

**SUL ROSS STATE UNIVESRITY-RIO GRANDE COLLEGE  
DEL RIO \* EAGLE PASS \* UVALDE  
DEPARTMENT OF NATURAL & BEHAVIORAL SCIENCES  
CRIMINAL JUSTICE PROGAM  
2023 SPRING DIGITAL COURSE SYLLABUS**

**COURSE:** CRIM 4337-CRN# 21088-Forensic Science-Fundamentals & Investigations

**COURSE PERIOD:** Wednesday January 18, 2023 -Friday May 10, 2023

**INSTRUCTOR:** Dr. Sergio Gonzalez

**EMAIL:** All correspondence should be made using Sul Ross State University email to [sg17iz@sulross.edu](mailto:sg17iz@sulross.edu)

January 1, 1999-Present: Court-At-Law Judge, Val Verde County.

August 2017 – Present: Adjunct Professor at Sul Ross State University Rio Grande College

November 2, 1990-1998: General Practice of Law with Law Offices of Gonzalez, Gonzalez & Gonzalez, 313 Pecan Street, Del Rio, Texas. Criminal Felony & Misdemeanor, Juvenile, Divorce & Child Custody, Protective Orders, Child Protective Services, Probate, Guardianships & Civil Matters.

May 4, 1986: Juris Doctorate Degree, O.W. Coburn School of Law, Oral Roberts University, Tulsa, Oklahoma.

August 14, 1981: Bachelor of Arts Degree, St. Mary's University, San Antonio, Texas.

May 2, 1976: Del Rio High School Graduate, Del Rio, Texas.

**CONTINUING LEGAL EDUCATION STUDY HOURS:**

January 1, 1999-Present: 699.00 Total CLE; 105.75 Total Ethics, State Bar of Texas.

**JUDICIAL JURISDICTION:**

Misdemeanor Criminal; Protective Orders Juvenile Misdemeanor & Felonies; Contested & Uncontested Probate; Guardianships; Adult Protective Services DWI DRUG Specialty Court Divorces & Child Custody Civil Matters.

**VOLUNTEER STUDENT INTERNSHIP:** This Spring 2023 SRSU Criminal Justice Student(s) have the unique opportunity to participate and experience first-hand on how their respective classroom learnings apply to the Judiciary, Magistration, Adult & Juvenile Probation Department, Jury Selection, & Jury Trial. Four (4) volunteer Junior/Senior Interns will be interviewed for internships are available at the Val Verde County Court-At-Law, DWI Specialty Court, & the Adult & Juvenile Probation Departments. Email me ASAP @[sg17iz@sulross.edu](mailto:sg17iz@sulross.edu) if you are

interested. Internship will require a minimum of 12-15 hours per week. Intern will be required to read & sign a Confidentiality Agreement.

**COURSE DESCRIPTION:** An introduction to forensic science, the purpose of this course is to familiarize the criminal justice student with recognition, examination, identification and interpretation of evidence and the modern crime laboratory. The nature of forensic evidence is emphasized along with the limitations that technology and knowledge impose on its individualization and class characterization.

**TEXTBOOK:**

This course will require MindTap for Forensic Science: Fundamentals & Investigations, 3rd Edition (2021 Cengage). It is important to note that MindTap is required. Do not be scammed by purchasing a used textbook without MindTap.

**Purchase Options (pick one):**

-MindTap Access Only (eBook is included) – either of the following ISBNs will grant you access to online materials.

-Printed Access Code ISBN: 9781337392242

I-nstant Access Code ISBN: 9781337392235

-MindTap Access + Bound Book

-Printed Access Code Bundle ISBN: 9780357018118

Access MindTap through the course link provided in Blackboard. You will be taken to a new page where you will be prompted to create an account with Cengage. This is a **MUST** one-time process. If you have previously completed this step, you will be taken directly to the payment options screen. After registering for Cengage, you will be prompted to purchase access to MindTap.

