# REQUEST FOR A NEW PROGRAM

**University of Central Oklahoma**

**Proposed Name of Program** (limited to 30 spaces)

| Doctor of Science - For Sci |

**Name of Program**: (full name of the program if longer than 30 characters)

| Doctor of Science - Forensic Science |

**Degree Designation** (ex. B.S., M.A.)

| D.Sc. |

**Program Director**

| Dr. Dwight Adams |

**Specialty Accrediting Agency**

| None |

**CIP Code**: 43.0406  
For information regarding CIP codes contact your department chair or visit: [https://www.uco.edu/academic-affairs/office-institutional-effectiveness/institutional-research/](https://www.uco.edu/academic-affairs/office-institutional-effectiveness/institutional-research/)

**Date submitted to Provost Advisory Council**: 2018 and again on 11/19/2020 with update

All proposals for new programs, majors, minors and certificates must be presented by the College Dean to the Deans’ Council and Provost Advisory Council for prioritization, planning and approval to proceed.

### W. Roger Webb Forensic Science Institute

**Department submitting the proposal**

<table>
<thead>
<tr>
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<td>Person to contact with questions</td>
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Approved by:

- **Department Chair**
- **College Curriculum Committee Chair**
- **College Dean**
- **Academic Affairs Curriculum or Graduate Council**
- **JCGS Dean (for Graduate proposals)**
- **Office of Academic Affairs**

**Effective term** (assigned by AA)

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Evaluation Criteria

All actions in the approval of new programs for public institutions are subject to a stipulation regarding the program’s ability to attain specified goals that have been established by the institution and approved by the State Regents. At the conclusion of an appropriate period of time, the program’s performance shall be reviewed on the basis of the specified goals in a manner mutually satisfactory to the sponsoring institution and the State Regents. Final endorsement of the program will depend on demonstrated viability.

A. Centrality of the Proposed Program to the Institution’s Mission and Approved Function(s)

A program should adhere to the role and scope of the institution as set forth in its mission statement and as complemented by the institution’s academic plan. List the objectives of the proposed program and explain how the proposed program relates to the institutional mission, academic plan, and approved function(s). An evaluation will be made as to the centrality of the program to the institution’s mission. There are certain circumstances when institutions may request approval to offer programs outside their function as stated in the Functions of Public Institutions policy. However, budget constraints, system efficiency, and concerns about institutional capacity and priorities may further limit expansion of programmatic functions. Requests of this nature should be on a limited basis. (Institution’s response/rationale should follow each criteria, A through I of this policy;

Institutions requesting programs outside their approved programmatic function should contact Dr. Debbie Blanke (405-225-9145) or Dr. Stephanie Beauchamp (405-225-9399) for additional information and forms.

Mission and Objectives of the Proposed Program

Congruent with the mission of the University of Central Oklahoma (UCO), the mission of the proposed Doctor of Science - Forensic Science program is to “prepare students for immediate entry into the nation’s doctoral and professional workforce in forensic science.” The proposed D.Sc. program will help provide advanced quality graduates in forensic science that are of critical importance and great demand to the citizens of Oklahoma, the nation, and the world. This includes the especially high demand for forensic science graduates in the Oklahoma City Metropolitan Area which is consistent with UCO’s mission within the Regional University System of Oklahoma (RUSO).

The W. Roger Webb Forensic Science Institute at UCO currently has four M.S. degree programs with high demand for their graduates:
- Forensic Science
- Forensic Science – Molecular Biology
- Forensic Science – Chemistry
- Forensic Science – Digital Forensic

This is a proposal to extend these M.S. programs at UCO into a new Doctor of Science - Forensic Science Program to further address current and anticipated future demand for graduates in the forensic science field. The proposed Doctoral program would produce graduates prepared to enter the forensic science workforce with knowledge of critical technical skills and experience in science and management. Unlike most existing Doctoral programs that are designed to produce graduates for academic institutions, the proposed program is designed to produce graduates for forensic science and management positions at all levels of government and private industry where there is currently a great demand.

Basic Concept of the Proposed Program

UCO proposes the development of a unique Doctor of Science - Forensic Science program that would require each student to complete integral parts of the degree as follows:
1. A forensic science management internship
2. Interdisciplinary research tuned to the broad needs in forensic science
3. Exposure to technical management issues and leadership theory

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In addition, the majority of the formal coursework in the proposed doctoral program would be offered on a flexible schedule in order to serve working students who hold full-time day jobs. The internship would occur in the student’s first year in order to secure the doctoral student’s interest in the field of forensic science and begin building professional relationships within the field. The coursework would prepare graduates for applied forensic science (as opposed to academic) positions as well as technical management positions in government and select industries. To our knowledge, with the unique features listed above and the wealth of experience of our forensic science faculty, the proposed program would be second to none in the nation and could well serve as the model for doctoral education directed specifically toward providing graduates for government agencies and private industry in this field.

The proposed D.Sc. - Forensic Science program would be modeled after our Master’s degrees and would accommodate any field within forensics science, unlike most forensic science programs that only have the expertise and resources to focus on one or two disciplines within forensic science. UCO’s D.Sc. - Forensic Science program is an interdisciplinary applied science degree that is designed to provide students with the critical thinking ability, problem-solving skills, and advanced discipline-specific knowledge to allow them to advance into leadership positions. This is accomplished by demonstrating the ability to perform independent, original research, the successful completion of multidisciplinary academic coursework, hands-on experience in the laboratory, and collaboration with accredited forensic laboratories, institutes and partners.

Alignment with Institutional Mission

UCO’s institutional mission is “… to help students learn by providing transformative education experiences to its students so that they may become productive, creative, ethical and engaged citizens and leaders serving our global community.” As the state’s only designated public metropolitan university, UCO, and in particular the Institute, is focused on serving the greater Oklahoma City metropolitan area by providing graduates with training in the areas needed most by the local and state forensic science community. Because of UCO's status as a metropolitan university many of its graduates stay in the Oklahoma City area to work, and 85% or more of UCO’s graduates stay in Oklahoma. The proposed Doctor of Science - Forensic Science degree is designed to address the projected local, national, and international needs for terminal degree holders within the field of forensic science.

Alignment with Institutional Academic Plan

UCO clearly identifies with its role in the Oklahoma City Metropolitan Area. In 2011, it began a planning process that led to Vision 2020, a strategic roadmap to meeting our goal to become the public metropolitan university for this region of the state. This direction is consistent with both its role as a member of RUSO and its specially designated status as a metropolitan university with ten national peer institutions as well. The planning process led to several key outcomes as follows:

UCO identifies four strategic themes that guide its planning processes:
   (1) Transformative Learning
   (2) Student Success
   (3) Value
   (4) Place

The academic plan is, in turn, centered on four pillars that mirror these institutional themes:
   (1) Engage Students in Transformative Learning
   (2) Improve Student Outcomes
   (3) Enhance the Learning Environment
   (4) Support Learning Collaborations

UCO’s six tenets of Transformative Learning include:
   (1) Discipline Knowledge
   (2) Leadership
   (3) Research, Creative, and Scholarly Activity
   (4) Health and Wellness
   (5) Global and Cultural Competencies
   (6) Service Learning and Civic Engagement

The above are well integrated into the proposed program’s curriculum. Curricular activities will enhance the research and design experiences found in courses at all student levels. As is typical of doctoral programs, the proposed program curriculum culminates in an intensive research dissertation capstone experience with a written dissertation and oral defense. The proposed program is designed specifically to address the need for technical managers and leaders within forensic science
agencies. By offering flexible classwork schedules, it allows full-time employees in the Oklahoma City metropolitan area the opportunity to pursue a doctoral degree during non-working hours.

