SURVEY OF FORENSIC SCIENCE
BIMS 3320.001/BIMS 3320.101
Texas A&M University – Corpus Christi
Department of Life Sciences
Fall 2012

3 Credit Hour Course: Fall, 2012
Instructor: John A. Graham
Office: 361-698-2620 Hours: T: 5:30-7:10 pm Th: 5:30-7:20pm (Lab)
Classroom: CS 101 Lab: CS 231
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Course Description: This is an introductory course in the basic and advanced scientific methods used in criminal investigations. The focus of this course will be placed on the methodologies, cognitive processes, deductive reasoning and the scientific processes of hypothesis development, analysis of data, and the use of scientific materials in gathering and processing evidence found at crime scenes. These same principles can be employed in any scientific process requiring skills in observation, diagnosis, treatment and processing of biomedical or medicolegal samples. Scientific investigations will be explored through lecture, hands-on application of skills, laboratory analysis and identification of acquired evidence, field trips and application level projects. Students will be required to take part in scientific investigations requiring the use of commonly available processing items and tools in the laboratory.


Student Outcomes:
   a. Students will learn through group project(s) utilizing the cognitive and affective skills learned in the classroom.
   b. Informal assessments through in-class exercises.
   c. Laboratory experiments, collection and preservation of medicolegal evidence, e.g. blood, sputum, serum, and other body fluids. Fiber analysis.
   d. Field exercises, directed study and self-study.
   e. Writing assignments utilizing text formatted terminology, appropriate for testimonial presentation.

Instructional Methods:
   Lecture: Instructor in a lecture format will present Text material.

   Audio/Visual: Video material and PowerPoint presentations make up a portion of the presentations.

   Written: Students will be required to conduct a full-field background investigation on themselves.

   Group Work: Students will be broken up into teams to complete class projects.

   Reteaching/Check for Understanding: Each class segment will culminate in a review of the course objectives for that particular class.
Student Requirements:

    Research Paper: (30%) The student will prepare a PowerPoint presentation on a specific topic related to their field of study and the application of forensic science to that field. Topics subject to review and approval by the instructor.

    Research Papers/PowerPoint Presentations: The presentation should contain a minimum of ten slides. The text should compliment the lecture you will give to the student audience. The purpose of this assignment is two-fold: 1) to get you ready to conduct research which you will present to a jury or a group of peers and 2) to let you have a prepared document you can use to teach someone else about this field of study. For some students, this paper may be your first experience preparing a high quality professional document. Starting this project at the beginning of class and working on it throughout the term will help significantly and avoid undue stress and panic near the end of class. No errors will be allowed in this presentation. It must be perfect.

    Student Portfolio/Mid Term: (30%) The student will conduct a full-field background investigation on themselves, combining the material required in a large, three-ring binder, following the format required by the Office of Personnel Management Standard Form 86 (SF-86) appropriate for top secret clearance.

    Lab Assignment: (20%) The student will work in teams to develop a comparative database of forensic fiber and trace evidence exemplars.

    Final Exam: (20%) The final exam is an application level review of the student’s abilities in utilizing the concepts learned throughout the semester. Students will work in teams to create an environment wherein they will challenge each other to incorporate the scientific methods learned during the semester.

Grading/Evaluation Procedures

    Assessment: Insofar that a great deal of emphasis will be placed on the student to perform up to industry standards, it is necessary that the student provide only the best in written assignments. Points will be deducted for poor grammar, spelling errors, poor sentence structure, common format errors, incorrect format and lack of clarity. Group work will be assessed based on recommendations by team members as to who performed in concert to complete the task at hand. Team members who fail to support the team will be graded accordingly. Student portfolios will be graded for completeness.

    Late Assignments/Extra Credit: This industry does not accept late work nor does it give “extra credit.” Neither do I.

    Absences: In addition to following TAMU-CC policy on absences, I recognize that things happen in our lives that interfere with our ability to complete our education. I will do all in my power to accommodate any student who has shown an honest effort, to complete this course, but who, for reasons beyond their control, find themselves in a position that requires them to prioritize their lives around their family, to complete this course, in another fashion, if possible.

    Tardiness: Students who are consistently late interfere with my ability to lecture, miss important information and disrespect their fellow classmates. After the third tardy, I will have a discussion with the student. If there is a valid reason for the tardiness, we will work something out. If there is not a valid reason for the tardiness, the student will be asked to drop the class until they can mature to the level of responsibility to meet their commitments.
**Disabilities:** Students with disabilities or learning needs should coordinate with the appropriate TAMUCC services in order to allow me to help you learn in a manner conducive with your limitations or enhancements. The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

**PROPOSED COURSE OUTLINE**

**Topic 1:**
Course Overview
Establish a Contract for Learning
Introduction to the Criminalistics Laboratory & Equipment
The Stereo-Master Zoom Microscope
Introduction, Definition, and Scope of Forensic Science (Chapter 1)
The Crime Scene (Chapter 2)
Processing the Crime Scene
Crime Scene Management and Analysis
Assignment of Research Paper Topics

**Topic 2:**
Physical Evidence (Chapter 3)
Trace Evidence - Fibrous Substances and Particulate Matter
Examination of Glass and Soil Evidence (Chapter 4)
Exercise to Determine Density

**Topic 3:**
Organic and Inorganic Analysis (Chapters 5 & 6)
Elements and Compounds
Introduction to Forensic Instrumentation (Chromatography, Spectrophotometry, and Neutron Activation Analysis)
The Microscope (Chapter 7)
Lecture/Crime Scene Reconstruction in Laboratory
Microscopes and Forensic Investigations
Hair, Fibers, and Paint (Chapter 8)
Lab Experiments and Practical Exercise

**Mid-Term Examination**

**Topic 4:**
Fingerprints as a Source of Identification (Chapter 14)
Lab Experiments and Practical Exercise
Forensic Aspects of Arson and Explosives (Chapter 11)
Firearms, Tool Marks, and Other Impressions (Chapter 15)
Morphology and Tool Marks
Tool mark Laboratory Experiments
Ballistics for Firearms
Crime Scene Analysis Presentations - Group Case Assignments

**Topic 5:**
Lecture and Lab Experiments
Research Projects Due
Course Evaluation (Student Feedback), Reflection, and Review
Final Examination
Adjournment