FREE TWO-WEEK ACCESS by MindTap is temporarily available beginning 01/18/2022. Thereafter you will be required to have selected and purchased the best option to access your Cengage MindTap assignments via Blackboard.

**ONLINE COURSE:** Important that a minimum of two (2) chapters be completed each month in this Cengage/MindTap digital course that is fully integrated into Blackboard. First, in Blackboard under “Course Content” click on “MindTap Access & Spring 2022 Syllabus CRIM 4337-Substantive Law”. Second, click on “Start Here: Register to Access MindTap”. Second, read” Important Info” paragraph, it relates to your computer allowing popups to be able to access course content. Third, set up your Cengage/MindTap account & click on “Click Here to Access MindTap-CRIM 4337-W01:”. Once you have purchased the option that best suits you will have access to each chapter 1-18 assignments & activities.

**ACADEMIC SUCCESS:** Students enrolling in online Web Courses at Rio Grande College must be aware that such courses are not self-paced and require considerable vested time in order to meet requirements. Students should be prepared to devote a considerable amount of time to each week to timely accomplish each chapter requisites in this course.

**COMPUTER LABS:** Rio Grande College computer labs are open Monday – Thursday 8:00AM

- 10:00 PM and Friday 8:00AM – 5:00PM. Computer labs are not open weekends. However, students may avail themselves to the SWTJC computer labs with a valid ID. Online web course students should have available a high-speed internet connection on a regular basis for off-campus course work, exams, assignments and research.

**WEB COURSE:** This course is “Web” based. Students are expected to log-on regularly, check e-mails, and respond to all emails.

**DISABILITY SERVICES: ADA** (Americans with Disabilities Act) Sul Ross State University is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is the student’s responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartz, M. Ed., L.P.C., in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Telephone: 432-837-8691. E-mail: [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu). Drop Policy: If you discover that you need to drop this class, you must contact the Records Office and ask for the necessary paperwork. Professors cannot drop students; this is always the responsibility of the student. The Record’s Office will give a deadline for which the paperwork and form, if required, must be returned, complete and signed. If you discover that you are still enrolled, FOLLOW-UP with the Records Office immediately

**ADA STATEMENT:** SRSU Disability Services. Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student’s responsibility to initiate a request each semester for each class. RGC students seeking accessibility services should contact Paulette Harris, Executive Assistant to the Vice President and Dean, at 830-279-3023 or email [pharris@sulross.edu](mailto:pharris@sulross.edu). Ms. Harris’s office is at 2623 Garner Field Road, Uvalde, TX 78801 (this is the mailing address, too).

**LIBRARY INFORMATION:** The Southwest Texas Junior College (SWTJC) Libraries at Uvalde, Del Rio, and Eagle Pass offer additional access to library spaces and resources. Del Rio, Eagle Pass, and Uvalde students may also use online resources available through SWTJC website, [library.swtjc.edu](http://library.swtjc.edu). The SWTJC Libraries serve as pick-up locations for InterLibrary Loan (ILL) and Document Delivery from the Alpine campus. The Bryan Wildenthal Memorial Library in Alpine offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library’s website, [library.sulross.edu](http://library.sulross.edu). Off-campus access requires logging in with your LobolD and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email ([srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu)), or phone (432-837-8123).

**SRSU DISTANCE EDUCATION STATEMENT:** Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

**ACADEMIC INTEGRITY:** Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden.

**CLASSROOM CLIMATE & RESPECT:** Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

**DIVERSITY STATEMENT:** I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create an inclusive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.

**SRSU-ADA STATEMENT:** Sul Ross State University – Rio Grande College is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Kathy Biddick, Student

Services 830-279-3003 or [kbiddick@sulross.edu](mailto:kbiddick@sulross.edu) .