In particular, the proposed program’s close alignment with UCO’s academic plan would help to achieve the following major objectives:

- Supply graduates to forensic science leadership and management positions
- Recruitment and retention of outstanding faculty in forensic science programs from across the country
- Recruitment of outstanding undergraduate and graduate students
- Garnering more research funds from federal agencies
- Promotion of the University's research in the region and beyond
- Synergistic effects within the campus through multidisciplinary research
- Strengthening of UCO’s Forensic Science graduate programs
- Producing innovative research with contributions relevant to government agencies located in the state of Oklahoma
- Blended learning and flipped classroom activities are already used in many of the existing graduate courses at UCO. These would be available to students in the Doctor of Science - Forensic Science program. The opportunity to develop a select few Self-Paced Online Courses in the future seems natural for a program like the one being proposed.

Alignment with Mission of a Metropolitan University

UCO is a member of the Regional University System of Oklahoma (RUSO) and, consistent with its role as Oklahoma City’s regional public university, with over 70 percent of its students from the Oklahoma City Metropolitan Area, UCO has taken a leadership role in helping to define an Innovation District (ID).

In their book Metropolitan Revolution, published in 2013, coauthors Bruce Katz and Jennifer Bradley, stated that “Innovation Districts cluster connect leading-edge anchor institutions and cutting-edge innovation firms with supporting and spin-off companies, business incubators, mixed-use housing, office and retail, and twenty-first century amenities and transport.” Bruce Katz visited the UCO campus in February 2015 as an invited speaker for the celebration of UCO’s 125th anniversary. During that time, he visited with members of senior leadership at UCO and the Oklahoma City Chamber of Commerce and proposed that the ideal location for an ID would be along Automobile Alley in Oklahoma City. Oklahoma City and Philadelphia were subsequently the only two candidate cities to be selected for participation in the Anne T. and Robert M. Bass Initiative on Innovation and Placemaking the following fall of 2015.

UCO has been a participant in all segments of planning for the Oklahoma City ID which now formally encompasses 843 acres that are bisected by Interstate 235 (I-235). This represents only 0.2% of the area of Oklahoma City but it accounts for 4.7% of its jobs. The area to the east of I-235 is dominated by a research park that is composed of private and state-funded institutions which, for the most part, advance economic interests in biomedical research and the health industry. Twenty-eight percent of the jobs in the ID are STEM-related while only sixteen percent are in Oklahoma City.

The creation of an applied doctoral program with relevance to the heart of Oklahoma City is therefore fully consistent with nearly a decade in planning at UCO as well as the recent designation of an innovation district. We believe the development of this doctoral program will attract and stimulate economic growth in Oklahoma City, including in the areas of computation and bioscience that will diversify areas of economic growth within the broader Oklahoma City Metropolitan Area.

As Oklahoma’s only metropolitan university, UCO is also one of 82 institutional members of the Coalition of Urban and Metropolitan Universities (CUMU). Over 80% of the CUMU institutional members offer doctoral degrees. At this time, UCO is one of the largest CUMU members without a doctoral degree. The proposed D.Sc.-Forensic Science program would align UCO with a majority of CUMU members in serving their metropolitan university mission. The proposed program will support and have access to the UCO facility at 1st and Santa Fe near downtown Oklahoma City as part of the OKC Innovation District.

Alignment with Peer Institutions

The development of a doctoral program will not only promote forensic science disciplines, but also provide an excellent opportunity to synergistically create other jobs as a result. The economic ripple effect of these majors is substantial through wealth-creating enterprises that spawn other economic opportunities. Indeed, all of UCO’s designated peer institutions offer a doctoral degree.

- Boise State University
The proposed Doctor of Science - Forensic Science program would align UCO with its peer institutions. In addition, half of UCO’s RUSO peers also offer applied doctoral programs in optometry (Northeastern Oklahoma State University), doctorate of nursing practice (Northwestern Oklahoma State University), and pharmacy (Southwestern Oklahoma State University).

B. Curriculum

The curriculum should be structured to meet the stated objectives of the program. Explain how the curriculum achieves the objectives of the program by describing the relationship between the overall curriculum or the major curricular components and the program objectives.

The Doctor of Science - Forensic Science Program will provide students with an additional 60 semester hours of graduate courses and research beyond the Master’s degree. Our proposed program would offer a unique balance of internships, seminars, and management leadership training that would be an integral part of the curriculum.

**Required Core Courses (45 hours):**
- FRSC 6910 – Forensic Science Research Seminar (3 hours)
- FRSC 6950 – Internship (3 hours)
- FRSC 6990 – Dissertation Research (15 hours)
- FRSC 6203 – Advanced Forensic Program and Lab Management (3 hours)
- FRSC 6303 – Advanced Forensic Statistics and Modeling (3 hours)
- FRSC 6403 – Forensic Personnel Management and Diversity Awareness (3 hours)
- FRSC 6503 – Global Perspectives in Forensic Science (3 hours)
- FRSC 6113 – Investigations in Forensic Sciences (3 hours)
- FRSC 6123 – Advances in Forensic Science Forensic DNA/Forensic Chemistry (3 hours)
- FRSC 6133 – Advances in Forensic Science Trace Evidence/Digital Evidence (3 hours)
- FRSC 6143 – Advances in Forensic Science Crime Scene Investigation/Impression Analysis (3 hours)

**Guided Electives (15 hours):** An additional 15 semester hours of elective courses (5 courses) as determined by the student’s doctoral research committee to reflect the major and research area selected by the student.

The proposed program must meet the State Regents’ minimum curricular standards including the total credit hour requirements for program completion, liberal arts and sciences, general education, and area of specialization credit hour requirements (refer to State Regents’ Policy 3.15 Undergraduate Degree Requirements). Additionally, the curriculum should be compatible with accreditation or certification standards, where available. Any clinical, practicum, field work, thesis, or dissertation requirements should be included in the proposal.

Provide the following information for the program and for each option (some categories may not apply to all programs):

**For Master’s and Doctorate Degrees:**
- Total number of hours required for degree: 60
- Number of hours in program core: 30

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Number of hours in option (if applicable):
Number of hours in thesis/dissertation/project: 15
Number of hours in electives (if applicable): 15

For AAS Degrees:

Total number of hours required for degree:
  Number of hours in general education:
  Number of hours in technical specialty:
  Number of hours in technical support courses (if applicable):
  Number of hours in technical related coursework (if applicable):

Describe how the proposed program will articulate with related programs in the state. It should describe the extent to which student transfer has been explored and coordinated with other institutions.

Admission to the proposed program requires an M.S. degree in an area of science (Biological Science, Chemistry, Computer Science, Forensic Science, etc.). The M.S. degree, congruent to the proposed program, can be obtained at any accredited state or out-of-state institutions offering such a degree.

In addition, the proposed program will conform to the current UCO course transfer policy for graduate courses not already counted toward a previous degree:

“Students may not transfer in, credit for capstone courses, program projects, internships, theses, or similar non-classroom, summary, or application requirements. These requirements must be met through UCO. A maximum of 10 (ten) semester hours of graduate credit from an appropriately regionally-accredited, degree-granting institution may be transferred to a graduate degree program at the University of Central Oklahoma, unless UCO has a Memorandum of Understanding and/or a Transfer Agreement with the sending institution or its agents. These 10 hours must carry grades of “B-” or higher, must apply to the student’s UCO program and must appear on a UCO Plan of Study. Courses must be approved by the graduate program advisor and the Dean of the Jackson College of Graduate Studies.”

