Effective 08-18-22

Submissions for the next academic year accepted through November 8.

Application for Core Curriculum Inclusion

Click to enter date of submission.
10/13/2023

TABLE #1	General Information		
Course Title:	FORS 2201 – Introduction to Forensic Science		
Course Description as listed in the current Fairmont State Catalog:	Credit Hours: 4. Lecture/Lab Hours: Students will be involved in 3 hours of lecture/discussion and a 3 hr lab session each week. This course is designed to engage students in the scientific study of collecting and analyzing physical evidence. Students will experience a variety of comparison science procedures to analyze such things as fingerprints, ink, soils, textiles, glass, drugs, tool marks, and ballistics. The culminating experience will engross students in solving a mock crime using techniques learned during the course.		
Prepared by:	Mark Flood		Full-time
Preparer email address:	Mark.flood@fairmontstate.edu		
Course Coordinator:	Mark Flood		Full-time
Course Coordinator email:	Mark.flood@fairmontstate.edu		
Core Curriculum Category & Corresponding Outcome:	Category 7 - Natural Science with Critical Thinking	7. Students will demonstrate proficiency with scientific content and data analysis to address real world problems, and recognize the limitations of the scientific process.	
Enter ALL course outcomes: **Note: If there are multiple outcomes this cell may spread onto another page. If that occurs, move Table #2 (page 7) onto a new page.**	7.1: Students will use the vocabulary of basic principles, facts and theories of forensic and the natural sciences to demonstrate proficiency with scientific content 7.2: Students will demonstrate an understanding of the process and limitations of forensics-based scientific inquiry through lead bullet analysis. 7.3: Students will demonstrate the following skills: analysis; problem solving; quantitative manipulation; data interpretation/evaluation through forensics report writing. 7.4: Students will apply analysis, problem solving, quantitative manipulation, and data interpretation/evaluation of a mock crime scene to solve a mock crime.		
Signature of Appropriate Discipline Faculty	Mark Flood	Forensic Science Program	10/13/2023
Signature of Unit Chair		Unit Name	Click here to enter a date.
Signature of Unit Dean		Click here to choose college or school from drop-down menu.	Click here to enter a date.

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Submissions for the next academic year accepted through November 8.

FORS 2201 – Introduction to Forensic Science
Tentative Syllabus* – Fall 2023

Course Information	
Course Title	Intro to Forensic Science
Course Number	FORS 2201
Course Description	This lecture and lab-based course is designed to engage students in the scientific study of searching and processing crimes scenes as well as the proper collection and analysis of physical evidence. Students will be involved in 3 hours of lecture/discussion and a 3 hr lab session each week. Students will experience a variety of comparison science procedures to analyze such things as ink, soils, textiles, glass, drugs, tool marks, and ballistics. The culminating experience will engross students in solving a mock crime using collection and analysis techniques learned during the course.
Course Objectives	Once this course is complete 7.1: Students will use the vocabulary of basic principles, facts and theories of forensic and the natural sciences to demonstrate proficiency with scientific content 7.2: Students will demonstrate an understanding of the process and limitations of forensics-based scientific inquiry through lead bullet analysis. 7.3: Students will demonstrate the following skills: analysis; problem solving; quantitative manipulation; data interpretation/evaluation through forensics report writing. 7.4: Students will apply analysis, problem solving, quantitative manipulation, and data interpretation/evaluation of a mock crime scene to solve a mock crime.

Textbooks	
Recommended Reading	Criminalistics: An Introduction of Forensic Science Most recent Edition, Richard Saferstein Forensic Science Laboratory Manual and Worksheet 3rd edition by Thomas Kubic and Nicholas Petraco, CRC Press ISBN 978-1-4200-8719-2

Instructors Information				
Name and contact	Mark Flood	117 HHH	Phone:	367-4309
	Kristy Henson	118 HHH		367-4877
E-mail	Please email instructor from within Blackboard			

Course Requirements	
Hardware/Software	You will need to have access to a computer with accurate and reliable internet access,
Additional costs	lab notebook that is 100 page carbonless pages, safety glasses
Other	Your lab notebook and safety glasses are required for entrance into the laboratory each session.

Course Evaluation

Grades will be determined from several sources including: 1) Exams based on lecture and labs performed (50%), 2) weekly assignment sheets and/or formal lab reports (30% of grade), 3) laboratory notebook skills (5% of grade), and 4) a final project that will include a lab practicum component (15%). Grades will be assigned on the typical 90-100 A, 80-89 B, 70-79 C, 60-69 D and anything 59% or less will earn an F.

Additional Grading Notes (PLEASE READ THESE CAREFULLY!)

1) No Extra credit will be accepted, unless specifically assigned by the instructor.

2) Attendance is expected at all laboratories, as no makeup labs are available to anyone!

3) Late assignments receive ½ credit if received with 24 hours of the due date, anything turned in more than 24 hours late with receive a zero, NO EXCEPTIONS!

4) Any student who does not receive a passing grade on the comprehensive final exam in this course will automatically receive a failing grade (F) for the course, regardless of their point total.

Academic Integrity

Fairmont State values highly the integrity of its student scholars. All students and faculty members are urged to share in the responsibility for removing every situation which might permit or encourage academic dishonesty. Cheating in any form, including plagiarism, must be considered a matter of the gravest concern. Cheating is defined here as the obtaining of information during an examination; the unauthorized use of books, notes, or other sources of information prior to or during an examination; the removal of faculty examination materials; the alteration of documents or records; or actions identifiable as occurring with the intent to defraud or use under false pretense.

Plagiarism is defined here as the submission of the ideas, words (written or oral), or artistic productions of another, falsely represented as one's original effort or without giving due credit. Students and faculty should examine proper citation forms to avoid inadvertent plagiarism.

Disability Services

Services are available to any student, full or part-time, who has a need because of a [documented] disability. It is the student's responsibility to register for services with the coordinator of students with disabilities and to provide any necessary documentation to verify a disability or the need for accommodations. **Abby Franks, M.S., CRC** *(She/her/hers)*

Accessibility Services Coordinator

303-O Turley Center

Abigail.Franks@fairmontstate.edu

Access@fairmontstate.edu

Phone: (304) 367-4543

Fax: (304) 367-4584

Attendance

Students are expected to attend regularly the class and laboratory session of courses in which they are registered. Regular attendance is necessary to the successful completion of a course of study and is an integral part of a student's educational experience. Due to the preparation time required, make up laboratories are not possible. If you miss a laboratory session you will not receive the points associated with that session.

Copyright Notice

Material presented in this course may be protected by copyright law.

Content of course subject to change

* The content of this course is subject to change, which will be made via announcements in class and/or in writing in Blackboard.

