REQUEST FOR A NEW COURSE
University of Central Oklahoma

Course Subject (Prefix), Number, and Title:

Course Subject  Course Number  Recommended Course Title (maximum of 30 characters)
FRSC  6303  Adv Forensic Stats & Modeling

*Remember when abbreviating names, this is how they will appear on student's transcripts.

Course Title: (full title of course if longer than 30 characters)
Advanced Forensic Statistics and Modeling

For information regarding CIP codes contact your department chair or visit: http://www.uco.edu/academic-affairs/it/program_inventory.asp
CIP Code: 43.0406

For graduate courses, please attach a syllabus for this course.  (See syllabus requirement policy 2.2.)

Course description as it will appear in the appropriate catalog.
Course description only  Do not include prerequisites or enrollment restrictions, these should be added under questions 6-12.
(Please use standard American English including full sentences.)

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 Science Institute
Department submitting the proposal

Dwight Adams  Dadams8@uco.edu  6915
Person to contact with questions  email address  Ext. number

Approved by:

Department Chairperson  Date  College Curriculum Committee Chair  Date
(please notify department chair when proposal is forwarded to dean.)
College Dean  Date  Academic Affairs Curriculum or Graduate Council  Date
(Please notify the department chair when proposal is forwarded to AA.)
JCGS Dean (for Graduate Proposals)  Date  Office of Academic Affairs  Date

Academic Affairs Ferm
July, 2019

Functional Review
undergraduate proposals only)
Effective Term (assigned by AA)
1. Does this course have an undergraduate / graduate counterpart?  
   ___ Yes  X No

2. Is this proposal part of a larger submission package including a program change?  
   X Yes  ___ No

3. Does this new course affect a teacher preparation program? (All courses required for any teacher preparation program must have approval from the Council on Teacher Education (CTE) before approval from AACC or Graduate Council.)  
   ___ Yes  X No  If yes, send copy of proposal to the Education Curriculum Committee Chair, Dr. Darla Fent.

CTE Approval (Stamp or initial)________________________

4. Has this course been previously taught as a common course (4910 seminar, 4960 institute, etc.)?  
   ___ Yes  X No  If yes, when was the most recent offering? ____________________________

5. Does this course affect majors or minors outside the department?  
   Yes  X No  If yes, provide name(s) of department chair(s) contacted, dates, and results of discussion.

6. Prerequisite courses:  
   Example 1: MATH 1213 and (MATH 2165 or MATH 2185) and CHEM 1213 Example 3: 8 hours of biology including BIO 1404
   Example 2: (ACCT 2113 and 2213) and (MGMT 3313 or ISOM 3613)
   None

7. Co-requisite(s): Which of the above prerequisite courses, if any, may be taken in the same semester as the proposed new course?  
   None

8. Concurrent enrollment: Courses that must be taken the same semester. Example: lab courses.
   None

9. Will this course have enrollment restrictions?  
   X Yes  ___ No  If No, go to question 13.

10. Specify which major(s) may or may not take this course.  
    Specifying a major, excludes all other majors from enrolling.
    Check one:  May ____  May not ____
    Major Code: ____________________________

11. Which of the following student classification(s) may enroll in this course?  
    Check all that apply:
    Graduate (2) 19 + hours
    Graduate (1) 0-18 hours
    Post Baccalaureate *
    Senior
    Junior
    Sophomore
    Freshman
    * Graduate level courses are not open to Post Baccalaureate students.

12. Check or list other restrictions for this course.  
    Admission to Graduate Programs  X
    Admission to Nursing Program
    Admission to Teacher Education
    Other  DSc-Forensic Science
13. Course objectives: Objectives should be observable, measurable and include scholarly or creative activities to meet the course level characteristics. Course objectives should also be in line with the course description. (Please refer to instructional objectives documents at: https://spaces.uco.edu/display/aaccproposals/UCO+AACC-main+page#UCOAAACC-mainpage-faq-helpful-hints.)