Specific curricular information. List courses (prefix, course number, and course title) under the appropriate curricular headings (i.e. General Education, Program Core) and asterisk new courses. In the curriculum description, indicate the total number of new courses and how development will be funded. If a course has a prerequisite, list the prerequisite courses in parentheses. NOTE: All prerequisite courses must be included as part of the degree requirements.

1. REQUIRED COURSES

  FRSC 6910 – Forensic Science Research Seminar (3 hours)
  FRSC 6950 – Internship (3 hours)
  FRSC 6990 – Dissertation Research (15 hours)
  *FRSC 6203 – Advanced Forensic Program and Lab Management (3 hours)
  *FRSC 6303 – Advanced Forensic Statistics and Modeling (3 hours)
  *FRSC 6403 – Forensic Personnel Management and Diversity Awareness (3 hours)
  *FRSC 6503 – Global Perspectives in Forensic Science (3 hours)
  *FRSC 6113 – Investigations in Forensic Sciences (3 hours)
  *FRSC 6123 – Advances in Forensic Science Forensic DNA/ Forensic Chemistry (3 hours)
  *FRSC 6133 – Advances in Forensic Science Trace Evidence/ Digital Evidence (3 hours)
  *FRSC 6143 – Advances in Forensic Science Crime Scene Investigation/ Impression Analysis (3 hours)
New courses (*) have been developed, submitted to the UCO Graduate Council for approval, and require no new funding. Course descriptions for new courses include the following:

**Advanced Forensic Program and Lab Management: 3hr**
Advanced Forensic Program and Laboratory Management is designed for potential new supervisors and experienced managers that have the responsibility to supervise a forensic unit or laboratory. Topics include training and certification of examiners, case and evidence management, emerging legal issues, and development of policies and procedures. The pros and cons of accreditation from organizations and compliance with standards will be covered. This course will also offer descriptions of what is required in the formation of a quality system in any laboratory. This will be achieved through key principles of a QA/QC program with reference to the ANSI-ASQ National Accreditation Board (ANAB), Quality Assurance Standards for Forensic DNA Testing Laboratories, and ISO guidelines, together with specific examples from different forensic science specializations.

**Advanced Forensic Statistics and Modeling: 3hr**
Advanced Forensic Statistics and Modeling focuses on providing students the opportunity to acquire, develop, and apply knowledge of statistical methods to appropriate data and to use advanced statistical modeling techniques to interpret the results in context. Statistical methods covered include general linear models and linear mixed models, parametric statistics, regression, nonlinear models, mixed models in ANOVA, generalized linear models, and repeated measures experiments.

**Forensic Personnel Management and Diversity Awareness: 3hr**
Forensic Personnel Management and Diversity Awareness is designed to prepare DSc students with a variety of critically important managerial concepts needed for the modern forensic laboratory to include: Legal issues for managers related to privacy, records, hiring, termination, performance evaluations, diversity, and inclusion; leadership and management styles; chain of command structures; professional responsibility and internal inquiry matters; and understanding expectations of managers for new and seasoned employees. Central to this course will be the DSc-FS student's discovery and development of her/his communication style, leadership theory, and management style. This process will be facilitated through a special seminar series, in which the DSc-FS students will resolve management and leadership challenges.

**Global Perspectives in Forensic Science: 3hr**
Global Perspectives in Forensic Science is designed to prepare students with a spectrum of sentinel concepts, competencies, and practices in transnational and multi-national forensic science to include: Cultural and Geopolitical contexts, competency, and diversity; International Governmental, Judicial and Investigative organizational structures and functions; Legal and Judicial issues related to international forensic science practice and performance; Leadership, Liaison, and Management in the global arena; Global Professional Responsibility and International Inquiry matters; Managerial expectations and responsibilities in international forensic science operations. In addition, the students will be introduced to current topics in international and multinational forensic science management, communication, and practice through transformative liaison experiences and special seminar series.

**Investigations in Forensic Sciences: 3hr**
Investigations in Forensic Science focuses on providing the student with an opportunity to apply, integrate, and demonstrate the knowledge and skills they have acquired during their DSc-Forensic Science education. The student will be able to demonstrate the core competencies of a DSc candidate by developing and investigating hypothesis associated with their dissertation research. The focus of this course will be to integrate various forensic science disciplines such as Digital Evidence, Forensic DNA Analysis, Forensic Chemistry, Crime Scene Investigation, Medicolegal Examination, Fingerprint Analysis, Microbial Forensics, Toolmark Analysis, and Wildlife Forensics into the overall investigation. This course will also have a major emphasis on legal ramifications related to crime scene processing.
Advances in Forensic Science Forensic DNA/ Forensic Chemistry: 3hr
Advances in Forensic Science DNA/Chem focuses on providing the DSc student with an opportunity to acquire, develop, and apply knowledge in the forensic disciplines of Forensic DNA Analysis and Forensic Chemistry. The student will focus on advancing the fields of Forensic DNA Analysis and Forensic Chemistry by investigating the primary literature from closely related fields of study. Using the primary research material from the parent discipline, the student will develop, write and present on how one would validate a new technique to the applied field of forensic science. Permission from the instructor of record is required for enrollment.

Advances in Forensic Science Trace Evidence/ Digital Evidence: 3hr
Advances in Forensic Trace Analysis/Digital Evidence focuses on providing the DSc student with an opportunity to acquire, develop, and apply knowledge in the forensic disciplines of Forensic Trace Analysis and Digital Evidence. The student will focus on advancing the fields of Forensic Trace Analysis and Digital Evidence by investigating the primary literature from closely related fields of study. Using the primary research material from the parent discipline, the student will develop, write and present on how one would validate a new technique to the applied field of forensic science.

Advances in Forensic Science Crime Scene Investigation/ Impression Analysis: 3hr
Advances in Forensic CSI/Impressions Evidence focuses on providing the DSc student with an opportunity to acquire, develop, and apply knowledge in the forensic disciplines of Crime Scene Investigations and Impressions Evidence. The student will focus on advancing the fields of Crime Scene Investigations and Impressions Evidence by investigating the primary literature from closely related fields of study. Using the primary research material from the parent discipline, the student will develop, write and present on how one would validate a new technique to the applied field of forensic science.