FSU Academic policies

Please review the FSU policies at Institutional Syllabus Statements including

- Social Justice Statement:

"Fairmont State University is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran's status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise and make appropriate arrangements with the Office of Accessibility Services (304) 367-4543

- COVID-19 Provisions:

Following guidance from the CDC as well as State and Local Officials, Fairmont State reserves the right to determine method of delivery of class content, and modify classroom configuration to comply with COVID-19 safety guidance. The University also reserves the

right to institute mandatory safety protocols including requiring students to wear masks at all times while in the classrooms.

Course Outline

Week	Week of	Lecture topics	Lab activity
1	Aug 21	Introduction/History/(Chapters 1 and 2)	Lab introduction to prepare for mock crime scene next week!!
2	Aug 28	Crime Scene (Chapters 2)	Crime Scene Sketching/Photography (Pence Hall)
3	Sep 04	Physical Evidence (Chapter 3)	WV State Police Forensic Lab tour
4	Sep 11	Metric system/Glass and soil evidence (Chapter 4) **EXAM SEP 13**	Glass analysis (lab report)
5	Sep 18	Elements and compounds/Organic Analysis (Chapter 5)	Soil analysis (lab worksheet
6	Sep 25	Inorganic Analysis (Chapter 6) Fingerprints (Chapter 14)	Paper and Thin Layer Chromatography (lab report)
7	Oct 02	Drugs (Chapter 9) **EXAM OCT 06**	Fingerprinting (lab worksheet)
8	Oct 09	Ballistics (Chapter 15)	Drug testing (lab worksheet)
9	Oct 16	Ballistics (Chapter 15)	Ballistics (lab worksheet)
10	Oct 23	Tool marks and other impressions (chapter 15) and serial number restoration	Casting for evidence (toolmarks and impression) (lab report)
11	Oct 30	The microscope/hair fiber and paint (chapters 7 and 8) **EXAM NOV 03**	Textile analysis (lab worksheet)

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12	Nov 06	The microscope/hair fiber and paint (chapters 7 and 8) Arson and explosives (Ch 11)	Collect mock scene evidence (Pence Hall)
13	Nov 13	Document and voice examination (Chapter 16)	Processing evidence
	Nov 20	No classes – Thanksgiving break	
14	Nov 27	Computer Forensics (Chapters 17 and 18)	Finish final report from mock crime scene
15	**Dec 06**	**COMPREHENSIVE FINAL EXAM at 8:00am**	

Information Required for Creating Assessment Plan in Watermark

- Complete one copy of Table #2 for each course outcome which addresses the Core Curriculum category outcome.
- Copy Table #2 to create a separate table for additional course outcomes as many times as needed. Place only one table per page.
- Cells expand.

Table #2	Course Outcome Information
Course Outcome:	Outcome 1: Students will use the vocabulary of basic principles, facts and theories of forensic and the natural sciences to demonstrate proficiency with scientific content
Method to Measure Course Outcome	Direct - Exam
Details/ Description:	Students will take 4 exams that will test their knowledge with multiple choice and short answer questions
Satisfactory Performance Standard (based on rubric):	70% or higher class average on the second
Ideal Target (based on rubric):	90% or higher class average on the second.
Implementation Plan (timeline):	Once this course is accepted into the core curriculum, assessment will begin in the spring of 2025 after this class is taught for the first time as part of the core curriculum
Key/Responsible Personnel:	Mark Flood
Supporting Attachments: **These attachments are to be placed immediately after the associated Table #2 in the proposal.**	*Attachment 1:* Example of example exam. *Attachment 2:* Type here to enter description. *Attachment 3:* Type here to enter description.

Name_____

FORS 2201 – INTRO TO FORENSICS

Exam#2

Please read all questions and all answers carefully. If you have any difficulty understanding what the question is please ask immediately! Good luck!!

Multiple choice – circle the single best answer for each question (2 points each)

1. The basic building blocks of all substances are

A. Neutrons B. Proteins C. Electrons D. Elements E. Molecules

2. A mixture's components can be **separated** by the technique of _____.

A. Chromatography B. Spectrophotometry C. Microspectrometry

D. Microscopic analysis E. X-ray diffraction

3. The distance a spot has traveled up a thin-layer plate divided by the distance traveled by the moving liquid phase can be used to calculate a value called the _____

A. Rf value B. GC value C. MS value D. Retention time E. Wavelength

4. The amount of radiation a substance will absorb is directly proportional to its concentration as defined by _____ law.

A. Beer's B. Flood's C. Planck's D. Boyle's E. Fourier's

5. The _____ is an instrument used to measure and record the emission spectrum of a chemical substance.

A. Microscope B. Spectrometer C. Chromometer

D. Neutron Activation Analyzer E. Monochromator

6. The technique of _____ exposes molecules to a beam of high energy electrons in order to fragment them.

A. HPLC B. GC C. MS D. NAA E. AAS

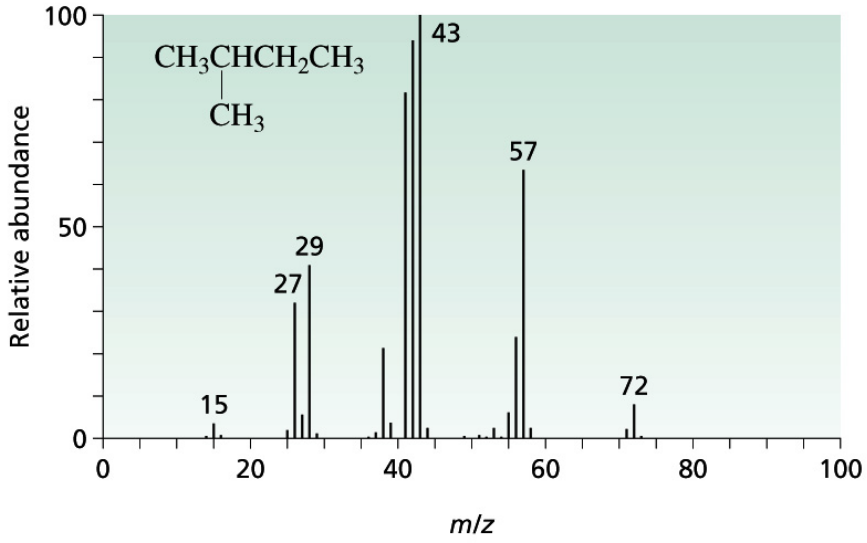
7. As X-rays are reflected off a material's surface, they form a series of light and dark bands know as a(n)

A. Refraction pattern B. Reflected pattern C. Resorption pattern

D. Emission pattern E. Diffraction pattern

8. The _____ is an instrument used to obtain and record the line spectrum of elements.

A. Emission spectrograph
B. Neutron Activation Analyzer
C. Atomic Absorption Spectrometer
D. Microspectrophotometer
E. X-ray diffraction



9. The output above most likely came from a(n)

A. HPLC B. GC C. MS D. NAA E. AAS

10. The technique of bombarding specimens with neutrons and measuring the resultant gamma ray emissions is known as

A. HPLC B. GC C. MS D. NAA E. AAS

11. Fingerprints are a reproduction of _____ that originate from the _____.

A. Skin friction ridges, AFIS database
B. Deltas, dermal papillae
C. AFIS database, dermal papillae
D. Dermal papillae, skin friction ridges
E. Skin friction ridges, dermal papillae

