

COURSE APPROVAL/CHANGE DOCUMENT

(See back of form for instructions)

Submit

1. ADDITION REVISION TERMINATION

2. IF REVISION: denote changes (i.e. Title only; Title, CIP and Description; etc.):

Title, Description, Prerequisites, Course Schedule Type

3. COURSE NUMBER FS 552

4. COURSE TITLE Forensic Serology and DNA Analysis

5. IF REVISION: Previous Course No. FS552

Previous Title Crime Laboratory II: Blood and Fluids

6. FOR ADDITIONS AND REVISIONS -
FIRST TERM/YEAR TO BE OFFERED:

Fall Spring Summer Term 2020

7. FOR TERMINATIONS ONLY -
LAST TERM/YEAR TO BE OFFERED:

Fall Spring Summer Term _____

8. COLLEGE: Coll of Sci, Tech, Engr & Math

9. DEPARTMENT NAME: Chemistry & Physics

10. CIP CODE (Classification of Instructional Program / US Bureau of Labor Statistics): 40.0501

11. FIXED CREDIT HOURS: YES NO

2.0 Total Credit Hours

1.0 Lec Contact Hours

2.0 Lab Contact Hours

___ Other Contact Hours

12. VARIABLE CREDIT HOURS: YES NO

___ Min Total Credit Hours ___ Max Total Credit Hours

___ Min Lec Contact Hours ___ Max Lec Contact Hours

___ Min Lab Contact Hours ___ Max Lab Contact Hours

___ Min Other Contact Hours ___ Max Other Contact Hours

13. CAN THIS COURSE BE TAKEN FOR ADDITIONAL CREDIT: YES NO If YES, total number of times course can be taken _____

14. MAXIMUM ENROLLMENT ALLOWED FOR COURSE: 12 Justification of maximum enrollment:

The enrollment is limited by the size of the forensic lab facility, as well as the availability of instruments and equipment needed to run the lab.

15. CLASS SCHEDULE TYPE/ FACULTY WORKLOAD: Choose appropriate schedule type: LB - Lecture/Lab

Faculty Workload: 2.5 Class schedule type justification:

The course involves a one hour lecture and a two hour lab. The workloads for these two components of the course should be 1 for lecture and 1.5 for lab. The lab is an actual hands-on lab for students, not an activity. The faculty member is in charge of prepping the lab each week.

16. COURSE LEVEL: Mixed Undergrad/Graduate

17. GRADE TYPE: Standard Grade

18. DEVELOPMENTAL COURSE: YES NO

19. CROSS-LISTED COURSE:

YES WITH _____ NO

20. SPECIAL COURSE FEE? (Must be Board approved)

YES Amount \$ 15.00 NO

21. Required faculty qualifications to teach this course:

Faculty should have a minimum of a masters degree in chemistry, biology, or forensic science with experience in forensic science, forensic technology, forensic chemistry, especially as it pertains to DNA analysis.

22. UNIVERSITY STUDIES COURSE: YES NO

If yes, please select one general education category:

If yes, please select up to three general education learning goals that reflect the priorities for student learning in the course. Please rank these in priority order, i.e. 1,2,3 by inserting the numbers/rankings into the boxes:

- ___ General Education Learning Goal 1: Ethical Reasoning
- ___ General Education Learning Goal 2: Global Learning
- ___ General Education Learning Goal 3: Information Literacy
- ___ General Education Learning Goal 4: Written Communication
- ___ General Education Learning Goal 5: Oral Communication
- ___ General Education Learning Goal 6: Critical Thinking
- ___ General Education Learning Goal 7: Quantitative Literacy

If the proposed new or revised course is a General Education/University Studies course, please provide a short rationale why this course should be considered as a general education course.

Attach the following:

- a) Class syllabus using the syllabus template. [Syllabus Template Link](#)
- b) Memo from Library Dean assessing available and needed library resources and services.
- c) If applicable, memos from Department Chair(s) in affected department(s) stating support or that issues/conflicts are resolved.

COURSE APPROVAL SIGNATURES

Department Chairperson
Philip W. Crawford
Digitally signed by Philip W. Crawford
Date: 2019.04.05 13:35:48 -05'00'

Educator Preparation Committee

Dean of Kent Library

University Studies Council

College Council
Brad Deken
Digitally signed by Brad Deken
Date: 2019.04.16 16:09:55 -05'00'

Graduate Council

To obtain the next signature, save the pdf to your desktop and then email the form as an attachment to the next individual for signing. When submitting the form, the email must come from your Southeast email account.