2. TENATIVE LIST OF COURSES AVAILABLE FOR GUIDED ELECTIVES

Forensic Science Courses
FRSC 5143 - Crime Scene Reconstruction
FRSC 5153 - Crime Scene Photography
FRSC 5163 - Medicolegal Forensics
FRSC 5223 - Behavior and Crime Scenes
FRSC 5233 - Forensic Interviewing Techniques
FRSC 5243 - Forensic Psychology
FRSC 5253 - Forensic Science Analysis & Lab
FRSC 5263 - Forensic & Biological Anthropology
FRSC 5273 - Advanced Fingerprint Analysis
FRSC 5303 - Forensic Archaeology
FRSC 5313 - Forensic Pathology
FRSC 5323 - Forensic Toxicology & Lab
FRSC 5333 - Forensic Molecular Biology & Lab
FRSC 5343 - Forensic Serology & Lab
FRSC 5353 - Firearm and Toolmark Analysis
FRSC 5363 - Advanced Crime Scene Techniques
FRSC 5373 - Cold Case Review and Analysis
FRSC 5413 - Bloodstain Pattern Analysis
FRSC 5423 - Bloodstain Pattern Analysis II
FRSC 5443 - Forensic Arson Investigation
FRSC 5463 - Digital Forensics & Lab
FRSC 5513 - Forensic Chemistry & Lab
FRSC 5533 - Forensic Microscopy & Lab
FRSC 5543 - Advanced Firearm and Toolmark & Lab
FRSC 5553 - WMD Forensics
FRSC 5613 - Advanced Forensic DNA Analysis & Lab
FRSC 5633 - Digital Forensic Tools and Analysis & Lab
FRSC 5653 - Mobile Device Forensics & Lab
FRSC 5713 - Forensic Pharmacology
FRSC 5863 - Expert Witness
FRSC 5873 - Research Methods in Forensic Science
FRSC 5881 - Graduate Seminar
FRSC 5892 - Professional Issues in Forensic Science

**Statistics Courses**
STAT 5103 - Applied Experimental Design
STAT 5123 - Mathematical Statistics 2
STAT 5213 - Applied Regression Analysis
STAT 5253 - Quality Control
STAT 5263 - Computer Applications in Statistics
STAT 5303 - Non-Parametric Statistics
STAT 5353 - Probability Theory
STAT 5423 - Data Fitting
STAT 5513 - Statistical Consulting

**Other Courses**
ENG 5023 – Technical Writing
ENG 5063 – Advanced Technical Writing
ISOM 5333- Project Management

***NOTE*** The D.Sc.-Forensic Science Program’s flexible elective structure is designed to encourage D.Sc.-Forensic Science students to take graduate level courses currently offered by other departments at UCO.

C. **Academic Standards**

Clearly state the admission, retention, and graduation standards which, must be equal to or higher than the State Regents’ policy requirements, and should be designed to encourage high quality.

Admission, retention, and graduation requirements of the proposed D.Sc.-Forensic Science program will conform to the University of Central Oklahoma’s Graduate College general admission requirements, as detailed in the current University Graduate Catalog.

For admission to the program applicants are required to provide

1. A M.S. degree in an area of science (Biological Science, Chemistry, Computer Science, Forensic Science, Mathematics, Physics, etc.), Engineering (Electrical, Mechanical, Chemical, Biomedical, etc.), or an area congruent with the Institutes existing M.S. program. Students wishing admission to the D.Sc.-Forensic Science program who lack any prerequisite coursework may be considered for provisional admission and will be required to take up to 14 additional hours of graduate coursework to provide the necessary foundation for the program. The student’s Advisory Committee will decide what supplemental courses are to be completed.

2. A minimum GPA of 3.25 (or an equivalent) or higher. Applicants with less than a 3.25 GPA may be granted probationary admission based upon their overall academic and professional practice, history and accomplishments as determined by the Program Director and the Admissions Committee.
3. Three letters of recommendation from individuals who can provide input on the applicant’s potential to successfully complete D.Sc.- Forensic Science-level courses and conduct independent research.
4. A statement of research interest and career goals to be used in admission decisions on the applicant’s match with the program goals and faculty specialties.
5. Where English is not the native language, students must have scored above 550 on the paper based TOEFL or above 79 on the Internet based TOEFL.

The D.Sc. Program Coordinator for the Forensic Science Institute will oversee the D.Sc.- Forensic Science program and she/he will be a tenured/tenure-track faculty whose primary teaching and research interests is in Forensic Science. Tenured/tenure-track faculty who take on the responsibility of advising a D.Sc. student will assist the Program Coordinator.

The duties of the D.Sc. Faculty Advisor(s) include recruitment and publicizing the program, assessment, evaluation and enhancement of the curriculum, coordination with industries and Adjunct Faculty, preparation and submission of assessment plans and reports and academic program reviews, and advisement of all graduate students. The D.Sc. Program Coordinator also will provide recommendations to the Graduate College for admission to the D.Sc. program.

D. Faculty

Faculty resources shall be demonstrated to be adequate and appropriate for the proposed program. The number of faculty will meet external standards where appropriate. The qualifications of faculty will support the objectives and curriculum of the proposed program. Faculty qualifications, such as educational background, non-collegiate and collegiate experience, and research and service interests and contributions, which relate to the proposed program, should be summarized. The institution must demonstrate that core programmatic faculty possess the academic and research credentials appropriate to support the program. Attach faculty vita or provide explicit summaries.

Forensic Science Faculty

1. Dwight E. Adams, PhD, Director, Expertise: Federal Law Enforcement Agent, Forensic DNA analysis, Crime Scene Processing, Research and Laboratory management. Former Director of the FBI Laboratory (23 years).
2. Thomas Jourdan, PhD, Assistant Director, Expertise: Federal Law Enforcement Agent, Forensic Chemistry and Toxicology, Nuclear Forensics and Explosives Forensics. Former Chief of the FBI Laboratory Explosives Unit and member of the FBI’s Chemistry and Toxicology Unit (20 years)
3. Wayne D. Lord, PhD, Professor, Expertise: Federal Law Enforcement Agent, Forensic Entomology, Behavioral Analysis, and Evidence Response Team Leadership. Former leader of the FBI’s Evidence Response Team Unit and Chief of the FBI’s Behavioral Analysis Unit (25 years)
5. John P. Mabry, JD, Professor, Expertise: Federal Law Enforcement Agent, Behavioral Analysis, Crime Scene Processing, Forensic Science and Law, and Criminal Justice. Former Chief Counsel for the FBI’s Oklahoma City Division and member of the FBI’s Child Abduction/Serial Killer Unit (25 years)
6. James Creecy, PhD, Associate Professor, Expertise: Forensic DNA Analysis & Wildlife Forensics for local law enforcement agencies. Former DNA analyst for Albuquerque, New Mexico Police Department and Oklahoma City Police Department (5 years)
7. Jennifer Schmitz, J.D., Associate Professor, Expertise: Federal Law Enforcement Agent, International and Domestic Terrorism, Forensic Science and Law, and Criminal Justice. Former Chief Counsel for the FBI’s Oklahoma City Division and Terrorism Special Agent, New York City (20 years)
8. Eric Law, PhD, Assistant Professor, Expertise: Firearms and Toolmarks research and training, and Impression Evidence research and training (4 years)

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9. Caitlin Porterfield, PhD Candidate, Instructor, Expertise: Forensic Science Education, Forensic Biology and Impression Evidence (7 years)
10. Craig Gravel, MA, Instructor, Expertise: Law Enforcement Officer, Crime Scene Investigations and Bloodstain Pattern Analysis. Former Supervisor of the Oklahoma City Police Department’s Crime Scene Unit (25 years)
11. Rachael Elliott, MS, Instructor, Expertise: Digital Forensics and Digital Security. Law enforcement experience as a Digital Forensics Examiner with UCO Police Department and Edmond Police Department (5 years)
12. Timothy Dwyer, MS, Instructor, Medical-Legal Death Investigation. Former Chief Investigator for the Oklahoma Medical Examiner’s Office (18 years)
13. Keisha Jones, MS, Instructor, Crime Scene Investigations and Education. Former Head of the Midwest City Police Department’s Crime Scene Unit and Laboratory (9 years)

E. Support Resources

Access to the qualitative and quantitative library resources must be appropriate for the proposed program and should meet recognized standards for study at a particular level or in a particular field where such standards are available. Books, periodicals, microfilms, microfiche, monographs, and other collections shall be sufficient in number, quality, and currency to serve the program. Adequacy of electronic access, library facilities, and human resources to service the proposed program in terms of students and faculty will be considered.

