Course Change Request

New Course Proposal

Date Submitted: 10/05/18 12:13 pm

Viewing: FRSC 461 : Forensic DNA Analysis Laboratory

Last edit: 10/05/18 12:13 pm

Changes proposed by: kcarisi

Programs referencing this course

SC-BS-FRSC: Forensic Science, BS

In Workflow

1. **FRSC Representative**
2. **SC Curriculum Committee**
3. SC Associate Dean
4. Assoc Provost-Undergraduate
5. Registrar-Courses
6. Banner

Approval Path

1. 10/05/18 12:14 pm Emily Rancourt (erancour): Approved for FRSC Representative

Are you completing this form on someone else's behalf?

No

Effective Term: Fall 2019

Subject Code: FRSC - Forensic Science

Course Number: 461

Bundled Courses:

Equivalent Courses:

Catalog Title: Forensic DNA Analysis Laboratory

Banner Title: Forensic DNA Laboratory

Will section titles vary by semester? No

Credits: 1

Schedule Type: Laboratory

Hours of Lab or Studio per week: 3

Repeatable: May only be taken once for credit (NR)

Default Grade Mode: Undergraduate Regular

Recommended Prerequisite(s):

FRSC 460 is required as a prerequisite or can be taken concurrently

Recommended Corequisite(s):

FRSC 460

Required Prerequisite(s) / Corequisite(s) (Updates only):

FRSC 200 Prerequisite

FRSC 201 Prerequisite

BIOL 213 Prerequisite

BIOL 311 Prerequisite

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Catalog Description:

This laboratory course will present the most common serological and DNA laboratory techniques associated with forensic casework as taught in the lecture section of the Forensic DNA Analysis course. Students will have hands-on experience with basic forensic DNA procedures including the examination and

identification of bodily fluid stains, DNA extraction, quantitation, PCR amplification, genotyping, and interpretation.

Justification:

The GMU Forensic Science Undergraduate Program has lacked laboratory courses due to lack of laboratory facilities, therefore with the newly acquired shared DNA laboratory our program can now incorporate laboratory techniques in the curriculum as it relates to Forensic DNA analysis. FRSC 461 Forensic DNA Analysis Laboratory will be a one credit laboratory course which will act as a corequisite and complement the lecture course (FRSC 460 Forensic DNA Analysis). This course will also assist in obtaining the FEPAC accreditation which requires laboratory components within the forensic science curriculum. This course will be a major requirement for all forensic science majors.

Does this course cover material which crosses into another department? No

Learning Outcomes:

Attach Syllabus

FRSC 461 Syllabus-FA19.pdf

Additional Attachments

Staffing:

Kelly Knight

Relationship to Existing Programs:

FRSC 461 Forensic DNA Analysis Laboratory will be a required course for the B.S. in Forensic Science curriculum under the major requirements. There are no other GMU Programs that offer an undergraduate Forensic DNA Laboratory.

Relationship to Existing Courses:

FRSC 461 Forensic DNA Analysis Laboratory will be a co-requisite to the lecture course FRSC 460 Forensic DNA Analysis.

Additional Comments:

Reviewer Comments

Key: 16014

GEORGE MASON UNIVERSITY

FORENSIC DNA ANALYSIS LABORATORY - FRSC 461

Fall 2019

Exploratory Hall L502

Instructor: **Professor Kelly Knight**, Assistant Professor of Forensic Science
Office: **Exploratory Hall Room** 3420 (office hours by appointment)
Email: kknight6@gmu.edu **(**preferred method of contact)
Phone #: 703-993-5478 **(office)**
Text: **Fundamentals of Fore**nsic DNA Typing (2009) by John Butler (required)

Course Description: **This laboratory c**ourse will present the most common serological and DNA laboratory techniques associated with forensic casework as taught in the lecture section of the Forensic DNA Analysis course. Students will have hands-on experience with basic forensic DNA procedures including the examination and identification of bodily fluid stains, DNA extraction, quantitation, PCR amplification, genotyping, and interpretation. The schedule is subject to change based on progress. The instructor will communicate with students throughout the semester via email; every student must check their GMU email frequently.

Course Corequisite: FRSC 460

Course Objectives:

- Development of basic biological and molecular laboratory skills, including proficient use of alternate light sources, micropipettes, centrifuges, microscopes, thermal cyclers, and capillary electrophoresis.
- Ability to understand and perform forensic serological and DNA analysis procedures, draw logical conclusions based on data obtained, and present information in a scientific format.
- An understanding of evidence handling and quality control measures.

Missed Classes: Attendance is MANDATORY at all class meetings. A missed lab could affect all future labs, as some of the exercises are cumulative. Excused absences will only be considered when/if proper documentation of the absence is provided. Make-up labs for excused absences will be at the discretion and availability of the instructor.

Required Materials:

- Laboratory coats, safety goggles, a non-programmable calculator, and closed-toed shoes are required.
- Three-ring binder with at least 12 index dividers
- For the data interpretation section, it is recommended that you bring a laptop computer but it is not required.

Grading & Exam: Pre-lab quizzes, your case file and report, and final exam, will determine your grade in this course. There will be no make-up quizzes or exams unless the student has an excused absence with proper documentation.

