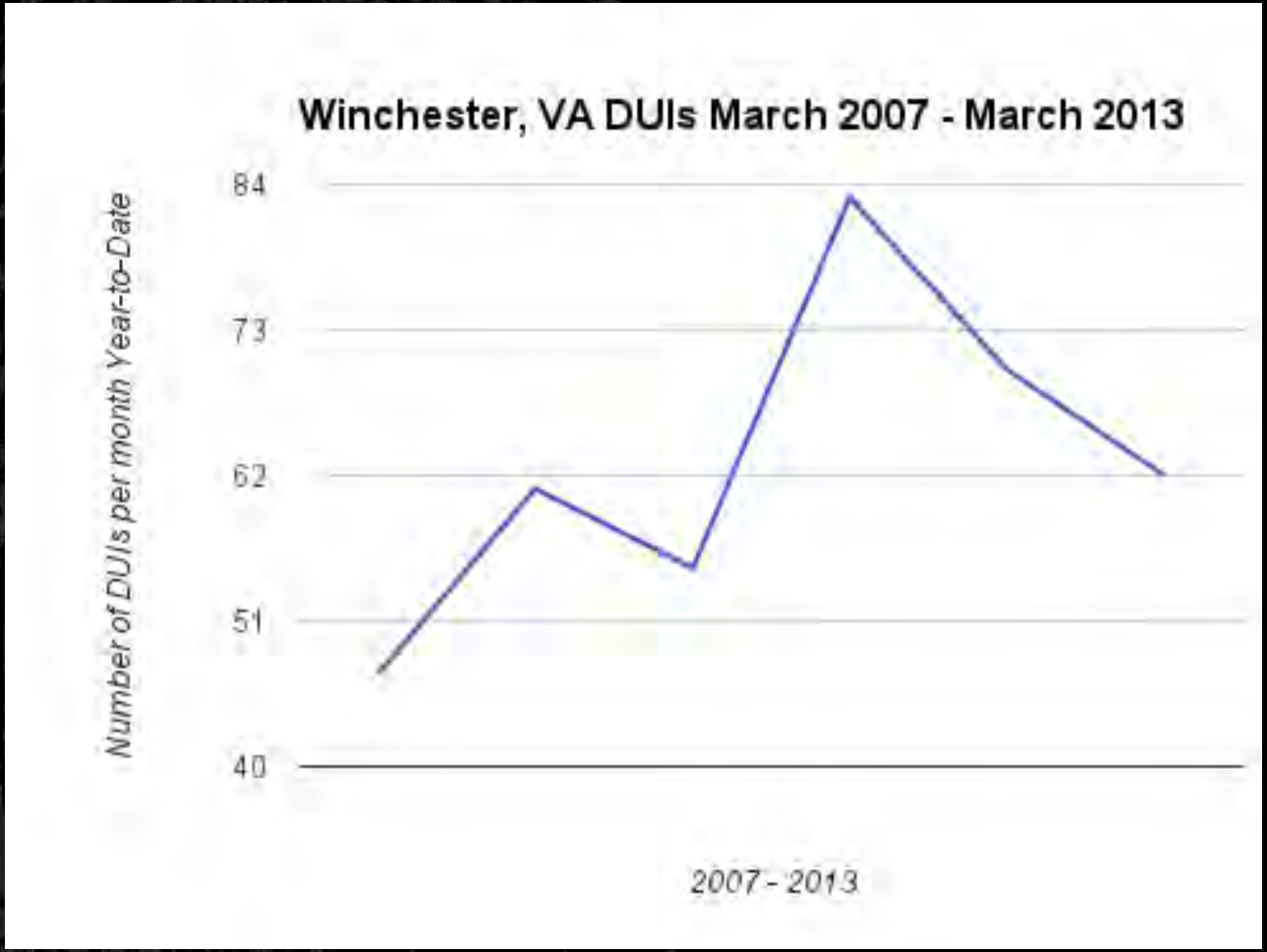
Visual Aids


Percent Gain
60
40
20
0
−20
1991
1993
1995
1997
1999
2001
2003
2005
Year

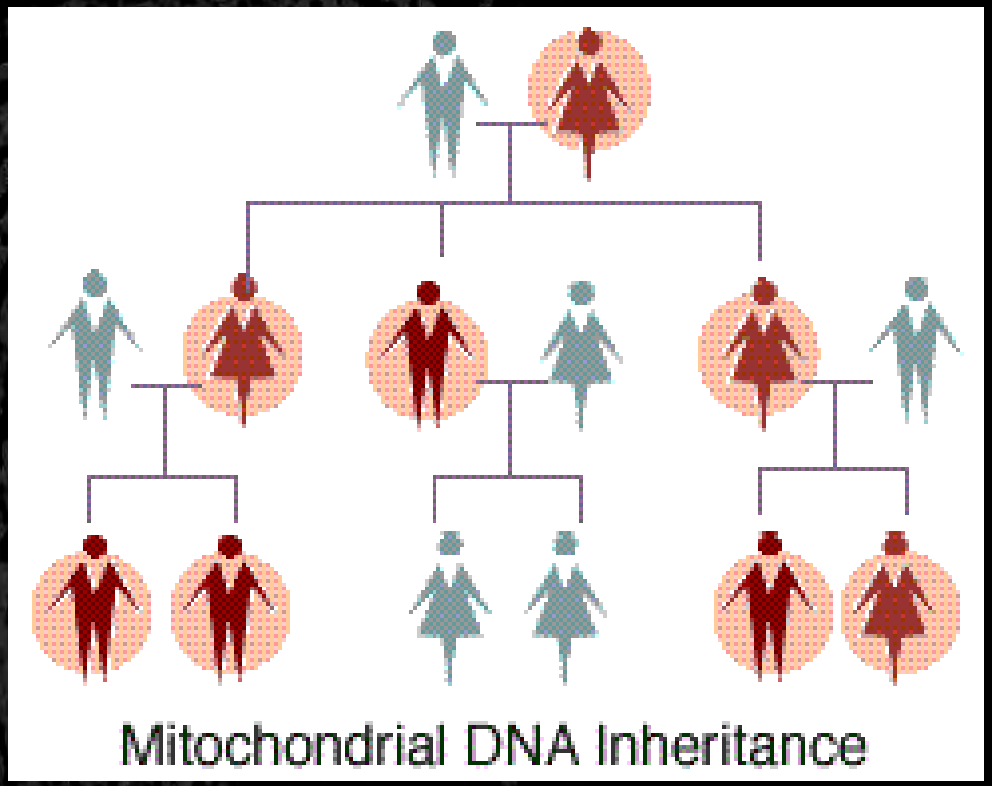
Visual Aids


Number of items
35
30
25
20
15
10
5
0
1
2
3
4
States of character 1
1
2
3
4
States of character 2