Physical facilities and instructional equipment must be adequate to support a high-quality program. The proposal must address the availability of classroom, laboratory, and office space as well as any equipment needs. Describe all resources available.

Facilities

- **W. Roger Webb Forensics Science Institute – Physical Facilities and Instructional Equipment**
  This 35,000 sf building completed in November 2009 houses the UCO Forensic Science Institute and is located across the street from the OSBI Forensic Science Services Laboratory. The available facilities and instructional equipment that are currently in place meet the current requirements for the proposed D.Sc.-Forensic Science major. To support all of its academic programs and service courses, the Institute utilizes the following space in the **W. Roger Webb Forensics Science Institute** building:
  - 1 auditorium 165-seat (6000 ft² equipped with video streaming and capture equipment)
  - 4 classrooms (7000 ft² in classrooms and 4000 ft² digital evidence classroom w/ 30 PCs)
  - 1 evidence recovery training bay (10,000 ft² equipped with CSI and Impression evidence equipment)
  - 1 Digital Evidence and Cyber-Security Laboratory. (8,000 ft²)

In addition, the Institute has access to College of Mathematics and Science classrooms and research laboratories and teaching laboratories in the OSBI facility across from the Institute.

- **Donald Betz STEM Research and Learning Center** – This new 57,000 sf building opened in fall 2018 and provides an additional lecture hall and two transformative learning classroom spaces to support this and other STEM programs. As noted elsewhere, UCO’s faculty and students have a demonstrated history of collaboration between faculty and students in STEM cross-disciplinary fields. This new facility has significantly enhanced these collaborative opportunities by creating student-centered data and computational work areas through the Center for Research and Education in Interdisciplinary Computation (CREIC) and the High Performance and Data-Enabled Computing Center (HiPDECC). UCO’s supercomputer “Buddy,” is housed within this computational hub and supports both student and faculty research. Additional collaborative spaces are dedicated to Forensic Science to include a

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classroom, a DNA Teaching Laboratory, a DNA Research Laboratory, an Impression Evidence Teaching Laboratory, a Digital Forensics Teaching Laboratory and a Digital Forensics Research Laboratory.

- **UCO Downtown** – UCO Downtown located on the lower level of the Carnegie Centre at 131 Dean A. McGee Ave in downtown Oklahoma City is available for classroom and meeting rooms for the proposed program. It can accommodate up to six classrooms/meeting rooms in the 9,694 ft² space that can be arranged and rearranged to meet multiple needs.

- **UCO 1st and Santa Fe Downtown Facility** – The proposed program will support and have access to this UCO facility at 1st and Santa Fe near downtown Oklahoma City as part of the OKC Innovation District (See [http://www.okcinnovation.com](http://www.okcinnovation.com/)). This UCO facility has 17,798 ft² available for five classrooms, one instructional laboratory, and up to 14 business incubators.

**Forensic Science Library Resources**

Chambers Library (http://library.uco.edu) is located in a 4-story building on the northwest corner of the University of Central Oklahoma campus. The library holds more than 818,285 items in its collection in all types of formats and circulates more than 45,000 items annually.

The Library serves the research and study needs of students and faculty, and its collections reflect the specialized research interests of the UCO community. Professional librarians serve as liaisons to the academic departments, and each department has a faculty liaison who recommends titles to add to the collection. The library owns or has online access to more than 18,000 forensic science books and has spent an average of $1,533 annually for new forensic science titles each of the last four years.

The Library subscribes to more than 74 individual forensic science specific journal titles, as well as multiple databases, including ForensiNetBase, ACS: American Chemical Society, CINAHL, Pubmed, IEEE, Science Direct, SciFinder, and Web of Science, providing full text articles to support the Forensic Science program. Additionally, we added two new individual journal titles in 2017: “Science and Justice: Journal of the Forensic Science Society” and the “Journal of Forensic Sciences.” Science Direct College Edition and MathSciNet also provide related journal articles. Moreover, the Library subscribes to ProQuest Dissertations & Theses Global, a comprehensive collection of dissertations and theses from around the world. Materials not owned by Chambers Library are obtained through interlibrary loan at no cost to students or faculty.

**Forensic Science Facilities and Equipment**

The facilities and equipment that are currently in place are meeting the current requirements for the Forensic Science Institute serving approximately 1030 undergraduate and graduate majors. The Doctor of Science-Forensic Science program due to its small size will be easily accommodated within the existing facilities. To support all of its forensic science academic programs, the Institute utilizes the facilities above and is supported by state-of-the-art equipment as follows:

**Evidence Recovery Research and Training Equipment**

- Spex Alternate Light Source Mini-CrimeScope®-400W (2)
- Spex Mini Crimescope
- Nikon SLR digital camera (14) D3300, (9) D5100
- IR camera
- Nikon DTM-821 Total Station (1)
- Fingerprint equipment
- Sirchie Electrostatic Dust Print Lifters (11)
- Olympus Stereomicroscope SZX16 with DP12 camera
- Cyanoacrylate Fuming Chamber (2)
Anthropological recovery equipment
Forensic Mannequins and Skeletons
Faro 3-D Crime Scene Imaging System, laptop for scanner
Faro 3-D Handheld Scanner with laptop
Sirchie Labkam Ruvis System
Trajectory Kits (5)
Forensic Sil Kits (8)
Leica Disto E7300 range finders (7)
Bosch GLM 50 range finder (1)
Fuji XT11R Forensic Camera (30)
Sokkia Total Station
Re-con Data Collector
Phantom 4 Pro Drone
IPad Mini – used with the drone

Digital Forensics Research and Training Equipment

Forensic Recovery of Evidence Device (FRED) Workstation (6)
Digital Intelligence Forensic Toolkit 6.0
Digital Intelligence DataLifter – Forensicware Solution (30)
Digital Intelligence P2 Command Kit
Ultrakit Write Blockers (5)
WASP Mobile Asset 5 Pro
NEC US110 Thin Client
Web cast video and training equipment
24 port switches (3)
Cisco router (1)
Wireless access points (4)
1 TB Hard drive (25)
26 external hard drive cases
5 Tableau read/write blockers
Cellphone tool kits
Cellebrite Education package
Mobile device collection
5 FOX Forensic Workstations
100-200 40GB – 80GB Hard Drives (Donated to FSI)
Digital Forensics Research Lab (STEM 105)
Digital Forensics Classroom (25 seats)
Axiom Education Package

DNA and Trace Evidence Research and Training Laboratory Equipment

Illumina MiSeq Genome Sequencer
ABI 3500 Genetic analyzer
Applied Biosystem GeneAmp PCR Thermo cyclers 9700
Applied Biosystem 7500 Real-Time PCR system
CFX96 Touch Real-Time PCR Detection System
Single channel and multi-channel micropipettes (25)
Safety cabinets (2)
PCR flow hood
LCF-Bridge
LCF-1600 Microscope
NPL-632 Pulse Laser Station
Laboratory freezer and refrigerator
Forensic Histo-Pathology automated tissue microtome system
MMI CellCut Plus laser microdissection system
Olympus IX71 inverted research polarized light and fluorescence microscope
SEM
10 Leica stereoscopes, LeicaEZ4 (OSBI)
10 Leica student polarizing light microscopes, LeicaDMEP (OSBI)
Leica S8 APO Stereozoom 1.0x - 8.0x 10446298
Agilent 2100 bioanalyzer
Cell culture facilities
Biosafety level 2 facilities
Incubators
Lyophilizer
Gel imaging system