12. Fingerprint impressions that are not readily visible are called

A. Lonely B. Invincible C. Latent D. Bifurcated E. Convergent

13. The three general patterns into which fingerprints are divided are

A. Arch, loop, and bump B. Whorl, loop, and bump C. Arch, bump, and rock

D. Loop, whorl, and arch E. None of the above are correct

14. CBD (cannabidiol) is used to treat epilepsy and is typically extracted from

A. Glo-fish B.HempC. Tobacco D. Earthworms E. T-rex toenails

15. The least addictive AND least toxic of the following "drugs" is

A. Cocaine B. MethC. Marijuana D. Nicotine E. Heroin

16. The emission spectrograph is used to determine the:

a. Mass of a substance b. Weight of a substance c. Crystalline structure of a substance

d. Elemental composition of a substance e. All of the above

17. If you are using cyanoacrylate, ninhydrin, and silver nitrate reagents, then you are most likely testing for

A. Presence of semen B. Presence of blood C. Plastic fingerprints

D. Latent fingerprints E. Toolmarks

18. Heroin is a chemical derivative of:

a. Morphine b. Barbituric acid c. Codeine d. Methadone e. Amphetamine

19. Narcotics are analgesics that typically fall in which category?

A. Stimulants B. Hallucinogens C. Depressants D. Club drugs E. Uppers

20. Pyrolysis gas chromatography is a particularly valuable technique for characterizing paint's

A. Binder B. ResinC. Pigments D. Basecoat E. Clearcoat

21. Emission spectroscopy can be used to identify the _____ components of paint's pigments.

A. Inorganic B. Organic C. Alliterative D. Clearcoat E. Basecoat

22. The main chemical in marijuana that has hallucinogenic properties is

A. CBD B. RGB C. ABC D. THC E. ABO

23. Latent fingerprints on non-porous surfaces are most often developed by _____ at the crime scene.

A. Ninhydrin B. Iodine fuming C.Luminol D. Dusting with fingerprint powder

E. Just taking random pictures with a heat sensitive camera

24. A key to any detailed analysis of evidence is to try to obtain _____ results, not just _____ ones.

A. Quantitative, qualitative B. Qualitative, quantitative

C. Analytical, quantitative D. Quantitative, analytical

E. Subjective, objective

25. Marijuana is considered to be a:

a. Depressant b. Stimulant c. Narcotic d. Hallucinogen e. Tranquilizer

26. Drugs deemed to have the lowest potential for abuse with having a current medical use are listed in which schedule of the Controlled Substances Act?

a. I b. II c. III d. IV e. V

27. The first person to write a book about the statistics of fingerprints was

A. Bertillion B. Vucetich C. Flood D. Galton E. Darwin

28. A compound can tentatively be identified by gas chromatography from its:

a. Carrier gas b. Rf value c. Partition coefficient

d. Retention time e. Peak height

29. A single most specific test for identification of a forensic sample is:

a. Infrared spectrophotometry b. Ultraviolet spectrophotometry

c. Gas chromatography d. Thin-layer chromatography e. Density-gradient tubes

30. The recorder of a spectrophotometer can be used to measure the:

a. Rf value of light b. Retention time of light c. Speed of light

d. Absorption of light at specific frequencies e. Refractive index of light

31. The database system for fingerprint comparisons is called

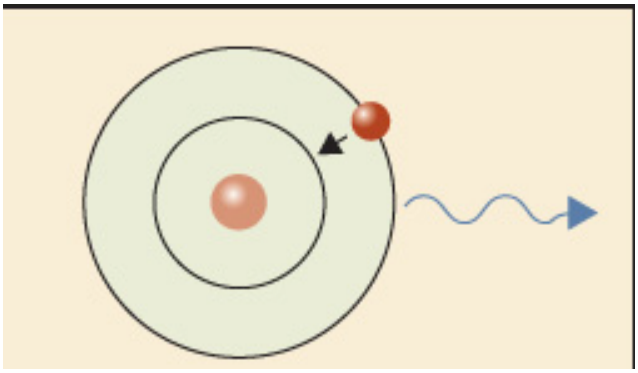
A. CODIS B. AFIS C. NIBIN D. Solemate E. ABO

32. The first person to use fingerprinting principles to solve a criminal case in Argentina was

A. Bertillion B. Vucetich C. Flood D. Galton E. Darwin

33. The type of relationship between frequency and wavelength of radiation sources is

A. Direct B. Almost direct C. Inverse D. None E. Really creepy



34. The process of _____is shown in the picture above

A. Absorption B. Emission C. X-ray diffraction D. Sublimation E. Wavy gravy

35. Using the 3 pictures below and assuming they came from the right hand, classify each of the fingerprints below as specifically as possible. (6 points)

A. _____ B. _____ C. _____

36. List 5 ridge characteristics (minutiae) that are commonly used as points of reference in fingerprinting cases. (5 points)

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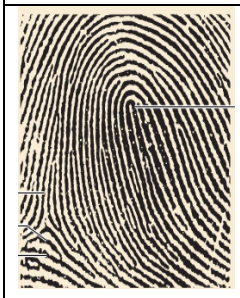
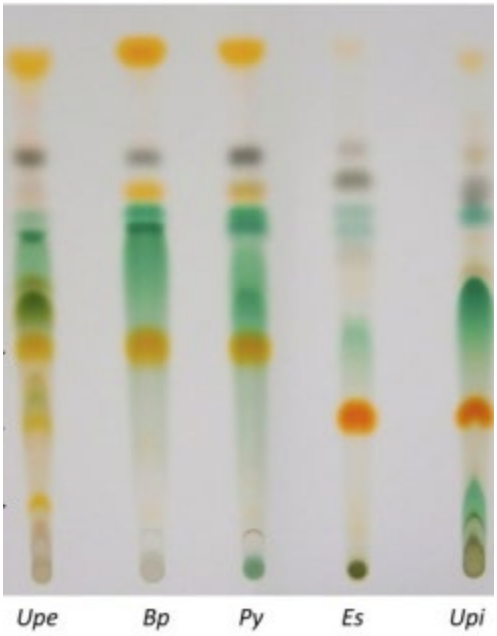
37. Given the following equation and the information below for Bailey's fingerprints, determine the primary classification of this fingerprint set using the Henry method. Show your work for maximum points (6 points)

$$(Ri + Rr + Lt + Lm + Lp) + 1/(Rt + Rm + Rp + Li + Lr) + 1$$

Right thumb	Right index	Right middle	Right ring	Right little
				

Left thumb	Left index	Left middle	Left ring	Left little
				

Using the picture below, answer the following 2 questions:



38. What type of analysis technique is shown in the picture? (The samples moved from the bottom of the picture to the top) (4 points)