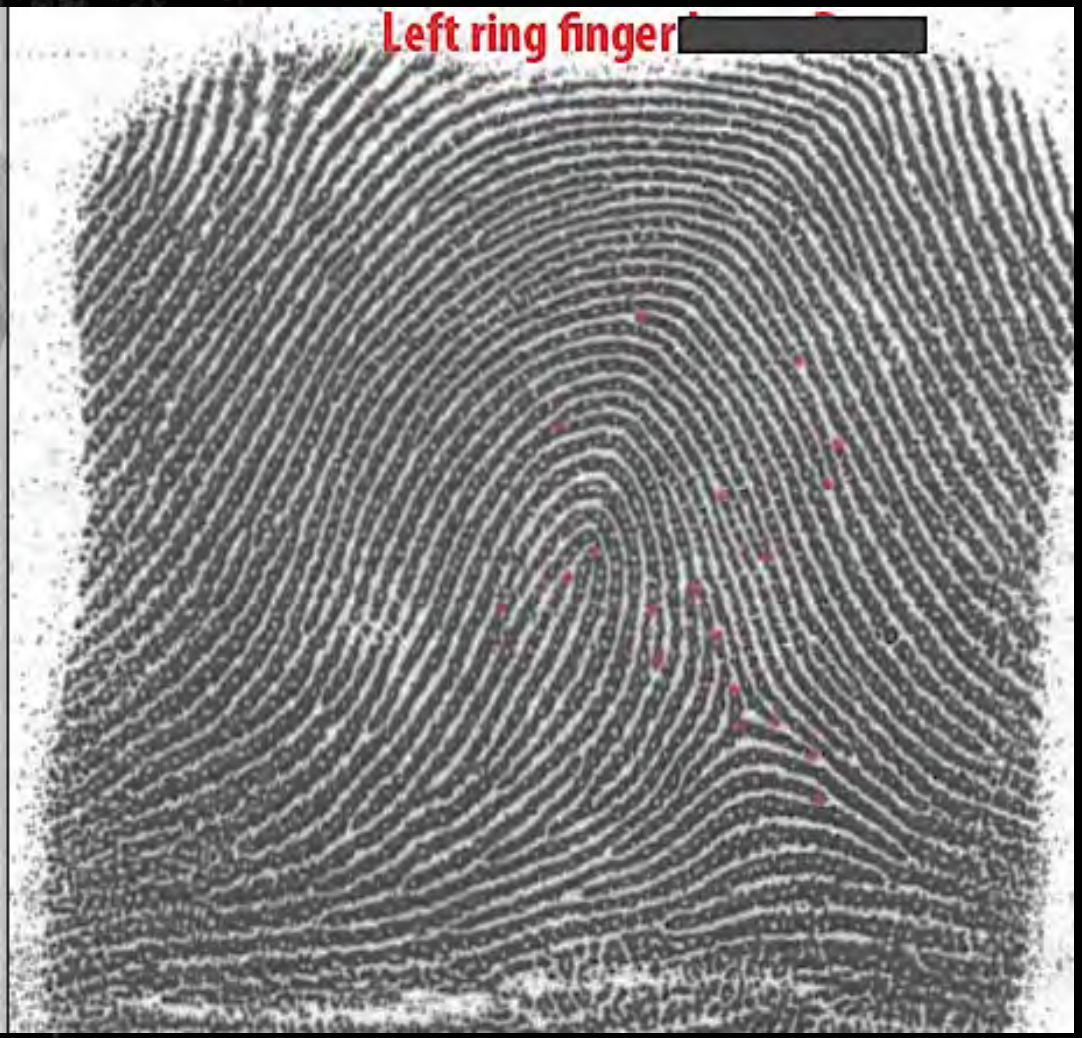
Visual Aids


Winchester, VA DUIs March 2007 - March 2013
84
73
62
51
40
Number of DUIs per month Year-to-Date
2007 - 2013

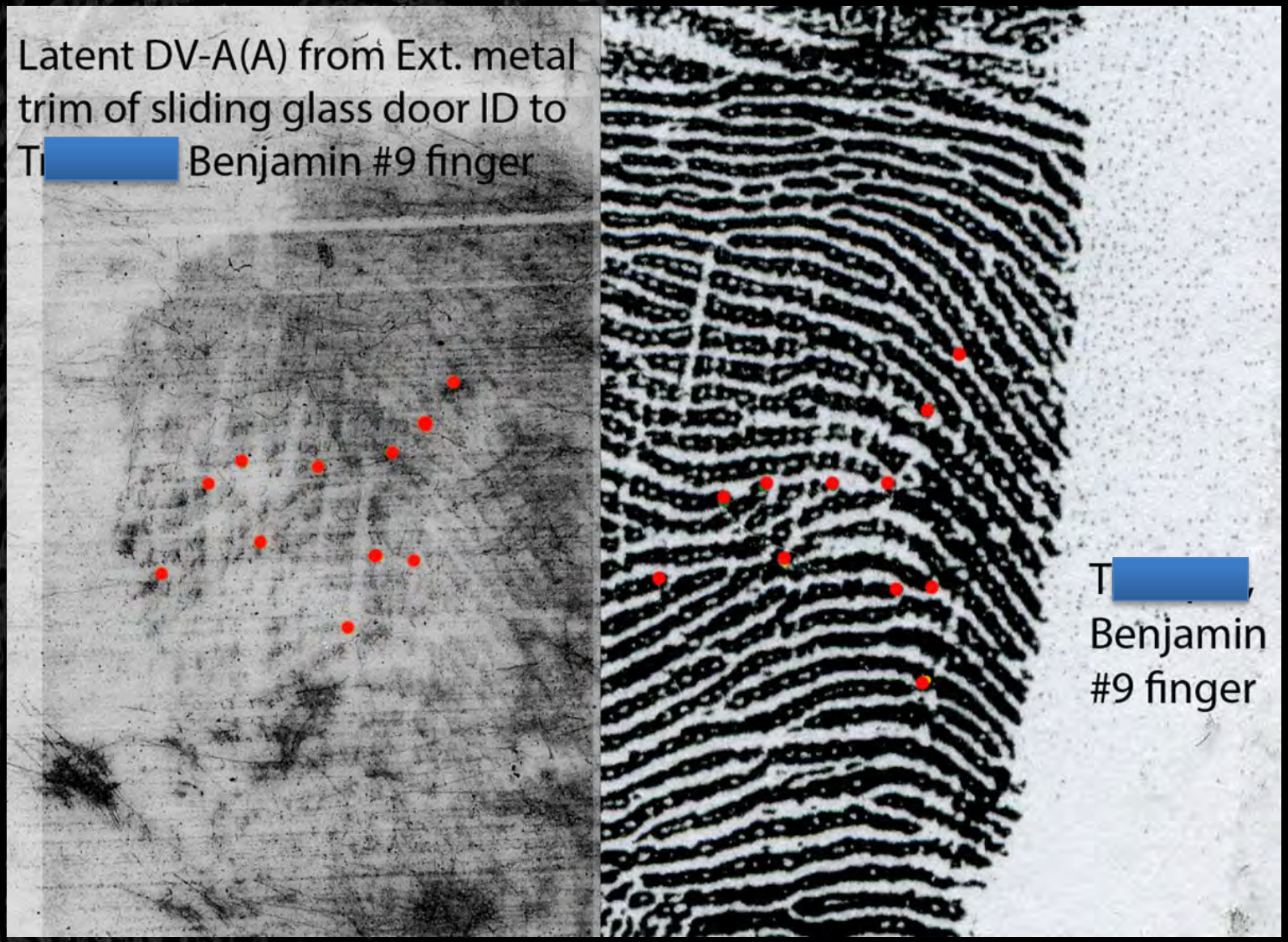
Visual Aids



Visual Aids



Visual Aids


Latent DV-A(A) from Ext. metal trim of sliding glass door ID to T[redacted] Benjamin #9 finger
T[redacted],
Benjamin
#9 finger