Chemistry and Toxicology Research and Training Equipment (OSBI Lab)

Agilent 7890 GC coupled to an Agilent 5975 MS with auto sampler
Agilent 7890 GC coupled to an Agilent 7697A Headspace and auto sampler
Agilent ChemStation software
Thermo Nicolet 6700 FTIR with Omnic software
Shimadzu 8030 LC/MS/MS

Impression Evidence Research and Training Equipment

Olympus high quality Comparison microscope
Leica Comparison microscope
Leica K2700 scopes (2)
LabKam with RUVIS
Ninhydrin Fuming Chambers (2)
Evidence collection and documentation equipment
ESDA for document examination
Cyanoacrylate Fuming Hood
Fingerprint stands
Shooting reconstruction walls

Forensic Science Institute Reference Collections

Firearms and tool collection
Mammalian osteology collection
Invertebrate collection

Computer Facilities and Equipment

With support from NSF funding, a high-performance Linux computer cluster was installed at UCO in 2015 for teaching and research requiring large-scale parallel computation. The cluster allows multiple users to work on problems much larger or having longer compute time than any one computer could handle alone. The UCO cluster consists of 37 nodes and has an aggregate peak speed of ~32 TFLOPS. Software installed on the computer includes ANSYS, COMSOL, MATLAB, Mathematica, R, and R-Studio which are available to research and education for students, faculty and staff at the university, as well as researchers across the state.

F. Demand for the Program

https://www.okhighered.org/admin-fac/academic-forms
Proposed programs must respond to the needs of the larger economic and social environment. Thus, the institution must demonstrate demand for the proposed program.

1. **Student Demand:** Clearly describe all evidence of student demand, normally in the form of surveys of potential students and/or enrollments in related programs at the institution, which should be adequate to expect a reasonable level of productivity.

The proposed program will recruit students from within Oklahoma, as well as regionally, nationally, and internationally, so we expect to have students from educationally and culturally diverse backgrounds. We also expect that students will come from current employees in government agencies within Oklahoma desiring to advance their careers by continuing their education in an accessible program.

It is not expected that there would be a difficulty in attracting students to the proposed program. The sources of potential students for the program are expected to come from a number of diverse areas including (1) current master’s-level graduate students, (2) working forensic scientists in the OKC metropolitan area who want to pursue a terminal degree, (3) non-local students attracted by the applied nature of the program and the strong international reputation of the FSI and its faculty, (4) traditional international students, and (5) exchange students.

Like most doctoral programs, the proposed D.Sc. -Forensic Science will be small by usual standards because of the applied nature and specific focus of the degree. The enrollment at UCO in forensic science master’s programs is given in the following table:

<table>
<thead>
<tr>
<th>UCO Master’s Program</th>
<th>Fall 2019</th>
<th>Fall 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic Science</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Forensic Science - Chemistry</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Forensic Science - Molecular Biology</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Forensic Science - Digital Forensics</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

In support of UCO’s vision and mission, the following information was gathered to demonstrate the need for a doctoral program in forensic science:

- **Students demand for the D.Sc. degree program** – A survey was given to UCO’s forensic science, computer science, and engineering physics graduate students in the Fall of 2018. The response rate to the survey was 67%. Out of the 46 students who responded to the survey, 37 (80%) indicated they would likely apply for admission to the doctoral program after they complete their master’s degree if it is offered.

- **Graduate students are the main work force in research activities** – The graduate students admitted to the program will help enhance the quality of the research conducted by the faculty. This is essential for applying to research grants from sources such as the Department of Education (DOE), the Department of Justice (DOJ) and the Department of Defense (DoD), to list a few as well as private foundations.

- **Occupations needing a doctoral degree in forensic science are projected to grow.** The current U.S. Department of Labor Occupational Outlook Handbook’s employment projections for 2016-2026 reports a projected increase of 17% for employees with a doctoral degree in forensic science (see [www.bls.gov/ooh/](http://www.bls.gov/ooh/)). This is more than double the expected increase for all job fields which is projected to be an increase of +7% over the same decade.

2. **Employer Demand:** Clearly describe all evidence of sufficient employer demand, especially in the five workforce ecosystems developed by the State Department of Commerce that includes aerospace and defense, energy, agriculture and biosciences, information and financial services, and transportation and distribution. This demand can be demonstrated in the form of anticipated openings in an appropriate service
area and in relation to existing production of graduates for the institution’s service area and/or state. Such evidence may include employer surveys, current labor market analyses, and future manpower projections. The following websites may provide useful information: https://www.ok.gov/oesc/Labor_Market/Industry_and_Occupational_Employment_Projections/ and https://www.okhighered.org/econ-dev/dashboards/) Where appropriate, evidence should demonstrate employers’ preferences for graduates of the proposed program over persons having alternative existing credentials and employers’ willingness to pay higher salaries to graduates of the proposed program.

The demand for doctoral degrees in forensic science can be observed in the table below. The extreme undersupply of doctoral degrees in forensic science is cause for concern. As the field of forensic science continues to advance, crime laboratory managers and supervisors are going to need broad and detailed scientific knowledge and management skills. The situation is perhaps even more dire than these data might suggest when it is noted that more than 50% of the PhD’s in many STEM areas are international students and most (>90%) of the jobs currently advertised are positions in government agencies and private sector industries that require U.S. citizenship or permanent resident status.

### Job Openings for Doctoral Degree Holders

(From http://indeed.com search on 22 November 2020)

<table>
<thead>
<tr>
<th>Search Terms</th>
<th>Number of Jobs Advertised on 11/22/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic Science PhD</td>
<td>Regionally: 3, Nationally: 74</td>
</tr>
</tbody>
</table>

### Estimated Student Demand for the Program

Project estimated student demand for the first five years of the program.

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Degrees Conferred</th>
<th>Majors (Headcount) Fall Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021-2022</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>2022-2023</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>2023-2024</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>2024-2025</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>2025-2026</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

Programs are provisionally approved and given enough time for a planning year plus the number of years necessary to produce one graduating class (i.e. a two-year program is allowed three years to meet its graduates and majors goals, a four-year program is allowed five years, etc.) unless the institution makes a specific timeframe request with a strong rationale.

Using the above estimated student demand, please indicate the specific productivity criteria and timeframe for final review of the program:

This program will enroll a minimum of 8 students in fall 2025 year; and will graduate a minimum of 5 students in 2025-2026 academic year).

(Note: Productivity data must come from the same academic year. Example: enroll a minimum of 50 students in fall 2025 and graduate a minimum of 35 students in 2025-2026)

### Electronic Delivery

https://www.okhighered.org/admin-fac/academic-forms
Is this program intended to be offered through online delivery or other computer-mediated format or will be advertised as available through online delivery or other computer-mediated format?

Yes ☒ No ☐

If yes, describe the delivery method that will be used to deliver the program content (e.g., Blackboard, Desire2Learn, etc.) and the major features that will facilitate learning.

While it is not possible to obtain the proposed D.Sc. degree solely online, it is possible to take some courses required for the degree online.

Does your institution have prior Electronic Delivered Program approval?

Yes ☒ No ☐

Note: If requesting institution has not gone through the electronic delivery approval process, you must also complete the Institutional Request for Electronic Delivery Approval section beginning on page 9 of this form.