Registrar's Office Use Only

SCACRSE _____ Degree Audit _____ Bulletin _____ Degree Map _____ SHATATR _____

TO: Academic Council
FROM: Philip Crawford, Chairperson
Department of Chemistry and Physics

RE: Lab Fees for FS552

DATE: 4/11/2019

A request to implement a \$15 lab fee for FS552 has been sent to the Budget Review Committee. This request is still pending.

FS552
Forensic Serology and DNA Analysis
Spring 2020

- (1) Course Number: FS552
- (2) Course Title: Forensic Serology and DNA Analysis
- (3) Catalog Description: Introduction to biological fluid identification on evidence and the DNA analysis process to obtain a DNA profile. One hour lecture and two hour lab. Prerequisite: BI283 or consent of instructor. (2)
- (4) Prerequisites: BI283 or consent of instructor
- (5) Co-requisites:
- (6) Credit Hours: 2.0
- (7) Semester: Spring 2020
- (8) Class Meeting Time(s), location and format: Lecture R 6:00-6:50 pm, MG228; Laboratory 7:00-8:50 pm, MG235
- (9) Instructor: Kristina Mehl
- (10) Instructor Contact Information:

Office: MO State Hwy Patrol Crime Lab, 122 S. Ellis St.
Phone: 573-290-5130, ext 4510
Email: kmehl@semo.edu OR Kristina.Mehl@mshp.dps.mo.gov
Office Hours: By Appointment
- (11) Concerns: Questions, comments or request regarding this course should be taken to the instructor. Unanswered questions or unresolved issues about this class can be directed to Dr. Philip Crawford.
- (12) Course Learning Outcomes:
 - 1. Students will be able to locate and identify blood and semen stains on evidence.
 - 2. Students will be able to interpret the DNA analysis process.
 - 3. Students will be able to analyze and interpret DNA profiles
 - 4. Students will be able to consider quality assurance, quality control, and expert witness aspects of working in a forensic lab.
- (13) Course-specific Required Materials:
Textbook: Li, R., Forensic Biology, CRC Press Taylor & Francis Group, 2008
Other: Lab coat, safety goggles
- (14) Course Content:

Date	Lecture Topic	Lab Topic/Assignment
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January 23	Evidence Collection and Preservation Introduction to Forensic Serology and Immunology	Lab 1: Touch DNA and Swabbing for DNA Lab Worksheet: Touch DNA and Swabbing for DNA Homework 1: Evidence Collection & Preservation
January 30	Identification of Blood and Species Determination Identification of Semen	Lab 2: Blood Detection and Semen Detection Lab Worksheet: Blood Detection and Semen Detection
February 6	Basic Genetics and Molecular Biology Review Introduction to Curriculum Vitae (CV)	Lab 3: Staining of Sperm Cells Lab Worksheet: Staining of Sperm Cells Homework 2: Rough Draft of CV
February 13	History and Development of Forensic DNA Analysis Introduction to Forensic DNA Laboratory Forensic Science Curriculum Vitae	Homework 3: Introduction to Forensic DNA Homework 4: Final Draft CV
February 20	DNA Extraction and Isolation	Lab 4: DNA Extraction Lab Worksheet: DNA Extraction
February 27	Polymerase Chain Reaction DNA Quantification Methods	Lab 5: DNA Evidence: Clothing (Blood, ALS, Semen) Lab Worksheet: DNA Evidence: Clothing Homework 5: DNA Quantification and Amplification Homework 6: Possible Interview Questions
March 5	Midterm Practical	
March 12	Midterm Exam: Evidence Collection & Preservation - DNA Amplification	
March 19	Spring Break	
March 26	STR and Capillary Electrophoresis DNA Analysis and Interpretation	Lab 6: DNA Interpretation Lab Worksheet: Break down an electropherogram Homework 7: Capillary Electrophoresis Homework 8: Interpretation of STR Data
April 2	Statistics and Population Genetics Report Writing	Lab 7: Allele Frequencies Lab Worksheet: Allele Frequencies Homework 9: Statistical Analysis Homework 10: Report Writing
April 9	Y-STR and Mitochondrial DNA Quality Assurance, Forensic DNA Databases, Legal Aspects of DNA Analysis	Homework 11: Y-STR and Mitochondrial DNA Homework 12: Quality Assurance
April 16	Forensic DNA Analysis Today	Lab 8: CODIS Eligibility and Practical Scenarios

		Lab Worksheet: CODIS Eligibility and Practical Scenarios
April 23	DNA In Action: Real Case Stories	
April 30	Mock Interview	
May 7	Exam: STR and Forensic DNA Analysis Today	
May 14	Final Practical	

(15) Grading Scale and Policies:

Exams

There will be a midterm exam and a final exam. The exams will consist of a practical portion and a written portion. Exam material will be taken from lectures, homework, labs, and journal articles.

