

DEPARTMENT OF FORENSIC SCIENCE

About

Chair

Sarah Kerrigan, PhD (Sarah.kerrigan@shsu.edu)

Mission

Our mission is to continuously improve and enhance the practice of forensic science through innovative teaching, research and service.

Vision

The Department of Forensic Science at SHSU envisions a future where institutes of higher education and forensic science service providers work in partnership to improve and strengthen forensic science and the criminal justice system as a whole.

Contact Information

Kelsie Bryand, MS. (kelsie@shsu.edu)
(936) 294-4370

Academic Programs

The Department of Forensic Science offers one minor, a master's degree, and a doctoral degree. For a listing of the programs offered within the Department of Forensic Science, please, reference the Programs tab on this page.

Highlights

The Master of Science in Forensic Science is accredited by the Forensic Science Education Programs Accreditation Commission (FEPAC (<http://fepac-edu.org/>)). The program itself was established in 2001 and was the very first accredited program in Texas. The program gives students the flexibility to tailor a degree toward their individual interests and professional goals while working in a state-of-the art scientific facility. We have been preparing students for careers in forensic science for over a decade, with proven success.

Sam Houston State University offers a PhD in Forensic Science for those seeking leadership positions or intending to pursue careers in research or education. The doctoral program at SHSU is an interdisciplinary science degree that can be completed in approximately five years of full-time study.

The minor in Forensic Science can be tailored towards criminal justice or non-science majors interested in pursuing investigative or non-laboratory based careers in forensic science (i.e., crime scene investigators) and science majors (e.g., chemistry, biology) who have an interest in traditional (laboratory-based) careers in forensic science.

Career Opportunities

The forensic science program is designed to prepare graduates for successful careers in forensic science. Students not only develop scientific understanding essential to forensic science, but also acquire the practical skills, knowledge and problem solving abilities that will help them advance into leadership positions. Through extensive hands-on and laboratory instruction, students acquire the practical skills that are sought after by potential employers.

- Minor in Forensic Science (<http://catalog.shsu.edu/archives/2020-2021/undergraduate/colleges-academic-departments/criminal-justice/forensic-science/minor-forensic-science/>)

Student Organizations and Activities

- Society of Forensic Science
- Graduate Student Organization (Criminal Justice)

Scholarships

Scholarship opportunities, assistantships, and financial assistance are available. Student assistantships and scholarships are awarded on a competitive basis based upon academic performance, GRE scores, letters of recommendation and previous laboratory experience.

Financial awards are available, including out-of-state tuition waivers. University policy requires all students to pay in-state tuition.

Information on graduate assistantships are available by contacting Kelsie Bryand (kelsie@shsu.edu) in the Department of Forensic Science at (936) 294-4370.

Information on specific scholarships available in the College of Criminal Justice are available through Cutty Gilbert (cutty@shsu.edu) at (936) 294-3755.

Please see the College of Criminal Justice section for information on college and university level scholarships.

FORS 3331. Foundations of Applied Anthro. 3 Hours.

This is an introductory course on the study of the biology of humans from an applied anthropological perspective. It is a foundation course for students interested in careers in applied anthropology, biological or forensic anthropology, nursing, medicine, or crime scene investigation. Students are introduced to all four fields of anthropology: archaeology (prehistoric and historic human activity), cultural anthropology (medical practices in past and present cultures), biological anthropology (primates, basic genetics, human evolution, human biological diversity, and forensic anthropology), and linguistics (language and communication and forensic linguistics) and how these fields are intertwined and applied in a variety of disciplines. The course content focuses predominantly on biological aspects of man and in human society.

FORS 3366. Forensic Science. 3 Hours.

Students are introduced to a wide variety of forensic science disciplines. Students gain basic knowledge of evidence handling, fingerprints, impression evidence, trace evidence, firearms and toolmarks, serology and forensic DNA, controlled substances and toxicology.

FORS 3380. Intro to Forensic Chemistry. 3 Hours.

Students are provided an introduction to forensic chemistry. Current practices, technologies, and techniques are discussed for some of the most common forensic chemistry disciplines.

Prerequisite: CHEM 2325 and FORS 3366.

FORS 3420. Hum Osteol Analys of Hum Bone. 4 Hours.

Students thoroughly examines the human musculoskeletal system, covering the structure and function of bone including bone growth and development and the distinction between juvenile and adult skeletal elements. The course is designed to equip the student with thorough knowledge of the normal appearance of the human skeleton and its variation caused by population variation, genetic disorders, diseases, or trauma.

FORS 4077. Special Topics in Forensic Sci. 1-4 Hours.

This course is designed to give advanced undergraduate students academic flexibility by allowing them to take structured courses on emerging topics or other matters about which there are no courses already approved in the catalog. Variable Credit (1-4).