G. Unnecessary Duplication

The elimination of unnecessary program duplication is a high priority of the State Regents. Where other similar programs may serve the same potential student population, the proposed program must be sufficiently different from existing programs or access to existing programs must be sufficiently limited to warrant initiation of a new program.

Provide specific evidence that the proposed program is not unnecessarily duplicative of similar offerings at other state system institutions.

There are no Doctor of Science - Forensic Science programs in Oklahoma with CIP code 43.0406. There is a Ph.D. program at Oklahoma State University-ChS (OSU) in Tulsa in Forensic Science. Their program shows little in the way of innovation beyond their master’s degree lacking significant management courses related to diversity, equity and inclusion or efforts from a global perspective. However, our program is designed with a specific focus in producing graduates with applied forensic science and managerial experience from a program that will develop skills through hands-on training. UCO’s program does not ascribe to the possibility of strictly online graduate courses in Forensic DNA, Forensic Toxicology, Firearms and Toolmarks and many other STEM disciplines which are found exclusively online at OSU. Further, the numbers of UCO faculty and their experience at state, national and international levels is by far more suited to the DSc program residing at UCO. Our graduates will be extremely well-equipped for employment in government agencies across the state and the nation because they have actually learned the techniques and demonstrated their ability to perform the techniques in a laboratory setting. The student’s level of management training in leading scientific personnel, diversity awareness and maintaining a global perspective will be unmatched in Oklahoma. The proposed program would be one-of-a-kind in the state of Oklahoma.

The proposed D.Sc. program differs fundamentally from the doctoral program at Oklahoma State University by its strong emphasis on applied science innovation with graduates trained specifically for entry into the government workforce. It is the only program that requires in-person laboratory experience, an internship, management and leadership courses. We recognize that programs at other schools do include applied research but these programs are more directed toward production of graduates to enter the academic workforce. In addition, the proposed program will be unique in the region for its focus on a holistic approach to forensic science and will aid in the student’s growth as a scientist, manager, and societal leader.

The specialized nature of graduate-level research means that there is very little overlap in research areas between researchers at other universities in Oklahoma and even the region. Faculty members at OSU, OU, and TU are

https://www.okhighered.org/admin-fac/academic-forms
seldom in direct competition with each other for funds from federal agencies, foundations, etc. They compete nationally for major research funding, but they also cooperate locally. The specialized areas of research expertise of participating UCO faculty do not currently overlap with researchers at OSU and OU and we expect that to continue to be the case.

As a metropolitan university, UCO tends to see larger numbers of nontraditional students who work full-time or nearly full-time jobs and often support families. Traditional PhD programs are simply out of the question for such students. Like the master’s programs at UCO, the proposed program will offer sufficient courses at times that make it easier for nontraditional students to make satisfactory progress toward their degree without putting their job or family life at risk. Without this flexibility, they would most likely remain in their current job or seek a less rewarding career.

Have you explored opportunities to collaborate in dual, joint, or consortial programs?

Yes ☒

If yes, explain and, if applicable, attach Memorandum of Understanding and all appropriate documents regarding the dual, joint, or consortial degree plan.

To meet the needs of UCO students who desire a terminal degree available at UCO, a joint doctoral degree program with Swansea University, Wales, United Kingdom, has been established since Fall 2011. UCO students work with mentors at Swansea University and the University of Central Oklahoma to complete research theses and receive their degrees. To date, several students in the Swansea@UCO international partnership have obtained doctoral degrees from Swansea University. Each of the conferred degrees from Swansea University are exclusively in the areas of humanities.

Under the Swansea@UCO agreement, the doctoral degree program is also available to UCO students in non-humanities disciplines. Efforts have been made to enroll UCO STEM students in the Swansea@UCO doctoral degree program. However, so far, such efforts have been unsuccessful resulting in zero applications throughout the 7-year history. This is mainly due to the required hands-on research experience and the desired internship in local STEM industries. Furthermore, requests have been made to relevant international institutions (Australia and United Kingdom) to establish joint efforts toward a similar type of unique doctoral degree partnership. However, such requests did not receive the desired support.

In 2013, UCO’s Forensic Science Institute became a member of the Forensic and Crime Scene Investigation Consortium (FCSIC) along with Louisiana State University, Texas A&M University, Sam Houston State University, Charleston Southern University, University of Nevada, and Chaminade University. This effort was sponsored by the Department of Justice (DOJ) and the goal, among others, was to fully integrate and expand the delivery of new courses and degrees (including the Ph.D.) to all member programs. The concept was well defined, but funding soon failed as DOJ’s budget was impacted by unforeseen events.

The Ph.D. program at OSU offers little to no advantage or educational content to our students. OSU does not have the breadth of disciplines nor the breadth of experienced faculty. Two examples include the lack of the fastest growing forensic science discipline in digital forensics. In addition, the very definition of forensic science includes the intersection of law and science. UCO’s faculty includes two attorneys, both retired from the FBI with extensive international and domestic terrorism experience related to forensic science. Our proposed doctoral courses do not merely extend our Master’s degree course offerings. Instead, we have added doctoral courses that address global perspectives as many of our faculty have personally worked with international forensic science and law enforcement agencies. Additionally, our doctoral course in Investigations will be taught by experienced legal experts and include a major emphasis on legal ramifications related to crime scene processing, forensic science analysis, investigative techniques and expert witness testimony.
It is apparent that UCO’s proposed program does not create unnecessary duplication with any existing program(s) in the state and that the efforts to create a joint program with institutions outside of the State of Oklahoma have not been successful. Therefore, UCO proposes this doctoral program alone.

No ☐

If no, explain

H. Cost and Funding of the Proposed Program

The resource requirements and planned sources of funding of the proposed program must be detailed in order to assess the adequacy of the resources to support a quality program. This assessment is to ensure that the program will be efficient in its resource utilization and to assess the impact of this proposed program on the institution’s overall need for funds.

Provide evidence of adequate funding, which will include, but not be limited to:

1. Reallocation of Existing Resources: The institution must provide evidence of campus funds to be reallocated to the proposed program. The source and process of reallocation must be specifically detailed. An analysis of the impact of the reduction on existing programs and/or organization units must be presented.

The estimated cost for the DSc-FS Program covers the associated research expenses, new faculty startup fund, graduate assistantships, and graduate tuition waivers. This proposal includes the need for only two new faculty which will be reallocated from unfilled positions at UCO. Faculty salaries and benefits are not included here. All other funds listed below will come from reallocation of existing funds at UCO. Additional funds will come from allocating external grant overhead moneys to the support of the D.Sc. program and reallocation of current resources.

<table>
<thead>
<tr>
<th>Estimated Costs for DSc-FS Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
</tr>
<tr>
<td>Research Expenses</td>
</tr>
<tr>
<td>New Faculty Startup</td>
</tr>
<tr>
<td>Release Time</td>
</tr>
<tr>
<td>Grad Assistantships</td>
</tr>
<tr>
<td>Grad Tuition Waiver</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

2. Tuition and Fees: The institution must provide evidence of a projected increase in total student enrollments to the campus as a result of the proposed program.

The D.Sc. program’s increase in tuition and fees is quite modest as noted above. The anticipated funding for the DSc-FS Program is given below, covering the added value of graduate student lectureships, tuition and fees, research grants, and private donations.