39. Do any of the 5 samples appear to share a common origin? Provide detailed analysis to prove or disprove the common origin of these two samples, especially pointing to things on the picture. (4 points)

Given the picture below, answer the following 2 questions:

40. What molecule type is being analyzed? The samples ran from top to bottom of the picture (4 points)

41. Do any of the 5 suspects (A,B,C,D or E) have a common origin with the sample that was found at the crime scene? Briefly explain your answer, and point to things on the picture to help prove your point. (4 points)

Size standard	A	B	C	D	E	Crime scene

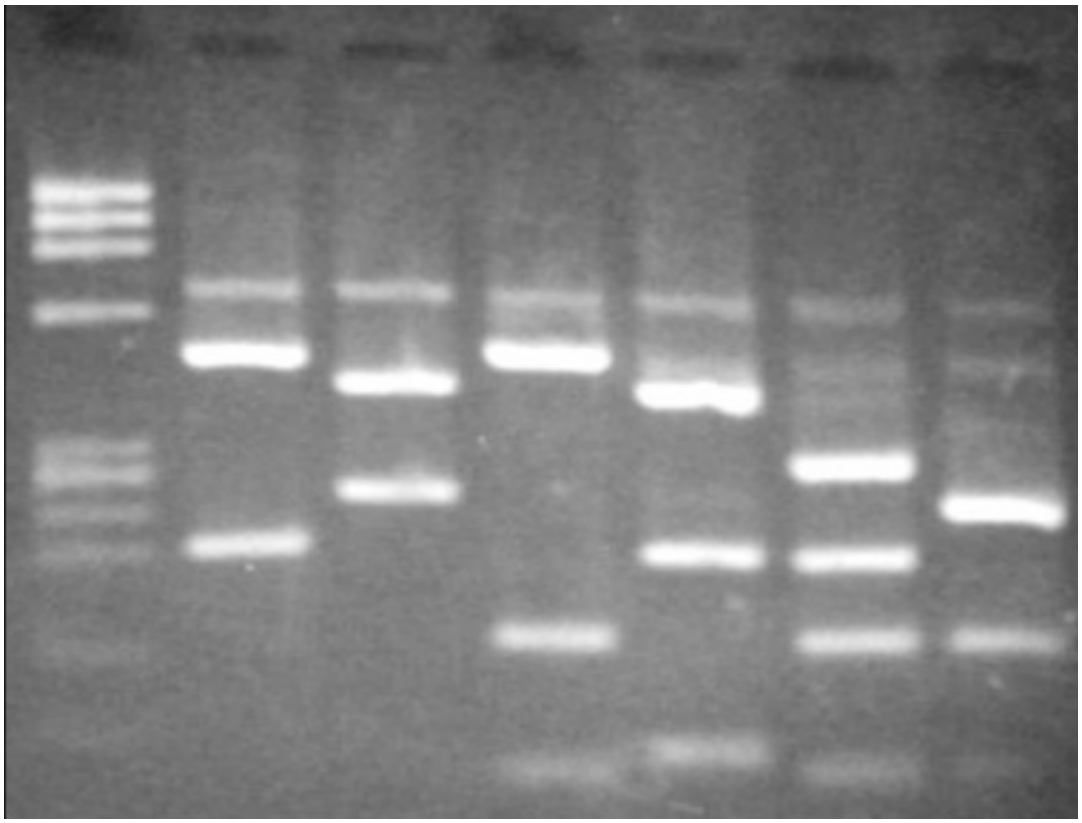


Table #2	Course Outcome Information
Course Outcome:	Outcome 2: Students will demonstrate an understanding of the process and limitations of forensics-based scientific inquiry through lead bullet analysis.
Method to Measure Course Outcome	Direct - Exam
Details/ Description:	Students will watch a video about lead bullet analysis, a technique that was used by the FBI, but is no longer utilized in forensic science because the science has been invalidated. Students will then take a quiz pertaining to the topic of lead bullet analysis.
Satisfactory Performance Standard (based on rubric):	70% or higher class average on the quiz
Ideal Target (based on rubric):	90% or higher class average on the quiz.
Implementation Plan (timeline):	Once this course is accepted into the core curriculum, assessment will begin in the spring of 2025 after this class is taught for the first time as part of the core curriculum
Key/Responsible Personnel:	Mark Flood
Supporting Attachments: **These attachments are to be placed immediately after the associated Table #2 in the proposal.**	*Attachment 1:* Type here to enter description. *Attachment 2:* Type here to enter description. *Attachment 3:* Type here to enter description.

Lead bullet analysis assignment:

Watch a segment of the "60 minutes" television show called evidence of injustice using the link below. Watch that segment and take thorough notes related to the content. Complete the quiz related to content covered in that segment.

https://www.cbs.com/shows/60_minutes/video/855826614/evidence-of-injustice/

Quiz: 10 points (only last question will be used for assessment purposes)

1. Explain the ballistic technique mentioned in the video. (1 point)
2. Compare and contrast this technique to the techniques we discussed in lecture. (1 point)
3. List 3 reasons this technique became invalid. (2 points)
4. Discuss how the scientific process is limited in the topic of lead bullet analysis (5 points)
    - Briefly list and describe 1 aspect of how the process of science is limited in a paragraph or less = 1 point
    - Briefly list and describe 2 aspects of how the process of science is limited in a paragraph or less = 2 points
    - Provide 2 or more paragraphs that demonstrate the limitations of science by describing multiple limitations of this invalidated technique = 5 points

Table #2	Course Outcome Information
Course Outcome:	Outcome 3: Students will demonstrate the following skills: analysis; problem solving; quantitative manipulation; data interpretation/evaluation through forensics report writing.
Method to Measure Course Outcome	Direct - Student Artifact
Details/ Description:	Students will write lab reports on at least 2 forensic science topics covered during the semester. Assessment with data analysis will be made from the results and discussion sections of the final lab report of the semester.
Satisfactory Performance Standard (based on rubric):	70% or higher class average on the final lab report discussion and results sections of the semester
Ideal Target (based on rubric):	80% or higher class average on the final lab report discussion and results sections of the semester
Implementation Plan (timeline):	Once this course is accepted into the core curriculum, assessment will begin in the spring of 2025 after this class is taught for the first time as part of the core curriculum
Key/Responsible Personnel:	Mark Flood
Supporting Attachments: **These attachments are to be placed immediately after the associated Table #2 in the proposal.**	*Attachment 1:* Example of lab report grading rubric. *Attachment 2:* Type here to enter description. *Attachment 3:* Type here to enter description.

Outcome 2 assignment:

Students will write lab reports on at least 2 forensic science topics covered during the semester.

Students are given the rubric ahead of time, and are expected to grade a mock lab report to get an experience with what the expectations are for the grading of their assignments.

