



Criminalistics Section – 2007

B160 An Analysis of Book Chapters to Develop an Academic Fingerprint Curriculum

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After attending this presentation, attendees will (1) understand the priority given to friction ridge topics in published literature as a model for developing forensic curriculum; and (2) learn a new model for textual topic analysis.

This presentation will impact the forensic community and/or humanity by demonstrating a stream-lined method based on public source data for structuring and developing new curricula for education and training.

Forensic science is a mixture of borrowed, albeit amended, natural science (biology, chemistry) and methods developed on its own (firearms, impression evidence); it also encompasses sciences, which bridge between these two. One of these 'bridging' sciences is friction ridge analysis. The study of friction ridges has a long history, from Purkinje to Faulds but was codified by Galton's work in his landmark book.¹ The conversion from academic endeavor to police application changed the nature of the discipline, however; it drifted away from its open-ended research origins to a structured, standardized protocol. This type of change may ossify a science and prevent it from growing, maturing, and improving.

Curriculum in forensic science has been developed previously through Working Groups, such as the Technical Working Group on Education and Training in Forensic Science (TWGED) and its two progeny, TWGED—Digital Evidence and TWGED—Forensic Accounting and Fraud Investigation. These projects, while of enormous benefit to the participants, the discipline, and the relevant communities, are expensive and somewhat lengthy. An alternative method was developed for topics where a plurality of publications is available but no standardized curriculum exists.

A variety of books on friction ridge analysis were reviewed and analyzed for topics and content.²⁻¹¹ The chapters and subheadings were assigned numerical values in series to quantify their appearance, location, and order. Basic statistics were developed (mean, median, mode, standard deviation) to describe the topics' priority (see below).

Mean		Median		Mode		Standard Deviation	
1.0	History	1	History	1	History	0	History
2.2	Skin	2	Skin	1	Skin	1	Testimony
3.9	Patterns	3	Formation	2	Classification	1.3	Skin
4.3	Formation	4	Classification	3	Formation	1.4	Light sources
4.3	Collection	4	Scars	4	Collection	2	individualization
4.5	Classification	4	Patterns	4	Patterns	2.1	Heredity
4.9	Persistence	4	Collection	5	Characteristics	2.1	Photography
5.0	Characteristics	5	Persistence	7	Individualization	2.3	Characteristics
5.3	Individualization	5	Characteristics	8	Errors	2.3	Patterns
5.7	Scars	5	Latent	8	Latent	2.4	Persistence
5.9	Latent	6	Individualization	9	Photography	2.5	Errors
7.0	Light sources	7	Light sources	9	Testimony	2.6	Collection
7.3	Development	7	Development	-	ACE-V	2.9	Latent
7.4	Photography	7.5	ACE-V	-	Development	2.9	Development
7.5	ACE-V	8	Photography	-	Heredity	3.1	Classification
8.3	Testimony	8	Errors	-	Persistence	3.2	Formation
8.5	Heredity	8.5	Heredity	-	Scars	3.5	ACE-V
8.5	Errors	8.5	Testimony	-	Light sources	3.8	Scars

This type of textual analysis can provide a "consensus" structure for developing forensic academic as well as laboratory and professional training curricula.

References:

- 1 Galton, F.F.R.S., etc (2003). Finger Prints. Buffalo, New York, William S. Hein & Co., Inc.
- 2 Ashbaugh, D.R. (1999). Quantitative-qualitative friction ridge analysis: an introduction to basic and advanced ridgeology. Washington, D.C., CRC Press.
- 3 Champod, C., C. Lennard et al. (2004). Fingerprints and other ridge skin impressions. Washington, D.C., CRC Press.
- 4 Chapel, C.E. (1941). Fingerprinting: a manual of identification. New York, Coward McCann, Inc.



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- 5 Cowger, James F. (1993). Friction ridge skin: comparison and identification of fingerprints. Washington, D.C., CRC Press.
- 6 Criminal Justice Information Services Division, I. S. S. and U. D. o. Justice (1993). Fingerprint training manual. Washington, D.C., U.S. Government.
- 7 Cummins, P.D., Harold and M.D. Midlo, Charles (1961). Finger Prints, Palms and Soles: An introduction to dermatoglyphics. New York, Dover Publications, Inc.
- 8 Henry, S.E.R. (1913). Classification and uses of finger prints. London, Darling and Son, Ltd.
- 9 Justice, U. S. D. o. and F. B. o. Investigation (1984). The science of fingerprints: classification and uses. Washington, D.C., U.S. Government Printing Office.
- 10 Lee, H.C. and R.E. Gaensslen (2001). Advances in fingerprint technology. Boca Raton, FL, CRC Press.
- 11 Olsen, Robert D., Sr. (1978) Scott's fingerprint mechanics. Springfield, Il., Charles C. Thomas.

Friction Ridges, Curriculum, Quantitative Analysis