Upon successful completion of this course, the student will have demonstrated a deep understanding of the following:

- Distinguish between multivariate and univariate analyses.
- Explain the process of hypothesis testing and determining statistical significance, using appropriate terminology.
- Evaluate the difference between Type I and Type II errors.
- Discuss the relationship between $\alpha$ (alpha) and $\beta$ (beta).
- Describe what is reported by effect size.
- Describe various techniques for measuring the degree of relationships between variables, including bivariate correlation and regression, multivariate regression, and path analysis.
- Describe various techniques for testing the significance of group differences, including t tests, one-way ANOVAs and ANCOVAs, factorial ANOVAs and ANCOVAs, one-way MANOVAs and MANCOVAs, and factorial MANOVAs and MANCOVAs.
- Describe techniques used to predict group membership, including discriminant analysis and logistic regression.
- Develop research questions, applicable to their respective fields of study, that are appropriate for each statistical technique described.
- Compare and contrast a one-way ANOVA and a factorial ANOVA.
- Effectively test data sets using the appropriate statistic using SPSS.

Course Detail Information:

14. Contact Hours (per week)

- Lecture hours (in class)
- Lab hours (also studios)
- Other (outside activities)

15. Repeatable course.

- Number of times this course can be taken for credit:

16. Schedule type: (select one only)

- Activity P.E. (A)
- Lab only (B)
- Lecture/Lab (C)
- Lecture only (L)
- Recitation/Lab (R)
17. List existing course(s) for which this course will be a prerequisite. Adding a "new course" as a prerequisite to an existing course will likely cause enrollment problems. (Please submit a prerequisite change form for each course for which this course will serve as a prerequisite.)
   None

18. What resources, technology or equipment must be acquired to teach this course? List items, which must be purchased and estimate cost. (Be specific, e.g., technology software, equipment, computer lab, etc.)
   The FSI currently possesses all necessary equipment and technology for this course

19. The UCO library has the required library resources for the new course:
   Yes [x] No
   If no, provide a list of materials needed and contact the library at libraryresearch@uco.edu for a cost estimate.
   Additional funds are being requested for library resources to support this course:
   [ ] Yes [x] No $ ___________ (amount requested)

20. Names of current faculty qualified to teach this course.
   Dr. James Creecy, Dr. Tom Jourdan, Dr. Dwight Adams, Dr. Wayne Lord, Dr. Mark McCoy

21. Additional faculty (adjunct or full-time) required and specific competencies required to teach this course:
   Staffing for this new course will come from existing faculty that will be supplemented by additional faculty position(s) as described in the proposed program budget.

22. How will this course be staffed and equipped? Identify the additional costs associated with this new course. If no costs, explain why not.
   Staffing for this new course will come from existing faculty that will be supplemented by additional faculty position(s). All resources, technology and equipment for this new course already exist within the Forensic Science Institute. No new purchases will be required.

23. Identify the source(s) of funds for any additional costs for the new course. i.e. internal reallocations, special fees from students, etc. If you plan to propose special fees be assessed for this course, be aware there is a separate approval process for special fees.
   The proposed budget for the program does not require new funds for this course.

24. Projected enrollment for two academic years following approval of new course:

<table>
<thead>
<tr>
<th>Semester</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25. Using State Regents' definition of liberal arts and sciences (quoted below), characterize the course as follows:
   [ ] Non-liberal arts and sciences
   [x] Liberal arts and sciences

"The liberal arts and sciences are defined as those traditional fields of study in the humanities; social and behavioral sciences; communications; natural and life sciences, mathematics; and the history, literature, and theory of fine arts (music, art, drama, dance). Courses in these fields whose primary purpose is directed toward specific occupational or
26. Please provide a concise, yet comprehensive, statement that explains the reasons for requesting the new course. Include documentation or assessment information supporting the specific request (if possible). Indicate the expected source of student enrollment (majors, minors, programs etc.)

The purpose of the proposed course and program would be to train graduate students in a contemporary applied STEM program integrating multiple forensic science disciplines. The program will be designed to provide training and advanced research in complex systems, analytical and quantitative problem solving, multidisciplinary teamwork, and scientific writing/presentation along with technical management that crosses the boundaries of traditional forensic science disciplines while at the same time ensuring that graduates have a depth of understanding in the field. Furthermore, based upon a National Academy of Sciences report related to Forensic Science, the Forensic Science Education Programs Accreditation Commission (FEPAC) has expressed support for institutions of higher education to establish terminal degree programs in Forensic Science. Therefore, with a Forensic Science component, the proposed DSc-FS program would be unique in the state, and one of the few terminal degrees in the nation addressing the need for training a workforce for the expected growth in forensic science positions.