An example of a lab procedure provided is shown below:

Glass analysis

This experiment will allow you to determine the density of some glass samples. And the pattern of glass fracture lines in panes of glass. By this means you will attempt to establish the possibility of two glass fragments having a common origin, and determine the direction of a projectile through a window as well as the sequence.

The density of objects is determined by measurement of the mass, volume, or loss of weight in water of the object, and then applying a mathematical relationship to arrive at a value for this property. The method for the determination of volume used in this exercise is based on a physics relationship known as Archimedes's principle. This principle states that. an object immersed in a fluid displaces a volume of fluid equal to its volume. For example, a 1cm cube of glass placed in water will "push aside" 1 cubic centimeter of water. Another statement of this principle is: an object immersed in a fluid (water in this instance) is buoyed up by a force equal to the weight of the displaced fluid. In other words, if we assume that a 1em cube of glass weighs about 2.5 g while a 1em cube of water weighs 1g, when the glass cube is placed in water it will weigh 2.5 g minus 1g, or 1.5 g. Since 1cubic centimeter of water is equal to 1g of water, we now have the volume of the glass.

Procedure #1 - Density determination

DENSITY MEASUREMENTS- ELECTRONIC BALANCE

1. Obtain a balance, a piece of fine string, a 250 mL beaker, a ring stand, a ruler, and a piece of known glass. Measure the thickness of your glass fragment in cm.

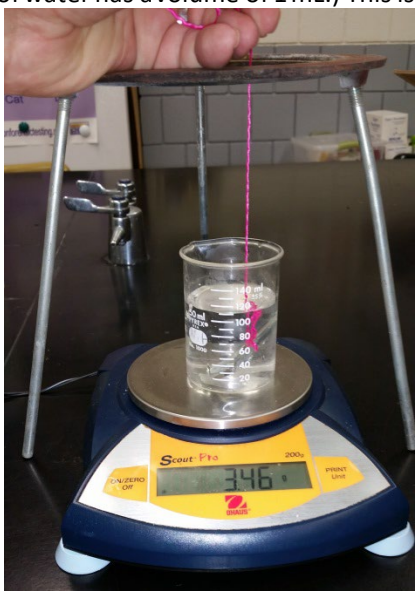
2. Zero the balance.

3. Weigh the glass fragment in air to the nearest 0.01 g and record this value.

4. Add the ring stand over the balance. Place a 250 mL beaker partially filled with water on the balance. Zero the balance again

5. Tie a string around the glass fragment.

6. Weigh the glass fragment suspended in water to the nearest 0.01 g and record this value. Convert this value to milliliters. (Recall that 1g of water has a volume of 1 mL.) This is the volume of the glass sample.



7. The density of the glass fragment is determined by the following relationship:

$$\text{Density of object} = \frac{\text{mass of object in the air (g)}}{\text{volume of the glass sample (mL)}}$$

8. *Repeat this process for the other known glass fragments you have been given and also for the "unknown" glass fragments. Record all data in your lab notebook and also give your impression as to whether the "unknown" glass has any potential for being of common origin to any of the known samples*

Primary Trait Scoring Scale RUBRIC For FORS 2201
Results and Discussion

Results Rubric

7 - Student (1) selects quantifiable experimental factors and/or defines and establishes quantitative units of comparison; (2) measures the quantifiable factors and/or units in appropriate quantities or intervals; (3) student selects appropriate statistical information to be utilized in the results; (4) student displays results in graphs with correctly labeled axes; (5) data are presented to the reader in text as well as graphic form; (6) tables or graphs have self-contained legends underneath them.

5 – Contains all the expected elements of the results section except tables or graphs do not contain appropriate legends, or axes on graphs are inappropriately labeled.

3 – Contains all the expected elements of the results section except the data reported in graphs or tables contain materials that are irrelevant and/or not statistically appropriate.

2 – Contains all the expected elements of the results section except it either lacks data represented in a graph or table where appropriate, **or** lacks a thorough written description of the results.

0 - Student does not select, collect, and/or communicate quantifiable results.

Discussion Rubric

10 - Clearly (1) explains expected results, how the data collected compares to the expected results, and offers explanations and/or suggestions for further research for unexpected results; (2) draws inferences that are consistent with the data and scientific reasoning and relates these to interested audiences (3) relates data to the scientific literature (where this was used in criminal cases, for example); (4) identifies at least 4 major sources of error in the experiment; (5) summarizes the purpose and the findings of the research; and (6) student accepts or rejects the hypothesis.

7 – Lacks in one of the critical elements of the discussion section.

5 – Lacks in two of the critical elements of the discussion section.

2 – Lacks in three or more of the critical elements of the discussion section.

0 – Nothing beneficial can be gleaned by the reader of this section.

Table #2	Course Outcome Information
Course Outcome:	Outcome 4: Students will apply analysis, problem solving, quantitative manipulation, and data interpretation/evaluation of a mock crime scene to solve a mock crime.
Method to Measure Course Outcome	Direct - Student Artifact

Details/ Description:	Students will report on a mock crime scene investigation and submit a written report that summarizes all the techniques used during the mock crime scene investigation and evidence testing phases of the class. They also will be assessed on the ability to critically analyze the information they obtain to help solve the mock crime.
Satisfactory Performance Standard (based on rubric):	70% or higher class average on the final report
Ideal Target (based on rubric):	90% or higher class average on the final report.
Implementation Plan (timeline):	Once this course is accepted into the core curriculum, assessment will begin in the spring of 2025 after this class is taught for the first time as part of the core curriculum
Key/Responsible Personnel:	Mark Flood
Supporting Attachments: **These attachments are to be placed immediately after the associated Table #2 in the proposal.**	*Attachment 1:* Grading rubric for final project assessment *Attachment 2:* Type here to enter description. *Attachment 3:* Type here to enter description.

Students will submit a written report that summarizes all the techniques used during the mock crime scene investigation and evidence testing phases of the class. They also will be assessed on the ability to critically analyze the information they obtain to help solve the mock crime.

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An example of a scenario from fall 2023:

Case Number: 2023-2201-01

Investigating Officers:

Jack Black and Barney Fife

FAIRMONT CITY POLICE DEPARTMENT

CRIME SCENE REPORT

Case Number: 2023-2201-01

Location: Room #_____ Pence Hall, 1201 Locust Avenue, Fairmont, WV

Search and Investigation:

Detective Fife was first to arrive on the scene and could not find the pulse on the victim and called EMS. The EMS arrived and checked the body. Kay Scarpetta, the medical examiner, pronounced the time of death for the victim, John "Blue" Berry, at approximately 03:55 hrs on Tuesday, November 7, 2023. Offices investigating the crime took some witness statements, and have some follow up statements that have been taken since that time. A gun was found by Detective Black, removed from the kitchen floor, checked for additional cartridges inside the gun, and bagged by Detective Fife. No fingerprints were found on the gun. The wife, Amanda "Huckle" Berry, and young daughter, Bluetooth "Holly" Berry, were in the home at the time of the shooting. The crime scene has been secured awaiting the arrival of the investigative team. The body has been left in place for the investigative team, and will be taken to United Hospital Center for pathological analysis.