The midterm practical will consist of a sample case. The student will work the serology exams needed on the evidence, just as if it was a real case in a forensic lab.

The final practical will consist of a mock trial, where the student will testify to the results of the midterm practical.

Assignments

Homework assignments will be given throughout the semester. The assignment will be due the following class period. No late assignments will be accepted.

Labs and Lab Assignments

Each lab may consist of an assignment/worksheet. The lab worksheet may be filled out during the lab and will be due the following class period. No late assignments will be accepted.

Graduate Students

Graduate Students are required to submit a term paper on a topic relevant to the course. A list of topics will be given, or the student may choose a topic. The student must meet with the instructor to discuss their chosen topic. During the meeting, the instructor will either grant or deny their approval of the topic. The arrangement of the meeting is the student's responsibility.

Deadlines

February 20, 2020: Meeting for topic discussion must occur prior to this date

March 5, 2020: Outline of the paper is due

April 23, 2020: Final draft of the paper is due

Late Assignments

Late assignments will not be accepted.

There will be no make-up labs.

Participation

Participation in the course will be graded.

Absences

If you know you are going to be absent, late, or need to leave early, notify the instructor prior to class. Absences from class will be handled according to university policy:

<https://semo.edu/responsible/redhawks/policies.html>.

Grades

Assignment	Points	
	Graduate Students	Undergraduates
Lab Assignments	225	225
Homework	120	120
Midterm Practical	50	50
Midterm Exam	100	100
Final Exam	100	100
Final Practical	50	50
Term Paper	100	NA
Participation	30	30
Total	775	675

Grading Scale

Graduate Students	Undergraduates
A 90-100	A 90-100
B 80-89	B 80-89
C 70-79	C 70-79
F < 70	D 60-69
	F < 60

(16) Final Exam Schedule:

Final Practical: May 14, 2020, 6 pm, MG228

(17) **Academic Honesty** – Southeast Missouri State University expects all students, faculty and staff to operate in an honest and ethical manner. Academic dishonesty is a very serious offense because it undermines the value of your education and the education of others. Students who engage in academic dishonesty face significant penalties. Forms of academic dishonesty include, but are not limited to, plagiarism, cheating, contract cheating, misrepresentation, and other actions you take. Some of these are defined below:

- Plagiarism means passing off someone else's work as your own, whether it is intentional or unintentional.
- Cheating includes copying from another person or source of information to meet the requirements of a task.
- Contract cheating is paying someone else or a company to do your work.
- Misrepresentation means you are posing as someone else or someone else is posing as you to complete a task.
- Collusion means working with one or more people to cheat. If you help someone cheat or plagiarize you will face the same penalties.

For more information, visit the Responsible Redhawks Code of Conduct <http://www.semo.edu/responsible/redhawks/code-of-conduct.html> or the Faculty Handbook Section (D) on Academic Honesty <http://www.semo.edu/facultysenate/handbook/5d.html>

(18) **Accessibility** – Southeast Missouri State University and Disability Services are committed to making every reasonable educational accommodation for students who identify as people with disabilities. Many services and accommodations which aid a student’s educational experience are available for students with various disabilities. Students are responsible for contacting Disability Services to register and access accommodations. Accommodations are implemented on a case by case basis. For more information, visit <http://www.semo.edu/ds/> or contact Disability Services at 573-651-5927.

(19) **Civility** – Your university experience is purposely designed to introduce you to new ideas, help you think effectively, develop good communication skills, evaluate information successfully, distinguish among values and make sound judgements. Doing this well requires respectful and courteous discussion among and between students and the instructor. Together, we must create a space where we acknowledge and respect others have different experiences, perspectives and points of view. Disagreements are likely. Mutual respect for one another and a willingness to listen are important. Remember, you are responsible for your behavior and actions. There is a no tolerance policy on bullying or harassment of any kind. Additional information on student conduct may be found at: <http://www.semo.edu/pdf/stuconduct-code-conduct.pdf?ver=1.0> and http://www.semo.edu/pdf/Conduct_Faculty_Resource_Guide.pdf

(20) **Mandatory Reporting** – I will keep information you share with me confidential to the best of my ability, but as a professor I am legally required to share information about sexual misconduct and crimes I learn about to make our campus and community safe for everyone.

(21) **Student Success** – This course uses SupportNET, Southeast’s student success network, to improve communication between students, faculty and staff on campus. You’ll get emails through SupportNET with information about resources or concerns. Please read these emails—they are sent to help you succeed! You can access SupportNET through your portal, Moodle or directly at supportnet.semo.edu to see any academic alerts, ask for help and to access resources to support your success at Southeast.

*Definition of ‘blended’ to be added.