**STUDENT LEARNING OUTCOMES (SLO):** The graduating student will

(SLO 1) Content Knowledge: Students will demonstrate proficiency in the application of legal concepts, theoretical applications, scientific principles, and historical trends in the criminal justice arena.

(SLO 2) Research Skills: Students will demonstrate competency in the application of basic research methods to include: research design, statistical analysis, and uses of empirical findings and interpretations.

(SLO 3) Critical Thinking Skills: Student will demonstrate the application of organizational principles, cultural, social and behavioral knowledge, critical thinking skills and cognitive thought processes within the criminal justice arena.

**CHAPTER ASSIGNMENTS, ACTIVITIES, & GRADING SCALE:** Exams and assessments have been structured to mandate maximum participation in this self-directed course of study. Each Chapter contains “Chapter Reading”, important that you click on highlighted word to view definition; “Chapter Video Case”, important you complete the full short video and answer the multiple (5) questions; “Chapter You Decide Part I “; & “Chapter Exam”. Each section mentioned herein develops points in calculating your grade. You have (2) retries to increase your point totals. Grading Scale: A-720-600; B-599-500; C-499-400; D-399–350; F-350-0. Final semester grades are reported to the Office of Admissions & Records. Student grades are posted on Banner for review at the conclusion of each semester.

**EXAMINATIONS:** Exams and assessments have been structured to mandate maximum participation in this course of study.

- There will be chapter quizzes, tests, video case, and labs in each chapter.
- Chapter reading assignments, quizzes, video case, and chapter exam are of the upmost importance for student learning outcomes and assessment.
- Exams will consist of multi-formatted questions taken from weekly reading assignments.
- It is recommended that all exams be taken in the computer laboratory on the Rio Grande College campus. However, this is not required. Exams may be taken at any location using a high-speed internet connection.

**NO MAKE-UP EXAMS:** If a student **for any reason:**

- fails to take an exam
- fails to complete an exam
- fails to submit an exam will result in a failed exam.

The professor assumes no responsibility for student omissions or technology issues. .

**SEMESTER GRADES:** Reported - Office of Admissions each semester and grades are posted on Banner for student review.

**EXTRA CREDIT:** Extra credit will be provided to EACH Student that sits in a LIVE Jury Trial @ the Val Verde County Court -At-Law Courtroom, 400 Pecan Street, 2<sup>nd</sup> Floor, Del Rio, Texas. Student(s) will be required to submit via Professor's email ([sg17@sulross.edu](mailto:sg17@sulross.edu)) a minimum (2) report pertaining to observation, critical thinking theories as relate to Substantive Law Chapter topics, reading assignments, Video Case, & exams. Jury Trials are set in January, March 2023. Interested student(s) shall immediately email Professor Gonzalez for Jury Trial dates.

**INCOMPLETE GRADE:** It is the responsibility of students to notify the Professor if they cannot make an assignment or will not be able to log-on to the class.

**DISHONESTY:** Academic cheating and plagiarism is not acceptable behavior. Violation violates university policy and human ethics. If violation, a semester grade of "F".

**COURSE OBJECTIVES:** Upon reading assigned chapters in the textbook with a thorough analysis of the key concepts, terms, scientific principles and investigative procedures within each chapter the student will acquire extensive knowledge of the following subject-matter materials to be inclusive on each examination. Course includes:

- **CHAPTER 1. FORENSIC SCIENCE AND OBSERVATION**

- [What Is Forensic Science?](#)
- [What Do Forensic Scientists Do?](#)
- [Observation and Perception](#)
- [Eyewitness Observation](#)
  - [Eyewitness Accounts](#)
  - [The Innocence Project](#)
- [Improving Observation Skills](#)
- [Interview Techniques](#)
- [Summary](#)