-Two 911 calls documented:

-First call from immediate neighbor made at 02:32; female caller; identified herself as Fedora Hall

-Second call made from victims residence made at 02:45; female caller; identified herself as Amanda "Huckle" Berry and wife of victim, also present in the household, was victim and caller's daughter

Intro to Forensic Science – FORS 2201

Final mock crime write-up (50 points)

Things to include in your write-up

1) Explanation and photographs of evidence collected at crime scene and tests performed on each item of evidence (if applicable) (7 points)

7 points - A (1) thorough explanation of why that particular evidence was collected and (2) detailed pictures taken with the typical crime scene rules properly followed. In addition, an (3) explanation of why the test types were selected for that particular evidence.

4 points – Missing one of the 3 main items mentioned above

1 point – Missing 2 of the 3 main items mentioned above

0 points – None of the 3 main items mentioned above are successfully completed

2) Detailed description of procedures used to process evidence (include precautions taken to ensure accuracy of results, and precautions to prevent contamination) (7 points)

7 points – Provides detailed description of methods such that others could repeat the processing steps taken (written at a level that FORS 2201 students should be able to understand). Precautions taken are described and appropriate for the evidence being processed

4 points – Precautions are not described and/or are not appropriate for the type of evidence, but procedures are described in detailed so that they could be repeated.

2 points – Methods are summarized in a way so that they could not be repeated but precautions described are detailed and appropriate.

0 points – Procedures are not described in enough detail and precautions are not described and/or appropriate.

3) Results obtained from evidence processing in written, photographic, and data (data tables and/or graphical) form where appropriate. Discussing common origin in this section is NOT appropriate! (10 points)

10 points – Results are described in great detail and are appropriately documented in photographic and data forms

6 points – Results are briefly reported with appropriate documentation in photographic and/or data. OR describing common origin in this section.

4 points – Results are described in great detail in written form, but lack appropriate photographic or data to support.

2 points – Photographic documentation of evidence is appropriate but results are not described in written form in an appropriate level of detail and data tables or graphs are not utilized.

0 points – Lacking in professionalism in completion of the photo documentation as well as written summary of results.

4) Discussion of significance of results obtained to the case. Discussing common origin in this section IS appropriate! (10 points)

10 points – Provides a (1) thorough and detailed examination of the evidence in the relationship to the case, including whether the common origin comparison for pieces of evidence is at a level of class or individual evidence level. Discussion is accurate for the evidence being described.

6 points – Discussion may have some inaccuracies but it thorough and detailed.

3 points – Discussion is accurate but not thorough and detailed

0 points – Discussion is inaccurate and lacks thorough and detailed analysis of results obtained

5) What 2 pieces of additional evidence would you have like to have processed? Briefly provide a rationale for each piece of evidence. (4 points)

4 points – The 2 pieces of evidence are appropriate to the case and might have provided more insight into the final outcome of the case. A good rationale is made for each item

2 points – 1 of the items is not appropriate and/or helpful OR a good rationale is not provided

0 points – Neither item is appropriate and/or helpful OR no rationale is provided

6) What 2 additional tests would you have liked to perform on the evidence collected at the crime scene (limited to tests performed in lab this semester)? Briefly provide a rationale for each test. (4 points)

4 points – The 2 pieces of test are appropriate to the case and might have provided more insight into the final outcome of the case. A good rationale is made for each item

2 points – 1 of the tests is not appropriate and/or helpful OR a good rationale is not provided

0 points – Neither test is appropriate and/or helpful OR no rationale is provided

7) Based on the evidence you processed:
    a. What do you believe happened? (4 points)

4 points – Description of potential events must be believable in terms of where the evidence was found and the results of the testing. There should be a description of any limitations or "holes in the case" to the potential scenario of the crime

2 points – Description may not include limitations or have some small inaccuracies

0 points – Scenario is not believable based on the evidence in the case

    b. Who should be taken into custody and potentially taken to trial? What should they be charged with based on the evidence found and results obtained? (4 points)

4 points – Description of the person or persons must be based on accurate information regarding the case. If there is any doubt to person's guilt, then this should also be presented. If multiple people should be charged with different crimes or different levels of crimes then describe this.

2 points – Person or persons are potentially not charged with the appropriate crimes or appropriate level of crimes.

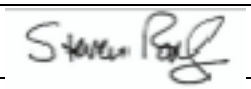
0 points – The person or persons mentioned are not likely to be convicted based on the actual evidence in this case.

Effective 08-18-22

Submissions for the next academic year accepted through November 8.

Application for Core Curriculum Inclusion

Click to enter date of submission.
11/8/2023

TABLE #1	General Information		
Course Title:	STEM 1100		
Course Description as listed in the current Fairmont State Catalog:	STEM 1100 – STEM FIRST-YEAR SEMINAR (1 cr.) Students will gain the knowledge and tools needed to achieve STEM academic success and participate in personal growth activities that help them to develop the qualities of a college-educated person. Additionally, students will develop strong connections with STEM faculty, staff, and other STEM students who will walk with them throughout their college career. Requires a grade of "C" or higher (students who earn a D or F in STEM FIRST-YEAR SEMINAR must repeat the course). General Education Requirement Satisfied: First Year Seminar		
Prepared by:	Robert Niichel		Full-time
Preparer email address:	rniichel@fairmontstate.edu		
Course Coordinator:	Abby Chapman		Full-time
Course Coordinator email:	Abby.Chapman@fairmontstate.edu		
Core Curriculum Category & Corresponding Outcome:	Category 1 - First Year Seminar	1. Student will apply academic tools, utilize campus resources, and actively participate in order to successfully transition into and through the first year of college.	
Enter ALL course outcomes: **Note: If there are multiple outcomes this cell may spread onto another page. If that occurs, move Table #2 (page 7) onto a new page.**	Outcome 1: Students will apply academic tools to their personal college experience. Outcome 2: Students will use campus resources to solve challenges they face. Outcome 3: Students will actively participate in class activities.		
Signature of Appropriate Discipline Faculty			Click here to enter a date.
Signature of Unit Chair	See Attached	Computer Science and Math Engineering Technology Natural Sciences	Click here to enter a date.
Signature of Unit Dean		College of Science & Technology	Click here to enter a date.

Information Required for Creating Assessment Plan in Watermark

- Complete one copy of Table #2 for each course outcome which addresses the Core Curriculum category outcome.
- Copy Table #2 to create a separate table for additional course outcomes as many times as needed. Place only one table per page.
- Cells expand.

