



**RON SMITH & ASSOCIATES, INC.**



## **ADVANCED ACE-V APPLICATIONS FOR FINGERPRINT EXAMINERS**

### **Course Description**

This course takes ACE-V to the next level. In the course, we deconstruct ACE-V into the various stages and perform exercises, individually and as a group, to demonstrate the course material. We will explore significant decisions and steps during each of the phases of ACE-V: Analysis, Comparison, Evaluation, and Verification. Students taking this course will have a greater appreciation for the complexities of ACE-V and decision making, will be knowledgeable of the most current research and standards regarding ACE-V, and will be exposed to complex current issues (such as bias, error rate, probabilistic reasoning, etc.). The course gives a proper framework to explore the many sides of the more complex issues in the fingerprint domain. All material will be supported by research data, references, and ample sources for the students to explore.

We will explore significantly complex fingerprint comparisons in this course. We will also cover issues relating to the 2009 National Academy of Science Report on forensic sciences. Specifically we will address issues such as "individualization" philosophy, error rates, and discuss the relevant research and data that are available on these topics.

This course is a must for any examiner who is struggling with issues in performing or testifying to ACE-V fingerprint examinations in a post-Daubert or post-NAS environment. The course explores many different ways of addressing these critical areas with new research, data, and philosophies.

### **Target Audience**

This is a more advanced and complex course, with some assumption that the student has previously been exposed to the basics of ridgeology, ACE-V, Daubert issues, distortions, and complex analyses. Ideally the student will have a minimum of 2 years in latent print work or 8 years in 10-print work. The course deals with complex issues such as "uncertainty", "error rates", "cognitive bias", and "complex distortions". As such students should come prepared to hear new views and see new research on these topics. This course is recommended by the instructor and Ron Smith & Associates, Inc. for agencies dealing with issues of meeting accreditation requirements specifically related to documenting and understanding the process of ACE-V or finding new ways to deal with the criticisms in the 2009 NAS report of forensic sciences.

### **Pre-Requisites**

The topics in this course are fairly advanced. It is aimed at examiners who have been doing casework in fingerprints regularly for a minimum of 2 years or 10-print examiners with a minimum of 8 years. While students with less experience may take the course, the student should at least be familiar with the basics of ridgeology, SWGFAST recommended procedures, general use of AFIS, and basic decision making in fingerprint cases.

Students will be expected to participate in daily class discussions, including, but not limited to, offering opinions, answering questions directed at the student, giving a position on an issue, and performing comparisons in class. Students are in a training environment and as such will be given ample opportunity to explore various complex cases and scenarios as a group, in a non-threatening, safe environment.



**Class Instructor:**  
**Glenn Langenburg,**  
**Ph.D., CLPE, F-ABC**



### **Course Logistics**

**When:**

June 8-12, 2026

**Class Times:**

08:00 AM - 05:00 PM

**Where:**

Richey Training Center

155 W Hedding St.

Room 207

San Jose, CA 95110

**Tuition:**

\$650.00

### **Local Contact**

Cynthia Reddick

Criminalist III

Santa Clara County Sheriff's Office

(408) 808-4750

[cynthia.reddick@shf.sccgov.org](mailto:cynthia.reddick@shf.sccgov.org)

# Daily Schedule

\* Time Permitting Shaded cells are hands-on practical exercises, often involving group discussion and student participation.

|        | Day 1                                          | Day 2                                         | Day 3                      | Day 4                           | Day 5                    |
|--------|------------------------------------------------|-----------------------------------------------|----------------------------|---------------------------------|--------------------------|
| Hour 1 | Introductions                                  | III. Distortion                               | V. Evaluation Phase        | Exercise 6, cont. (as needed)   | IX. Bias                 |
| Hour 2 | I. Scientific Approach to ACE-V and Ridgeology |                                               |                            |                                 |                          |
| Hour 3 |                                                | Exercise 3 Distortion                         |                            |                                 |                          |
| Hour 4 |                                                | Finish Analysis (Forgery/Fabrication issues)* |                            | VI. Close Non-matches           | X. Error Rates           |
| Lunch  | Lunch                                          | Lunch                                         | Lunch                      |                                 |                          |
| Hour 5 | II. Analysis Phase                             | Finish Analysis (Bloody Impressions)          | Exercise 5 Decision Making | VII. Demystifying Probabilities | XI. Documentation        |
| Hour 6 |                                                | IV. Comparison Phase                          | Exercise 6 Complex Cases   |                                 | VIII. Verification Phase |
| Hour 7 | Exercise 1 GYRO                                |                                               |                            | XIII. Case Studies              |                          |
| Hour 8 | Exercise 2 Analysis Worksheet                  | Exercise 4 Searching Clues                    |                            |                                 | Wrap-up                  |

## Should be Able to Perform

At the completion of the course, students will be able to:

- Appreciate a scientific approach to ACE-V and Ridgeology
- Understand the concepts of laws versus theory, hypothesis testing, and scientific method
- Understand the most important aspects of all the phases of ACE-V
- Utilize the GYRO annotation system
- Recognize and correctly identify various distortions
- Understand mechanisms that produce various distortions, including blood matrices
- Perform a complete analysis (and document the process)
- Know the basis for searching "smart, not hard" finger and palm clues
- Understand how tolerance and uncertainty affect the comparison of ridge features
- Improve his/her ability to articulate reasoning and support for conclusions
- Understand how accuracy, precision, repeatability, and reproducibility apply to ACE-V
- Understand the importance of "pattern force" and specificity
- Understand how hypothesis testing is essential at the heart of all fingerprint conclusions
- Understand the importance of AFIS-generated suspects
- Understand how likelihood ratios relate to fingerprint examinations
- Appreciate the value that probability models may provide during fingerprint examinations
- Know the (currently accepted) best practices for verification procedures
- Define various types of cognitive biases
- Understand what practices may reduce the potential of bias
- Know the current research regarding bias and fingerprint examinations
- Have more complete information regarding error rates and how to address in court
- Know the current research regarding errors and testing the ACE-V process
- Know various ways to document latent print evidence and the basis for conclusions
- Know current recommendations or standards for best practices for documentation
- Know the major critical themes, current issues (e.g.. NAS related, legal challenges, etc.)

## Must Bring to Class

Students must bring an open mind. We will cover a wide array of topics that can be fairly controversial.

Students may wish to bring a lap top computer with Photoshop or other imaging software.

All exercises are presented to the students in two formats:

- 1) Traditional photographs, enlarged and covered with acetate sheets for annotations.
- 2) A digital format (1000 dpi or greater) .TIFF format.

The student may elect to use traditional photographs or digital photographs to complete the exercises.

The instructor does not teach how to use photoshop, annotate, enhance, or otherwise process digital images.

Students should be familiar with their lap top and the software if they choose to use this. It is a preference style only.

There are no 1:1 searching exercises in this course therefore a loupe magnifier, lamp, etc. are NOT needed.

Dress is business casual as the course will be conducted in a professional environment and facility.

## Helpful Lodging Information

*Although we cannot endorse any particular hotel property, we have confirmed that the following lodging is within a reasonable commuting distance to the training site.*

AC Hotel San Jose Downtown

350 W Santa Clara St.

San Jose, CA 95113

(408) 924-0900

Please click [here](#) for reservations

Residence Inn San Jose Airport

10 Skyport Dr.

San Jose, CA 95110

(408) 650-0580

Please click [here](#) for reservations

## Online Class Registration

Visit us at: [www.RonSmithandAssociates.com](http://www.RonSmithandAssociates.com) and register today!

### Comments on Training Site:

People can park in any unmarked space. Someone from our agency will be there to let people into the building.