- [Case Studies](#)
- [Careers in Forensics. Dr. Paul Ekman](#)
- [Chapter 1. Review Questions](#)
- [Chapter 1: Bibliography](#)
- [Activity 1-1. Learning to See](#)
- [Activity 1-2. You Are an Eyewitness!](#)
- [Activity 1-3. What Influences Our Observations?](#)
- **CHAPTER 2. CRIME-SCENE INVESTIGATION AND EVIDENCE COLLECTION**
  - [Crime-Scene Investigation](#)
  - [The Crime Scene Investigation Team](#)
  - [Locard's Principle of Exchange](#)
  - [Types of Evidence](#)
  - [The Seven S's of Crime-Scene Investigation](#)
    - [Step 1: Securing the Scene](#)
    - [Step 2: Separating the Witnesses](#)
    - [Step 3: Scanning the Scene](#)
    - [Step 4: Seeing the Scene](#)
    - [Step 5: Sketching the Scene](#)
    - [Step 6: Searching for Evidence](#)
    - [Step 7: Securing and Collecting Evidence](#)
  - [Mapping the Outdoor Crime Scene](#)

- [Datum Points and Subdatum Points](#)
- [Marking Evidence Collecting Limits](#)
- [Measuring and Marking Evidence Positions](#)
- [Analyzing the Evidence](#)
- [Staged Crime Scenes](#)
- [Advances in Crime-Scene Investigation](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Carl Williams](#)
- [Chapter 2. Review Questions](#)
- [Chapter 2: Bibliography](#)
- [Activity 2-1. Locard's Principle of Exchange](#)
- [Activity 2-2. Crime-Scene Investigation](#)
- **[CHAPTER 3. HAIR ANALYSIS](#)**
  - [Hair as Evidence](#)
  - [History of Hair Analysis](#)
  - [The Science of Hair Analysis](#)
    - [The Functions of Hair](#)
    - [The Life Cycle of Hair](#)
    - [The Structure of Human Hair](#)
  - [Characteristics of Hair](#)



- [Types of Hair](#)
- [Hair from Different Parts of the Body](#)
- [Treated Hair](#)
- [Ethnic or Ancestral Differences](#)
- [Nonhuman and Human Hair](#)
- [Collecting Hair Evidence in an Investigation](#)
- [Forensic Analysis of Hair](#)
  - [Microscopic Analysis](#)
  - [Chemical Analysis](#)
  - [DNA Analysis](#)
- [Advances in Hair Analysis](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Dr. William J. Walsh](#)
- [Chapter 3. Review Questions](#)
- [Chapter 3: Bibliography](#)
- [Activity 3-1. Trace Evidence: Hair](#)
- [Activity 3-2. Hair Measurement](#)
- [Activity 3-3. Hair Testimony Essay](#)
- **[CHAPTER 4. FIBER ANALYSIS](#)**
  - [Fiber as Evidence](#)

- [History of Fibers](#)
- [The Science of Fibers](#)
  - [Natural Fibers](#)
  - [Synthetic \(Manufactured\) Fibers](#)
- [Characteristics of Fibers, Yarns, and Textiles](#)
  - [Yarns](#)
  - [Textiles](#)
- [Collection of Fiber in an Investigation](#)
- [Analyzing Fiber Evidence](#)
  - [Microscopic Analysis](#)
  - [Chemical and Physical Analysis of Fibers](#)
- [Evaluating the Value of Fiber Evidence](#)
- [Advances in Fiber Analysis](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Dr. Irene Good](#)
- [Chapter 4. Review Questions](#)
- [Chapter 4: Bibliography](#)
- [Activity 4-1. Microscopic Fiber Analysis](#)
- [Activity 4-2. Bedsheet Thread Count](#)
- [Activity 4-3. Weave Pattern Analysis](#)