Table #2	**Course Outcome Information**
Course Outcome:	Students will apply academic tools to their personal college experience.
Method to Measure Course Outcome	Direct - Student Artifact
Details/ Description:	Students will produce an academic pathway/plan using electronic campus tools like Digital Measures or the course catalog. Students will also submit a brief description of what resources they used to develop the plan
Satisfactory Performance Standard (based on rubric):	Average score of 14 or better using the attached Academic Plan Assessment Rubric
Ideal Target (based on rubric):	Average score of 16 or better using the attached Academic Plan Assessment Rubric
Implementation Plan (timeline):	This outcome will be assessed whenever the course is taught
Key/Responsible Personnel:	Abby Chapman
Supporting Attachments: **These attachments are to be placed immediately after the associated Table #2 in the proposal.**	*Attachment 1:* Academic Plan Assessment Rubric *Attachment 2:* Type here to enter description. *Attachment 3:* Type here to enter description.

Outcome 1, Attachment #1: Academic plan assessment rubric

Dimension	Needs improvement (1pt)	Average (3pts)	Excellent (5pts)
Completeness	Academic plan is incomplete	Academic plan is complete, but some classes are missing	Academic plan is complete
Accuracy	Academic plan has some significant errors	Academic plan has some errors	Academic plan is accurate
Presentation of Information	The plan is difficult to read and understand	The plan is mostly comprehensible, but some things are confusing	The plan is neat, organized, and easy to interpret
Use of technology	The project is handwritten and/or electronic tools were not used to produce the final result	The project exists in electronic form and adequate technological tools were used	The project exists in electronic form and multiple electronic sources were used

-

Table #2	Course Outcome Information
Course Outcome:	Students will learn how to use campus resources to solve challenges they face.
Method to Measure Course Outcome	Direct - Exam
Details/ Description:	Students will complete a scavenger hunt activity during class time. The following week, students will take a quiz on campus resources (see attached)
Satisfactory Performance Standard (based on rubric):	Average score of 8/10 or better
Ideal Target (based on rubric):	Average score of 9/10 or better
Implementation Plan (timeline):	This outcome will be assessed whenever the course is taught
Key/Responsible Personnel:	Abby Chapman
Supporting Attachments: **These attachments are to be placed immediately after the associated Table #2 in the proposal.**	*Attachment 1:* Assessment quiz. *Attachment 2:* Type here to enter description. *Attachment 3:* Type here to enter description.

Outcome 2, Attachment #1: Campus resources quiz

Note: questions are subject to change depending on campus resources and feedback from professors/students.

1. What is the name of your current academic advisor?
2. What building is their office located in? Bonus: What is their office number?
3. You are having trouble with your math homework. What resource(s) on campus can provide you with free tutoring?
4. Where is your answer for question #3 located?
5. Your friend just broke up with their boyfriend/girlfriend. They seem to be having a rough time dealing with it. Although you want to help them, their issues seem like more than you are equipped to deal with. What resource on campus would be in the best position to help them?
6. Where is your answer for question #5 located?
7. You need a resume for your first job applications. You feel like you don't really have anything to put on it. Where should you go on campus to help you think through your experiences and build your best resume?
8. Where is your answer to question #7 located?
9. What building is Financial Aid located in?
10. Where (building and floor) are the offices of Information Technology (IT)?

Table #2	Course Outcome Information
Course Outcome:	Students will actively participate in class activities.
Method to Measure Course Outcome	Direct - Other
Details/ Description:	Students will complete a group presentation on a STEM topic that interests them. Students and professor will then complete an assessment of each of their group members
Satisfactory Performance Standard (based on rubric):	The average student's score will be 18/25 or better (see attached Group Member Assessment Rubric)
Ideal Target (based on rubric):	The average student's score will be 21/25 or better (see attached Group Member Assessment Rubric)
Implementation Plan (timeline):	This outcome will be assessed whenever the course is taught
Key/Responsible Personnel:	Abby Chapman
Supporting Attachments: **These attachments are to be placed immediately after the associated Table #2 in the proposal.**	*Attachment 1:* Group presentation Rubric *Attachment 2:* Type here to enter description. *Attachment 3:* Type here to enter description.

Outcome 3, Attachment #1: Group Member Assessment Rubric

Dimension/Task	Needs Improvement (1 pt.)	Average/Acceptable (3pts.)	Excellent (5 pts)
Individual Participation within Group	My teammate rarely or never contributed to the group project or activities	My teammate contributed to the group project and activities most of the time	My teammate always contributed to the group project and activities
Respect	My teammate rarely or never encouraged nor supported the ideas and efforts of other team members	My teammate usually encouraged and supported the ideas and efforts of other team members	My teammate always encouraged and supported the ideas and efforts of other team members
Sharing	My teammate rarely or never offered their ideas and/or findings to the group	My teammate offered their ideas and findings to the group most of the time	My teammate always offered their ideas and findings with the other team members.
Cooperation	My teammate rarely or never offered to help other group members	My teammate offered to help other group members most of the time	My teammate offered to help other group members throughout the project
Organization and Presentation	My teammate is disorganized and offered little to completing the final project	My teammate works in partnership with others to organize materials and the final project	My teammate leads the group in organizing the information and producing the final projects.

Teammate name_____ Points: _____+_____+_____+_____+_____=_____

Teammate name_____ Points: _____+_____+_____+_____+_____=_____

Teammate name_____ Points: _____+_____+_____+_____+_____=_____

Fairmont State University
STEM 1100
STEM SOAR
Master Syllabus
2023-2024
Section and Semester*

Instructor Name and Title:
Phone:
E-mail:
Office Location:
Office Hours:
Classroom Location:

Course Description

Students will gain the knowledge and tools needed to achieve STEM academic success and participate in personal growth activities that help them to develop the qualities of a college-educated person. Additionally, students will develop strong connections with STEM faculty, staff, and other STEM students who will walk with them throughout their college career.

Course Delivery*

[Instructors may add notes about course delivery.]

Course Map/Connecting Learning Outcomes and Assessments

By the end of the course…

Course Learning Outcomes	Assessments/ Assignments
Students will apply academic tools to their personal college experience.	Students will produce an academic pathway/plan using electronic campus tools like Digital Measures or the course catalog. Students will also submit a brief description of what resources they used to develop the plan. Assessed using Academic Plan Rubric
Students will learn how to use campus resources to solve challenges they face.	Students will complete a scavenger hunt activity during class time. The

	following week, students will take a quiz on campus resources.
Students will actively participate in class activities.	Students will complete a group presentation on a STEM topic that interests them. Students and professor will then complete an assessment of each of their group members.

Evaluation and Grading Scale [*Suggestion*]

Final course grades will be determined as follows:

Attendance and Participation:	33%
Assignments:	33%
Group Project:	24%
Final Activity:	10%

Students must receive a final grade of "C" or better to receive Core Curriculum credit.

Course Policies and Guidelines [*added by instructors*]

[Include any course or university policies that students need to be aware of. This is where you set expectations for student behavior as learners and as people. It is strongly suggested to include policies regarding academic integrity and late submission. Other policies may include student conduct, incomplete grades, withdrawal without penalty, confidentiality, or course communication. Sample policy categories and language are below.]