27 Which of the six transformative learning tenets does this course incorporate? (Check all that apply or only those that apply) This question was a directive from the Provost and is used for informational purposes.

| Discipline Knowledge | X |
| Leadership | |
| Research, Scholarly and Creative Activities | X |
| Service Learning and Civic Engagement | |
| Global and Cultural Competencies | |
| Health and Wellness | |

28. Clearly explain how the characteristics of this course meet or exceed those outlined in Course Level Characteristics. (Copy and paste table from "Course Level Characteristics" document for the appropriate course level of proposed course. Document may be found on: https://spaces.ucc.edu/display/aaccproposals/UCC-AACC-main+page#UCC-AACC-main+page-faq-helpful-hints

<table>
<thead>
<tr>
<th>Course Level Characteristics</th>
<th>Please describe how this course meets this requirement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is assumed that students in these courses have sufficient graduate coursework requiring a serious commitment of time and energy and are pursuing a doctoral degree within the university.</td>
<td>This course is part of the core curriculum for the doctoral degree in forensic science. As such, only students that are admitted to the doctoral program in forensic science will be permitted to enroll in this course. As with all proposed 6000 level courses in the forensic science program, the coursework required to complete this course is robust and sufficient for earning a DSc.</td>
</tr>
<tr>
<td>2. It is assumed that students in these courses have mastered the ability to engage in critical thinking, decision making, and independent judgement while retaining ethical</td>
<td>Throughout the semester, students will be required to apply the knowledge learned in this class to develop and extend their data-analytic skills and communicate their findings</td>
</tr>
</tbody>
</table>
accountability.

<table>
<thead>
<tr>
<th>3. It is assumed that students in these courses have mastered disciplinary knowledge as evidenced by an ability to engage with and contribute to theoretical and empirical knowledge in the field.</th>
<th>A Doctoral student in this course will master discipline knowledge in the area advanced statistical analysis and modeling applied to the field of forensic science. Students will learn by engaging in the authentic activities of real applied data analysis and statistical modeling. They will model the use of new statistical techniques in class, and then apply these new techniques to real problems using real data. Students will interpret the outcomes of the data-analyses and communicate these interpretations clearly and concisely in writing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. It is assumed that students in these courses have mastered the ability to design, conduct, evaluate, complete, and disseminate scholarly contributions in the field as well as to provide supervision of scholarly pursuits if assigned.</td>
<td>This course teaches the key components of advanced statistical analysis and modeling and will help students to understand the need to produce sound scientific data and interpret the results of research studies that have utilized such methods, as well as to apply these analytical techniques as part of their dissertation research. Students will review and critique research with specific examples from different forensic science specializations.</td>
</tr>
<tr>
<td>5. It is assumed that students in these courses demonstrate an individual responsibility, personal accountability, and professional obligation to provide leadership in and a contribution to the field.</td>
<td>Students will demonstrate individual responsibility, personal accountability, and professional obligations through the graded assessments (i.e. oral and written reports). In addition, contribution to the field will be recognized in the interpretation and review of statistical analysis in forensic science and the continued contribution to improving statistical modeling in the field.</td>
</tr>
</tbody>
</table>
FRSC 6303 ADVANCED FORENSIC STATISTICS AND MODELING
FALL SEMESTER
CRN TBA

Instructor:
Office:
Phone:
E-mail:
Office hours:

Course Description: This course 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. Prerequisites: Doctoral student status.

Course Objectives: Upon successful completion of this course, the student will have demonstrated a deep understanding of the following:

- Distinguish between multivariate and univariate analyses.
- Explain the process of hypothesis testing and determining statistical significance, using appropriate terminology.
- Evaluate the difference between Type I and Type II errors.
- Discuss the relationship between $\alpha$ (alpha) and $\beta$ (beta).
- Describe what is reported by effect size.
- Describe various techniques for measuring the degree of relationships between variables, including bivariate correlation and regression, multivariate regression, and path analysis.
- Describe various techniques for testing the significance of group differences, including t tests, one-way ANOVAs and ANCOVAs, factorial ANOVAs and ANCOVAs, one-way MANOVAs and MANCOVAs, and factorial MANOVAs and MANCOVAs.
- Describe techniques used to predict group membership, including discriminant analysis and logistic regression.
- Develop research questions, applicable to their respective fields of study, that are appropriate for each statistical technique described.
- Compare and contrast a one-way ANOVA and a factorial ANOVA.
- Effectively test data sets using the appropriate statistic using SPSS.