<table>
<thead>
<tr>
<th>Proposed Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
</tr>
<tr>
<td>Graduate Student Lectureships</td>
</tr>
<tr>
<td>Tuition</td>
</tr>
<tr>
<td>Research Grants</td>
</tr>
<tr>
<td>Private Donations</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
3. Discontinuance or Downsizing of an Existing Program or Organizational Unit: The institution must provide adequate documentation to demonstrate sufficient savings to the state to offset new costs and justify approval for the proposed program.

No discontinuance or downsizing of an existing program is proposed to offset costs of the proposed program. The faculty positions will come from unfilled positions in programs that are not experiencing growth. The necessary funds will come from existing course fees from a Forensic Science program that has become the largest in the nation.

**Cost/Funding Explanation**

Complete the following table for the first five years of the proposed program and provide an explanation of how the institution will sustain funding needs for the life of the proposed program in the absence of additional funds from the State Regents. *(NOTE: Each funding and/or expense amount provided must include an explanation regarding the source of the funds or how the funds will be utilized.)*

**Cost/Funding Summary:**

**Program Resource Requirements**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Expenses</td>
<td>$20,000</td>
<td>$20,000</td>
<td>$30,000</td>
<td>$40,000</td>
<td>$40,000</td>
</tr>
<tr>
<td>New Faculty Startup</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Release Time</td>
<td>$18,000</td>
<td>$18,000</td>
<td>$24,000</td>
<td>$30,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>Grad Assistantships</td>
<td>$44,000</td>
<td>$44,000</td>
<td>$66,000</td>
<td>$88,000</td>
<td>$88,000</td>
</tr>
<tr>
<td>Grad Tuition Waiver</td>
<td>$6,930</td>
<td>$6,930</td>
<td>$10,395</td>
<td>$13,860</td>
<td>$13,860</td>
</tr>
<tr>
<td>Total</td>
<td>$138,930</td>
<td>$138,930</td>
<td>$130,395</td>
<td>$171,860</td>
<td>$171,860</td>
</tr>
</tbody>
</table>

The anticipated funding for the DSc-FS Program is given below, covering the added value of graduate student lectureships, tuition and fees, research grants, and private donations.

**Proposed Funding Sources**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Lectureships</td>
<td>$16,000</td>
<td>$16,000</td>
<td>$24,000</td>
<td>$32,000</td>
<td>$32,000</td>
</tr>
<tr>
<td>Tuition</td>
<td>$13,860</td>
<td>$13,860</td>
<td>$20,790</td>
<td>$27,720</td>
<td>$27,720</td>
</tr>
<tr>
<td>Research Grants</td>
<td>$0</td>
<td>$30,000</td>
<td>$50,000</td>
<td>$70,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>Private Donations</td>
<td>$0</td>
<td>$0</td>
<td>$25,000</td>
<td>$35,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Total</td>
<td>$29,860</td>
<td>$59,860</td>
<td>$119,790</td>
<td>$164,720</td>
<td>$209,720</td>
</tr>
</tbody>
</table>

The net annual cost of the DSc-FS Program for 4 DSc-FS students is given below. It is anticipated that with the initial support of about $206,000 over the first four years, a stable annual net gain for the proposed DSc-FS Program, starting at Year 5, will be about $37,800.

**Estimated Net Annual Cost of DSc-FS Program**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Revenue</td>
<td>$29,860</td>
<td>$59,860</td>
<td>$119,790</td>
<td>$164,720</td>
<td>$209,720</td>
</tr>
<tr>
<td>Total Net Annual Cost</td>
<td>-$109,070</td>
<td>-$79,070</td>
<td>-$10,605</td>
<td>-$7,140</td>
<td>$37,860</td>
</tr>
</tbody>
</table>

* The summary of results from Estimated Costs and Funding, and their difference.

https://www.okhighered.org/admin-fac/academic-forms
**B. Breakdown of Budget Expenses/Requirements**

<table>
<thead>
<tr>
<th>Expenses/Requirements</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative/Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Professional Staff</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td></td>
<td></td>
<td></td>
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**I. Program Review and Assessment**

Describe program evaluation procedures for the proposed program. These procedures may include evaluation of courses and faculty by students, administrators, and departmental personnel as appropriate. Plans to implement program review and program outcomes-level student assessment requirements as established by State Regents’ policies should be detailed. Program review procedures shall include standards and guidelines for the assessment of student outcomes implied by the program objectives and consistent with the institutional mission.

*Program Review and Assessment Process (Continuous Improvement Process)*

https://www.okhighered.org/admin-fac/academic-forms
This program, like all university academic programs, will be reviewed annually under UCO’s assessment process. The proposed program will use the following for its assessment instrument. The program will also undergo Self-Study for Continuous Improvement initiative with outside reviewers until such time that the Forensic Science Education Programs Accreditation Commission (FEPAC) begins to accept terminal degree programs in their evaluation. FEPAC supports terminal degree programs and will likely begin this effort as more programs become available. In addition, we will develop a Logic Model to assess consequential validity of FSI programs. The model will present a logical argument for how and why the program is addressing specific stakeholder needs and how measurement and evaluation will assess and improve program effectiveness. The Logic Model will describe the logical linkages among program resources, activities, outputs, stakeholders reached, short/intermediate goals, and long-term outcomes. This will allow for critical measurement areas to be identified.

<table>
<thead>
<tr>
<th>Program Learning Objective/ Intended Outcome: Graduates of the program can function effectively in their area of expertise.</th>
<th>Implementation</th>
<th>Evaluation Criteria</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>Student demonstrates knowledge of key principles, methodologies, and subject areas within discipline.</td>
<td>All graduate coursework is graded.</td>
<td>&gt; 3.0 cumulative GPA on 4.0 scale</td>
<td>Met or Not Met</td>
</tr>
<tr>
<td>Student persuasively demonstrates significance, originality, and plausibility of the dissertation research.</td>
<td>Oral presentation and defense of dissertation research</td>
<td>Advisor is surveyed after dissertation defense. Committee approves/disapproves dissertation</td>
<td>Met or Not Met</td>
</tr>
<tr>
<td>Student writes a solid dissertation that confirms mastery of the field. Dissertation demonstrates the identification of and solution to research problems</td>
<td>Students provide written dissertation of their research findings during defense.</td>
<td>Advisor is surveyed after dissertation defense. Committee approves/disapproves dissertation</td>
<td>Met or Not Met</td>
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<td>Students required to author/co-author articles for conference or in refereed and/or well-respected journals.</td>
<td>DSc students required to produce and submit one paper at time of degree completion.</td>
<td>At least one first authored peer-reviewed publication submitted for a DSc student</td>
<td>Met Or Not Met</td>
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<td>Successful post-graduate employment in an applied science environment relevant to the student’s major.</td>
<td>Students are surveyed after graduation.</td>
<td>&gt;90% relevantly employed six months after graduation</td>
<td>Met Or Not Met</td>
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</table>

**Evaluation of Faculty**

Faculty are evaluated through a process outlined in the UCO Faculty Handbook. This process includes an evaluation by peers, by the department chair, and by the dean. The frequency of evaluation depends on whether the faculty member is non-tenured, part time, tenure-track, or tenured.

Students evaluate each faculty member in each course taught using the Student Perception of Instructional Effectiveness (SPIE) instrument. These are administered in fall, spring, and summer semesters, unless enrollment is too low to preserve student anonymity. Students provide a numerical evaluation of the course and instructor, as well as open ended comments. These evaluations are included in the faculty review process described above.

[https://www.okhighered.org/admin-fac/academic-forms](https://www.okhighered.org/admin-fac/academic-forms)