Visual Aids

Visual Aids

Visual Aids

- Guidelines
  - Clear and simple (less is more)
  - Descriptive
  - Enhance verbal explanation
  - Pictorial representations of complex data

Examples & Anecdotes

- References to things or experiences that are familiar

Anecdotes and Examples

- Qualitative/quantitative information in a latent print → Painting a house

Anecdotes and Examples

- How many points? → How close do you have to be to recognize someone familiar to you?

Anecdotes and Examples

- Superglue vaporization → Boiling tea kettle

Anecdotes and Examples

- Superglue polymerization → Snow
  accumulating on a stair rail

Anecdotes and Examples

- Levels of detail → Recognizing your luggage

Explaining Scientific Concepts to the Layperson

- Avoid/explain terminology
  - Sufficiency
  - Cyanoacrylate ester
  - Macro photography

Explaining Scientific Concepts to the Layperson

- Explain acronyms
  - SNP
  - FLS/ALS
  - PCR
  - GCMS
  - RUVIS

Explaining Scientific Concepts to the Layperson

1. Pick a scientific technique/concept that applies to your job duties and responsibilities
2. Write out an outline or narrative explanation as if to a layperson
3. Practice your explanation out loud to a colleague
4. Have the colleague give constructive feedback
5. Revise your explanation
6. Practice your explanation out loud to a layperson

Explaining Scientific Concepts to the Layperson

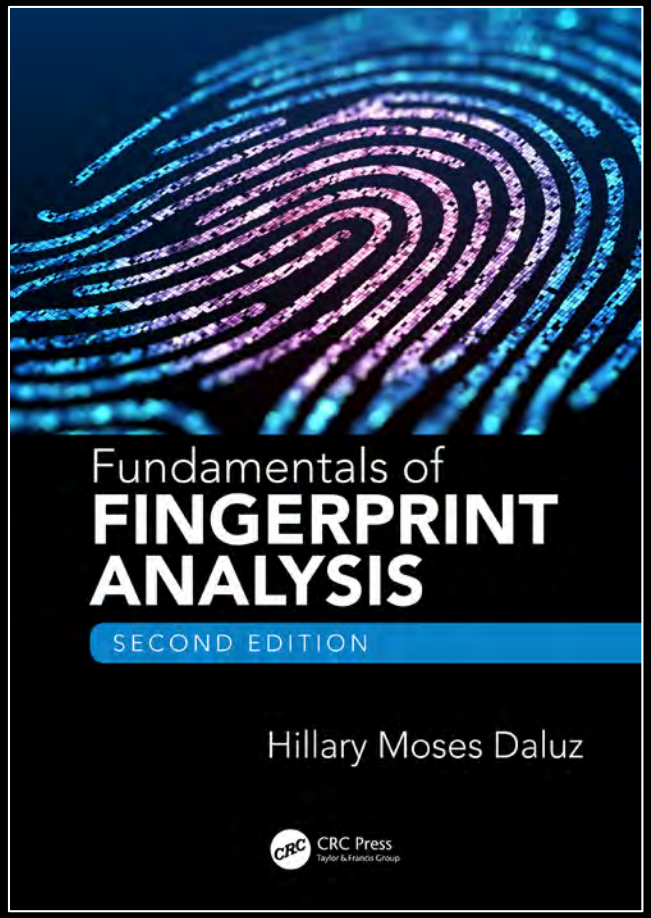
Night photography
Macro photography
Contamination
RUVIS
LASER
Magnetic fingerprint powder
Cyanoacrylate fuming
Ninhydrin/DFO/Indanedione
Developing fingerprints in blood
Amido black
Chemiluminescence
Physical developer

Latent print
Powder processing
Fluorescence
Areas of the palm (hypothenar, thenar, interdigital areas)
AFIS
LiveScan
ACE-V
Oblique lighting
Fluorescence
Latent print
ALS

Hillary Daluz

hilmo1@mac.com

415-298-1870



Fundamentals of Fingerprint Analysis, Second Edition

Fingerprint Analysis Laboratory Workbook, Second Edition

CRC Press, 2018