Prerequisite: Senior standing.

FORS 4310. Physical Evidence Techniques. 3 Hours.

Students are provided an overview of physical evidence concepts and identification techniques. Pattern recognition of physical evidence, including fingerprints, bloodstains, gunshot residue, tire prints, shoeprints, fire investigation, firearms, and digital evidence will be discussed. The use of electronic databases in pattern evidence comparison are addressed. Prerequisite: FORS 3366.

FORS 4317. Applied Statistics for Forensic Science. 3 Hours.

Students apply statistical methods to forensic science problems. Concepts including data distributions, sampling, significance and confidence intervals, likelihood ratios, probability, conditional probability, Bayes' theorem, and odds may be included. Measurement uncertainty and metrological traceability are also covered to meet forensic laboratory accreditation requirements. Statistics are applied to problems relating to topics such as forensic toxicology, seized drugs, trace evidence, firearms, and questioned documents.

FORS 4320. Fundamentals of Forensic Bio. 3 Hours.

Students explore fundamental principles of forensic biology including serology and DNA. Current technologies and procedures used within the field of forensic biology are discussed.

Prerequisite: FORS 3366.

FORS 4330. Fingerprint Examination. 3 Hours.

Students learn the process of fingerprint identification, including the nature, physiological properties and morphogenesis of fingerprints. Students cover the different methods of physical and chemical development of fingerprints from various surfaces, the interpretation of fingerprint patterns and their classification, as well as the methodology of Analysis, Comparison, Evaluation and Verification (ACE-V) that fingerprint examiners apply in their casework.

Prerequisite: FORS 4310.

FORS 4343. Advanced Techniques in Forensic Anthropology. 3 Hours.

Students are provided practical experience in the application of various methods that aid in the identification of unknown skeletal remains, such as geometric morphometrics and digital imaging. Students gain understanding in the histology and biomechanics of bone and identify and differentiate bone pathology from bone trauma. In addition, students are trained in proper writing in forensic anthropology and manuscript preparation, including photography of bone trauma and pathology.

Prerequisite: FORS 4442.

FORS 4364. Crime Scene Invstg Techniques. 3 Hours.

Students are provided a foundational overview of criminalistics from the standpoint of crime scene investigation. Theoretical understanding and hands-on experience in crime scene processing is provided. Basic criminalistic and laboratory techniques are introduced and discussed.

Prerequisite: FORS 3366.

FORS 4380. Ethics & Prof Practice. 3 Hours.

Students are provided an overview of ethics and professional practice in forensic science. Ethical dilemmas, bias, and organizational culture are explored.

Prerequisite: FORS 3366.

FORS 4442. Intro to Forensic Anthropology. 4 Hours.

Students are equipped with the methodologies and applications of forensic anthropology. The course includes extensive hands-on exercises working with the human skeletal system. Students learn and apply the methods used in building the human biological profile, which includes the determination of sex, age, ancestry, and stature based on skeletal features. Students learn the biomechanics of bone and identify skeletal pathologies and/or trauma.
Prerequisite: FORS 3420.

Director/Chair: **Sarah Kerrigan**

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Jay Tyler Davidson, PHD (jxd115@shsu.edu), *Assistant Professor of Forensic Science, Department of Forensic Science*, PHD, West Virginia University; MS, West Virginia University; BS, Shippensburg State College

David A Gangitano, PHD, *Associate Professor of Forensic Science, Department of Forensic Science*, PHD, University of Buenos Aires; BS, University of Buenos Aires

Madeleine Jean Gates, PHD (mjs079@shsu.edu), *Assistant Professor of Forensic Science, Department of Forensic Science*, PHD, Florida Int'L Univ; BA, Duquesne University

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Timothy S. Kalafut, PHD (tim.kalafut@shsu.edu), *Associate Professor of Forensic Science, Department of Forensic Science*, PHD, Texas A&M University; BA, Whitworth College

Sarah Kerrigan, PHD (sxx003@shsu.edu), *Professor and Chair of Forensic Science, Department of Forensic Science*, PHD, University of British Columbia; BSC, University of Hull

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Geraldine Isabelle Christ Monjardez, PHD (gxm073@shsu.edu), *Assistant Professor of Forensic Science, Department of Forensic Science*, PHD, University of Manchester; MS, Cranfield University; BS, University of Cent Lancashire

Chi Chung Yu, PHD (jornyu@shsu.edu), *Professor of Forensic Science, Department of Forensic Science*, PHD, Carleton University; MS, Central Police University; BS, Central Police University

Interim Faculty

Kelsie Dawn Bryand, MS (kds001@shsu.edu), *Adjunct Faculty, Department of Forensic Science*, MS, Sam Houston State University; BA, Texas A&M University