- **Pre-lab quizzes:** Each week, a pre-lab quiz will be posted in Blackboard that will assess whether you have read and understood key points in the laboratory procedure concerning setup, handling of chemicals and waste, safety, etc. These quizzes are due before the lab period begins.

- **Laboratory Notebook:** All students must purchase a 3-ring binder. Materials pertaining to each lab session should be stored together including lab protocols. Specific instructions and requirements will be posted on Blackboard.

- **Case file:** Your case file should be a complete narrative of your work on the case. It should contain all chain of custody documents, documentation of all communications, your case notes, all analysis worksheets, and statistical analyses. Specific instructions and requirements will be posted on Blackboard.

- **Lab report:** You will be responsible for generating a final laboratory report for the results of your case. After completing the analysis of the case, you will collate your results and form conclusions based upon the profiles generated from the evidence. Specific instructions and requirements will be posted on Blackboard.

- **Final exam:** A calculator will be allowed during the final. You may used a programmable calculator profided the student can show that there are no programs on the calculator. Students arriving more than 10 minutes late to an exam will not be permitted in the classroom and will not be allowed to take the exam. Once the exam has started, you are not permitted to leave the room until you have turned in your exam so please be sure to use the restroom before class.

Course Evaluation:

- Pre-Lab Quizzes (10%)
- Laboratory Notebook (15%)
- Case File (25%)
- Lab report (25%)
- Final Exam (25%)

100 A+	87-89 B+	77-79 C+	60-69 D
95-99 A	83-86 B	73-76 C	0-59 F
90-94 A-	80-82 B-	70-72 C-	

<u>Late/Makeup Policy:</u>

Makeup participation points will not be given. If you are experiencing extreme circumstances that will prevent you from turning in an assignment on time, you must notify the Professor as soon as possible. For a late submission to be approved without penalty, documentation must be provided to the Professor (i.e. doctor's note). For late submissions that have not been approved, ten percent will be deducted each day an assignment is turned in late. Assignments received more than 5 days after the due date will not be accepted.

UNIVERSITY RESOURCES

GMU Honor Code:
Standards of academic integrity as set forth by the University are strictly observed and rigorously enforced in this class. The complete Honor Code is as follows: *To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the university community, have set forth this honor code:* **Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.**

GMU Email: http://masonlive.gmu.edu
Each student is responsible for activating their GMU email account and checking their account on a regular basis for University and class announcements.

GMU Police Policy: 703-993-2810
If you are currently employed with a law enforcement agency as a sworn officer and would like to carry a firearm on campus and into class, you must contact GMU Police Department as a courtesy.

GMU Students with Disabilities: http://ods.gmu.edu
If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Resources at 703-993-2474. All academic accommodations must be arranged through that office; your instructor is not obligated to make accommodations without documentation from ODS.

Writing Center: http://writingcenter.gmu.edu
For general questions and comments please contact wcenter@gmu.edu or call:
703-993-1200 (Robinson Hall A114, Fairfax Campus)
703-993-1824 (Enterprise Hall 076, Fairfax Campus)
703-993-4491 (Arlington Campus)
703-993-8451 (Prince William Campus)
All appointments are made through the online scheduling system so please do not email or call to schedule appointments. If you would like to cancel an appointment you may do so via the online scheduler, simply select your appointment and click the "Cancel appointment" box at the bottom of the reservation form and then "save.

University Libraries: "Ask a Librarian" http://library.gmu.edu/mudge/IM/IMRef.html
Margaret Lam, Physical Sciences Liaison Librarian; http://infoguides.gmu.edu/forensics
Fenwick Library, A244, 703-993-2212, mlam3@gmu.edu

Counseling and Psychology Services (CAPS): (703) 993-2380; http://caps.gmu.edu

University Policies:
The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies.

GEORGE MASON UNIVERSITY-FORENSIC DNA ANALYSIS LABORATORY – FRSC 461

Week	Topic	Due
1	LAB SAFETY	
2	Review of Equipment Use & Calculations, Sexual Assault Kits, and Evidence Receiving	Pre-Lab Quiz 1
3	Evidence Processing, Alternate Light Sources, Serology Testing for Blood	Pre-Lab Quiz 2
4	Serology Testing for Seminal Fluid	Pre-Lab Quiz 3
5	Serology Testing for Saliva, Urine, and Feces	Pre-Lab Quiz 4
6	DNA Sample Preparation	Pre-Lab Quiz 5
7	DNA Extraction	Pre-Lab Quiz 6
8	DNA Quantitation	Pre-Lab Quiz 7
9	PCR: Multiplex Amplification of STR Loci	Pre-Lab Quiz 8
10	STR Genotyping by Capillary Electrophoresis	Pre-Lab Quiz 9
11	STR Data Analysis and Interpretation	Pre-Lab Quiz 10
12	DNA Statistics	Pre-Lab Quiz 11
13	NO CLASS-THANKSGIVING	
14	Final Case Preparation and Review	
15	**FINAL EXAM**	Case file and report Please bring your lab notebooks as well for grading.

Note: The schedule is subject to change, please listen for announcements during class. Additional reading assignments may be added throughout the semester.