- [Activity 4-4. Textile Identification](#)
- [Activity 4-5. Burn Analysis of Fibers](#)
- **[CHAPTER 5. FORENSIC BOTANY](#)**
  - [Forensic Botany](#)
    - [Botanical Evidence and Crime Scenes](#)
  - [History of Forensic Botany](#)
    - [Acceptance of Forensic Botany](#)
  - [The Science of Forensic Botany](#)
    - [Dendrochronology](#)
    - [Palynology](#)
  - [Characteristics of Botanical Evidence](#)
    - [Evidence to Consider: Determining When and Where](#)
    - [Evidence to Consider: Determining Postmortem Interval](#)
    - [Evidence to Consider: Recognizing Gravesites](#)
  - [Documenting, Mapping, Collecting, and Packaging Evidence](#)
    - [Documenting the Evidence](#)
    - [Mapping the Evidence](#)
    - [Collecting the Evidence](#)
    - [Packaging the Evidence](#)
  - [Analyzing Botanical Evidence](#)
    - [Dendrochronology](#)

- [Palynology](#)
  - [Limnology](#)
- [Advances in Forensic Botany](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Dr. Lynne Milne](#)
- [Chapter 5. Review Questions](#)
- [Chapter 5: Bibliography](#)
- [Activity 5-1. Comparing Suspect Pollen to Crime-Scene Pollen](#)
- [Activity 5-2. Pollen Expert Witness Presentation](#)
- [Activity 5-3. Botanical Evidence Case Studies Presentation](#)
- [Activity 5-4. Processing a Crime Scene for Botanical Evidence](#)
- [Activity 5-5. Pollen Index](#)
- [Activity 5-6. Isolation of Pollen from Honey](#)
- **[CHAPTER 6. FINGERPRINTS](#)**
  - [The History of Fingerprinting](#)
  - [The Science of Fingerprints](#)
    - [Formation of Fingerprints](#)
  - [Characteristics of Fingerprints](#)
    - [Types of Fingerprints](#)
    - [Basic Ridge Patterns](#)

- [Minutiae and Fingerprint Identification](#)
- [Collection and Documentation of Fingerprints](#)
  - [Photographing Fingerprints](#)
  - [Methods of Collection](#)
- [Forensic Analysis of Fingerprinting](#)
  - [How Are Fingerprints Analyzed?](#)
  - [Fingerprint Reliability and Validity](#)
  - [Can Fingerprints Be Altered or Disguised?](#)
- [Advances in Fingerprinting](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Peter Paul Biro](#)
- [Chapter 6. Review Questions](#)
- [Chapter 6: Bibliography](#)
- [Activity 6-1. Study Your Fingerprints](#)
- [Activity 6-2. Giant Balloon Fingerprint](#)
- [Activity 6-3. Studying Latent and Plastic Fingerprints](#)
- [Activity 6-4. How to Print a Ten Card](#)
- [Activity 6-5. Minutiae Patterns](#)
- [Activity 6-6. Fingerprint Analysis](#)
- [Activity 6-7. Using Cyanoacrylate to Recover Latent Fingerprints](#)

- **CHAPTER 7. DNA PROFILING**
  - [What Is DNA Profiling?](#)
  - [History of DNA Profiling](#)
  - [The Science of DNA](#)
    - [Chromosomes](#)
    - [Genes](#)
  - [Characteristics of DNA Profiling](#)
    - [Early DNA Fingerprinting](#)
    - [Short Tandem Repeats \(STRs\)](#)
    - [STR Profiles](#)
  - [Collection and Preservation of DNA Evidence](#)
  - [DNA Profiling Analysis](#)
    - [CODIS](#)
    - [Types of DNA Profiling Analyses](#)
  - [Advances in DNA Profiling](#)
  - [Summary](#)
  - [Case Studies](#)
  - [Careers in Forensics. Dr. Kary Banks Mullis](#)
  - [Chapter 7. Review Questions](#)
  - [Chapter 7: Bibliography](#)
  - [Activity 7-1. Simple DNA Extraction](#)