Transformative Learning Goals: At the University of Central Oklahoma, we are guided by the mission of helping students learn by providing transformative experiences so that they may become productive, creative, ethical and engaged citizens and leaders contributing to the intellectual, cultural, economic and social advancement of the communities they serve. Transformative learning is a holistic process that places students at the center of their own active and reflective learning experiences. A student's major field is central to the learning experience and is a vital part of the "Central Six." This course will cover the central six in the following ways.

Discipline Knowledge: This course focuses on the development of well education doctoral students, by providing the student with the required discipline knowledge in the areas of statistics and advanced statistical modeling in forensic science.

Research, Scholarly and Creative Activities: This course will require students to apply advanced statistical methods and complex statistical modeling to the appropriate data and enable students to interpret the results.
Assignments and Grading:

Your grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Point Values</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Assignments in SPSS x10</td>
<td>(100 pts each)</td>
<td>1000 pts</td>
</tr>
<tr>
<td>Midterm Exam &amp; Final Exam</td>
<td>(100 pts each)</td>
<td>200 pts</td>
</tr>
<tr>
<td>Total</td>
<td>1200 pts</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
</tr>
</tbody>
</table>

Missed Assignments: Missed assignments will be recorded as a zero.

Attendance: You will be expected to attend class and be on time. Attendance will be recorded.

Classroom Policy: Coming to class or exams late, habitually leaving class early, cell-phone use, or creating any disturbance in class is/are not acceptable. Computers will be allowed in the classroom for note-taking purposes only. If you are observed using computers for any other purposes (checking email, etc), you will no longer be allowed to bring them in the classroom. No cell phones or computers are allowed during tests.

Giving of Incompletes (I grades): UCO policy applies, and it is not an option for exiting a poor performance. An “I” will be given only if you have completed the course with the exception of some specific material (such as the final), are passing with the exception of the missing material, and we have met to determine when you will make up the material. An “I” will be converted to an “F” if the student does not follow through and complete the material within the stated time limit.

Registering for Audits: This option not possible for this course.

Accommodations:

ADA Statement regarding special accommodations: "The University of Central Oklahoma complies with Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990. Students with disabilities who need special accommodations must make their requests by contacting the Assistant Director of Disability Support Services, Ms. Kimberly Fields at (405) 974-2516. The DSS Office is located in the Nigh University Center, Room 309. Students should also notify the instructor of special accommodation needs by the end of the first week of class."

UCO Student Information Sheet and Course Concerns or Complaints: The best way to resolve any conflict is through the proper process. You will more likely be able to have your concerns addressed if you work with the instructor. If you cannot resolve your issues with your instructor, then you may proceed according to the guide below.

1. Talk to your instructor first. Make an appointment during his or her office hours to discuss your concern. Be prepared. If your concern is about a grade, be sure to bring in your papers.
2. If you are still unsatisfied, you can talk to the Institute Director (FSI). You can make an appointment by calling (405) 974-6910. Bring any notes or papers that are pertinent, as well as your course syllabus.
3. If you remain unsatisfied after you speak to both your instructor and the Institute Director or Department Chair, you have further options depending on the nature of the concern.

A If your concern deals with a grade issue, the next step involves a formal grade appeal. The procedures are explained in the UCO Catalog.
B. If you remain unsatisfied with something other than a grade, you can consult the UCO
STUDENT INFORMATION SHEET found at http://sites.uco.edu/academic-affairs/files/aa-
forms/StudentInfoSheet.pdf

Please see the UCO Student Information Sheet for UCO policies on Academic Integrity; UCONNECT; D2L;
ADA Statement; Incomplete Grades; Withdrawals From Class; Emergency Individual Class Drop or Complete
Withdrawal; Important Dates; Semester Holidays; Library Hours; Weather Related Information; Emergencies
During Final Exams; Final Exam Daily Limits; Contacting Faculty Members; Class Attendance; Expectations
of Work; Helpful Numbers; Emergency Evacuations and Drills, and other academic and administrative matters.