Academic Support and Resources

Standard Syllabus Statements

https://www.fairmontstate.edu/academicaffairs/syllabus-statements

Learning Enrichment and Academic Development Center

https://www.fairmontstate.edu/academics/lead-center

Minimum Technology Requirements

https://wvnet.softchalkcloud.com/lesson/serve/Y2ncKLQFmJ18C0/html

Student Policies

https://wvnet.softchalkcloud.com/lesson/serve/WCqoipmRAUxltj/html

Course Outcomes:

Outcome 1: Students will apply academic tools to their personal college experience.

Outcome 2: Students will use campus resources to solve challenges they face.

Outcome 3: Students will actively participate in class activities.

Course Topics

1. Basic college skills (5 weeks)
    a. Getting ready for a course
        i. Syllabus
        ii. Blackboard
        iii. Academic policies overview
        iv. Understanding academic barriers
    b. Time Management—using planners and calendars
    c. Test-taking
        i. General test-taking skills
        ii. Math-specific tips and advice
    d. Library and LEAD Center
    e. Campus Resources
2. Intermediate skills for succeeding as a STEM student (5 weeks)
    a. Metacognition: how to think about how you think
    b. My STEM Story—draft
    c. Finding and reading STEM articles
    d. Note-taking skills
    e. Academic pathways—planning for your future as a STEM major
    f. Using Microsoft Excel and Office
3. Building a sense of STEM professionalism (4 weeks + Final exam period)
    a. Group project—presentation on a STEM topic of interest
    b. Metacognition—personal experiences
    c. My STEM story—end-of-semester version
    d. Peer mentoring—getting help from your fellow students
    e. Team-building activities

Niichel, Robert

From: Schoonmaker, Lori
Sent: Monday, October 30, 2023 11:09 AM
To: Niichel, Robert; Matthews, James
Cc: Ross, Susan; Hemler, Deb; Henson, Kristy; Chapman, Abby; Flood, Mark; Cook, Rachel; Roof, Steven
Subject: RE: Course Prefix

Thank you—

Once the curriculum proposal is submitted and approved, I will build the course prefix.

Please let me know if you have any questions. Sincerely,

Lori Schoonmaker, M.A.
Registrar / PDSO / ARO

FAIRMONT STATE UNIVERSITY

1201 Locust Avenue
Fairmont, WV 26554
(304) 367-4141
FAX: (304) 367-4789

From: Niichel, Robert <Robert.Niichel@fairmontstate.edu>
Sent: Monday, October 30, 2023 11:07 AM
To: Schoonmaker, Lori <Lori.Schoonmaker@fairmontstate.edu>; Matthews, James <jmatthews1@fairmontstate.edu>
Cc: Ross, Susan <Susan.Ross@fairmontstate.edu>; Hemler, Deb <Deb.Hemler@fairmontstate.edu>; Henson, Kristy <Kristy.Henson@fairmontstate.edu>; Chapman, Abby <Abby.Chapman@fairmontstate.edu>; Flood, Mark <Mark.Flood@fairmontstate.edu>; Cook, Rachel <rcook11@fairmontstate.edu>; Roof, Steven <Steven.Roof@fairmontstate.edu>
Subject: RE: Course Prefix

Lori,

After discussing the matter, we would like it to go under Natural Sciences.

Thank you!

Niichel, Robert

From: Hemler, Deb
Sent: Monday, November 6, 2023 10:37 AM
To: Niichel, Robert
Subject: RE: STEM SOAR Course

We approved… so sorry, thought I emailed you… it was a pretty hectic week. deb

---

From: Niichel, Robert <Robert.Niichel@fairmontstate.edu>
Sent: Monday, November 6, 2023 10:36 AM
To: Hemler, Deb <Deb.Hemler@fairmontstate.edu>; Hossain, Mahmood <Mahmood.Hossain@fairmontstate.edu>; Shanmugam, Ragavanantham <Ragavanantham.Shanmugam@fairmontstate.edu>
Cc: Roof, Steven <Steven.Roof@fairmontstate.edu>
Subject: STEM SOAR Course

Dear All,

I need to submit the STEM SOAR application on November 8. Would you all please let me know if your departments approved or not?

Thank you very much!

Bob

Niichel, Robert

From: Hossain, Mahmood
Sent: Tuesday, November 7, 2023 6:40 AM
To: Niichel, Robert
Cc: Hemler, Deb; Shanmugam, Ragavanantham; Roof, Steven
Subject: Re: STEM SOAR Course

The CSM departement approved it.

Mahmood Hossain, Ph.D.
Chair, Department of Computer Science and Math
Professor of Computer Science
Fairmont State University
302A Engineering Tech Building
1201 Locust Avenue
Fairmont, WV 26554
Voice: (304) 367-4967

> On Nov 6, 2023, at 10:35 AM, Niichel, Robert <Robert.Niichel@fairmontstate.edu> wrote:
>
> Dear All,
>
> I need to submit the STEM SOAR application on November 8. Would you all please let me know if your departments approved or not?
>
> Thank you very much!
>
> Bob

Niichel, Robert

From: Shanmugam, Ragavanantham
Sent: Tuesday, November 7, 2023 2:12 PM
To: Hossain, Mahmood; Niichel, Robert
Cc: Hemler, Deb; Roof, Steven
Subject: Re: STEM SOAR Course

The ET dept is also approving it

Ragavanantham Shanmugam (Raggs), PhD.,
Department Chair & Associate Professor
Department of Engineering Technology
College of Science & Technology
Fairmont State University
Fairmont, WV-26554
Mob: +1 505-409-0663
Linkedin Google Scholar ResearchGate Dr.Raggs.com

" If you want to build a great team, create an environment where someone can raise their hand and say "I disagree" without any fear of victimization or termination"

FAIRMONT STATE UNIVERSITY™

From: Hossain, Mahmood <Mahmood.Hossain@fairmontstate.edu>
Sent: Tuesday, November 7, 2023 6:39 AM
To: Niichel, Robert <Robert.Niichel@fairmontstate.edu>
Cc: Hemler, Deb <Deb.Hemler@fairmontstate.edu>; Shanmugam, Ragavanantham <Ragavanantham.Shanmugam@fairmontstate.edu>; Roof, Steven <Steven.Roof@fairmontstate.edu>
Subject: Re: STEM SOAR Course

The CSM departement approved it.

Mahmood Hossain, Ph.D.
Chair, Department of Computer Science and Math
Professor of Computer Science
Fairmont State University
302A Engineering Tech Building
1201 Locust Avenue
Fairmont, WV 26554
Voice: (304) 367-4967

On Nov 6, 2023, at 10:35 AM, Niichel, Robert <Robert.Niichel@fairmontstate.edu> wrote:

Fairmont State University
STEM 1100
STEM SOAR
Master Syllabus
2023-2024
Section and Semester*

Instructor Name and Title:
Phone:
E-mail:
Office Location:
Office Hours:
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