- [Activity 7-2. The Break-In](#)
- [Activity 7-3. Anna Anderson or Anastasia? STR Analysis](#)
- [Activity 7-4. STR Identification of a September 11 Victim](#)
- [Activity 7-5. Identification of the Romanovs Using STR Profiling](#)
- **CHAPTER 8. BLOOD AND BLOOD SPATTER**
  - [History of Forensic Blood Analysis](#)
  - [The Science of Blood](#)
    - [Blood Cells](#)
    - [White Blood Count and Immune Response](#)
    - [Discovery of Blood Types](#)
    - [Antigen–Antibody Response](#)
    - [Probability and Blood Types](#)
  - [Characteristics of Blood Evidence](#)
    - [Forces Affecting Blood Spatter](#)
    - [Directionality of Blood](#)
    - [Common Bloodstain Patterns](#)
    - [Area of Convergence](#)
    - [Angle of Impact Calculations](#)
    - [Area of Origin](#)
  - [Investigating Blood Evidence at the Crime Scene](#)
    - [Blood Evidence Tells a Story](#)

- [Walk-Through and Information Gathering](#)
- [Documentation of Evidence](#)
- [Collection of Blood Evidence](#)
- [Analyzing Blood Evidence](#)
  - [Blood Pattern Analysis](#)
  - [Chemical Testing](#)
- [Advances in Blood Analysis](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. T. Paulette Sutton](#)
- [Chapter 8. Review](#)
- [Chapter 8: Bibliography](#)
- [Activity 8-1. A Presumptive Test for Blood](#)
- [Activity 8-2. Creating and Modeling Blood-Spatter Patterns](#)
- [Activity 8-3. Blood-Spatter Analysis: Effect of Height on Blood Drops](#)
- [Activity 8-4. Area of Convergence](#)
- [Activity 8-5. Blood-Droplet Impact Angle](#)
- [Activity 8-6. Area of Origin](#)
- [Activity 8-7. Crime Scene Investigation](#)
- **[CHAPTER 9. FORENSIC TOXICOLOGY](#)**
  - [Toxicology](#)



- [History of Forensic Toxicology](#)
- [The Science of Toxicology](#)
  - [What Happens Following Exposure to Toxins, Poisons, and Drugs?](#)
  - [Toxicity Factors](#)
  - [Symptoms of Poisoning](#)
  - [Drug Addiction, Withdrawal, and Dependency](#)
  - [Drug Tolerance](#)
- [Characteristics of Poisons, Toxins, and Drugs](#)
  - [Heavy Metals](#)
  - [Lethal Gases and Injections](#)
  - [Pesticides and Herbicides](#)
  - [Toxins](#)
  - [Drugs and Drug Schedules](#)
- [Processing Evidence](#)
  - [Evidence Detection](#)
  - [Evidence Documentation and Collection](#)
  - [Evidence Packaging](#)
- [Forensic Analysis of Poisons, Toxins, and Drugs](#)
  - [Preliminary Testing](#)
  - [Confirmatory Testing](#)

- [Testing for Acute or Chronic Poisoning](#)
  - [Expert Witness Testimony](#)
- [Advances in Forensic Toxicology](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Dr. Don Catlin](#)
- [Chapter 9. Review Questions](#)
- [Chapter 9: Bibliography](#)
- [Activity 9-1. Drug Analysis](#)
- [Activity 9-2. Should Medical Marijuana Be Legalized in All States?](#)
- [Activity 9-3. Drug Spot Test](#)
- **[CHAPTER 10. HANDWRITING ANALYSIS, FORGERY, AND COUNTERFEITING](#)**
  - [Document Analysis](#)
  - [History of Forensic Handwriting Analysis](#)
  - [The Science of Handwriting](#)
  - [Characteristics of Handwriting](#)
  - [Forensic Analysis of Handwriting](#)
    - [Analyzing a Handwriting Sample](#)
    - [Handwriting Evidence in the Courtroom](#)
    - [Shortcomings of Handwriting Analysis](#)
  - [Forgery](#)

- [Check Forgery](#)
- [Literary Forgery](#)
- [Art Forgery](#)
- [Detecting Forgery](#)
- [Counterfeiting](#)
  - [Counterfeit Currency](#)
  - [Detecting Counterfeit Currency](#)
  - [Counterfeit Items and Fraud](#)
- [Advances in Analysis, Detection, and Prevention](#)
  - [Handwriting Analysis: Computerized Analysis](#)
  - [Handwriting Analysis: Biometric Signature Pads](#)
  - [Forgery: N-Gram Tracing](#)
  - [Forgery: Paper Analysis](#)
  - [Forgery: Ink Analysis](#)
  - [Forgery: Infrared Reflectography](#)
  - [Counterfeiting: Banknote Technology](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Lloyd Cunningham](#)
- [Chapter 10. Review Questions](#)
- [Chapter 10: Bibliography](#)

- [Activity 10-1. Handwriting Analysis](#)
- [Activity 10-2. Analysis of a Ransom Note and Report to Jury](#)
- [Activity 10-3. Examination of U.S. Currency: Is It Authentic or Counterfeit?](#)
- **CHAPTER 11. FORENSIC ENTOMOLOGY**
  - [Forensic Entomology](#)
  - [History of Forensic Entomology](#)
  - [The Science of Forensic Entomology: Insects and Decomposition](#)
    - [Decomposition](#)
    - [Blowflies \(Bottle Flies\): First in Succession](#)
    - [Houseflies, Flesh Flies, and Coffin Flies](#)
    - [Beetles and Other Insects of Decomposition](#)
  - [Characteristics of Forensic Entomology](#)
    - [Insects and PMI Estimates](#)
    - [Factors Affecting Development](#)
    - [Accumulated Degree Hours](#)
    - [Limitations of Forensic Entomology](#)
  - [Processing a Crime Scene for Insect Evidence](#)
    - [Insect Collection Procedures](#)
  - [Analysis of Insect Evidence](#)
    - [Insect Identification](#)

- [Victim Identification Based on Insect Evidence](#)
- [Determining Victim's Exposure to Drugs, Alcohol, or Toxins Based on Insect Evidence](#)
- [Determining Victim's Physical Conditions Based on Insect Evidence](#)
- [Advances in Forensic Entomology](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Dr. Neal Haskell](#)
- [Chapter 11. Review Questions](#)
- [Chapter 11: Bibliography](#)
- [Activity 11-1. How to Raise Blowflies for Forensic Entomology](#)
- [Activity 11-2. Mini Projects for Forensic Entomology](#)
- [Activity 11-3. Observation of Blowflies or Houseflies](#)
- [Activity 11-4. Factors Affecting Postmortem Interval Estimates and ADH](#)
- **[CHAPTER 12. DEATH: MANNER, MECHANISM, CAUSE](#)**
  - [The Importance of Examining Death](#)
  - [History of Death Examinations](#)
    - [A History of Coroners and Corruption](#)
  - [The Science of Death Examinations](#)
    - [Manner of Death](#)

- [Cause and Mechanism of Death](#)
- [The Process of Death](#)
- [Characteristics of Death](#)
  - [Algor Mortis](#)
  - [Livor Mortis](#)
  - [Rigor Mortis](#)
  - [Postmortem Changes in the Eye](#)
- [Stages of Decomposition](#)
  - [Decomposition Timeline](#)
  - [Rate of Decomposition](#)
- [Death-Scene Investigations](#)
  - [Processing the Crime Scene](#)
- [Forensic Analysis of Death](#)
  - [The Autopsy](#)
  - [PMI Estimates](#)
  - [Probable Cause of Death Analysis](#)
- [Advances in Death Investigations](#)
- [Summary](#)
- [Case Studies](#)
- [Careers in Forensics. Dr. Michael Baden](#)
- [Chapter 12. Review Questions](#)

- [Chapter 12: Bibliography](#)
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