FAIRMONT STATE UNIVERSITY™

Office of the Provost
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MEMORANDUM

TO: Faculty Senate

FROM: Dr. Susan Ross

DATE: February 4, 2019

SUBJECT: Curriculum Proposal #18-19-03 REV #1
Science and Technology/Natural Science/Biology

I recommend approval of the attached Curriculum Proposal #18-19-03 REV #1. This proposal adds a new elective (Cell Biology, BIOL 3395) to the Biology major. It supports students following pre-professional and graduate school tracks.

cc: Richard Harvey
Steve Roof
Phil Yeager
Laura Ransom
Cheri Gonzalez
Lori Schoonmaker

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number: _____

School/Department/Program: Science and Technology, Natural Science, Biology

Preparer/Contact Person: Phil Yeager

Telephone Extension: 4168

Date Originally Submitted: 17 Sep 18

Revision (Indicate date and label it Revision #1, #2, etc.): Revision #1, 13 Nov 18

Implementation Date Requested: Fall 2019

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.
   a. **This proposal adds a new elective (Cell Biology, BIOL 3395) to the Biology major. It supports students following pre-professional and graduate school tracks**

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)
   a. N/A

Total hours 0 deleted.

B. Addition of course(s) or credit(s) from program(s)
   a. Cell Biology, Elective

Total hours 0 added.

C. Provision for interchangeable use of course(s) with program(s)
    a. N/A

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.
    a. N/A

E. Other changes to existing courses such as changes to title, course number, and elective or required status.
    a. N/A

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.
    1. BIOL 3395 (See Registrar's approval Appendix E)
       Cell Biology
       4 credit hrs
       Prerequisites: BIOL 1106, CHEM 2200
       Ownership FSU
       Elective

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.
   Appendix B

3. Include, as an appendix, a detailed course outline consisting of at least two levels.
   Appendix C

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.
   Appendix D

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).
   a. Biology program (major and minor) will have one more elective.
   Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.
   a. There is no effect of the course addition.

RATIONALE FOR THE PROPOSAL.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.
   a. **ETS, Biology scores in Cell Biology in 2017 averaged 52.7, with 4 students above the national average and 9 students, or 69%, below the national average. Similar findingS are seen over the past 10 years. The need for the Cell Biology course is seen in the 2017 student exit survey (our first). In this survey 6 out of 10 responses noted the need for a Cell Biology course. Currently students needing this course must take it through another university.**

      Approximately 80% of students in the current freshman class indicate they are pre-professional majors, and this trend has been true over the past 10, or more, years. Of the students we have tracked over the past 5 years, 34% indicate they have been enrolled in either graduate or pre-professional schools. In the 2017 exit survey of Biology students 50% indicated they were going to graduate school.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

a. **As seen from the above data, standardized test scores and student demand both indicate the need for the proposed course. The Cell Biology will not increase costs to the Biology program as it is an elective in rotation and instructors are already in place to teach the course. Activities developed for this course are in-house using free materials.**

III. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

a. N/A

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature

IV. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

N/A

V. ADDITIONAL COMMENTS.

APPENDIX A

B.S. Degree in Biology

Current Program

Required Major Courses			HRS
BIOL	1105	BIOLOGICAL PRINCIPLES I	4
BIOL	1106	BIOLOGICAL PRINCIPLES I	4
BIOL	2202	GENERAL BOTANY	4
BIOL	2203	GENERAL ZOOLOGY	4
BIOL	3306	FUNDAMENTALS OF ECOLOGY	4
BIOL	3368	ANIMAL PHYSIOLOGY **OR**	4

BIOL	3370	PLANT PHYSIOLOGY	4	
BIOL	3380	GENETICS	4	
BIOL	3390	MOLECULAR BIOTECHNOLOGY	4	
BIOL	4485	SENIOR SEMINAR	2	
CHEM	1105	CHEMICAL PRINCIPLES	5	
CHEM	2200	FOUNDATIONS IN BIOCHEMISTRY	4	
CHEM	2201	ORGANIC CHEMISTRY I	4	
CHEM	2202	ORGANIC CHEMISTRY II	4	
			4	
TOTAL Required Major Courses				51
Major Electives				12
BIOL	2224	MICROBIOLOGY		
BIOL	3312	ADVANCED BOTANY		
BIOL	3315	INVERTEBRATE BIOLOGY		
BIOL	3316	VERTEBRATE BIOLOGY		
BIOL	3330	AQUATIC ECOLOGY		
BIOL	3331	TERRESTRIAL ECOLOGY		
BIOL	3360	BIOCHEMISTRY		
BIOL	4420	DEVELOPMENTAL BIOLOGY		
Minor Requirements/Electives (if minor is required)				
TOTAL HOURS FOR MAJOR (and minor if required)				**63**

Required General Studies Courses		
Attribute IA – Critical Analysis		3
	ENGL 2220	
Attribute IB – Quantitative Literacy		3
	MATH 1185 or MATH 2501 (PR for BIOL 3390)	
Attribute IC – Written Communication		
	ENGL 1101	3
Attribute ID - Teamwork		
	COMM 2200	
Attribute IE – Information Literacy		X
	ENGL 1102	
Attribute IF – Technology Literacy		3
	TECH 1100	
Attribute IG – Oral Communication		3
	COMM 2200	
Attribute III - Citizenship		3
	POLI 1100	
Attribute IV - Ethics		3
	ENGL 2220	
Attribute V - Health		3

	PHED 1100	
Attribute VI - Interdisciplinary		3
	POLI 1100	
Attribute VIIA - Arts		X
	INTR 1120	
Attribute VIIB - Humanities		3
	INTR 1120	
Attribute VIIC – Social Sciences		X
	GEOG 2210	
Attribute VIID - Natural Science		X
	CHEM 1105	
Attribute VIII – Cultural Awareness		3
	GEOG 2210	
TOTAL GENERAL STUDIES HOURS		**30**
TOTAL FREE ELECTIVES		**27**
TOTAL HOURS		**120**

APPENDIX A
B.S. Degree in Biology
Proposed Program

Required Major Courses			**HRS**
BIOL	1105	BIOLOGICAL PRINCIPLES I	4
BIOL	1106	BIOLOGICAL PRINCIPLES I	4
BIOL	2208	GENERAL BOTANY	4
BIOL	2203	GENERAL ZOOLOGY	4
BIOL	3306	FUNDAMENTALS OF ECOLOGY	4
BIOL	3368	ANIMAL PHYSIOLOGY **OR**	4
BIOL	3370	PLANT PHYSIOLOGY	4
BIOL	3380	GENETICS	4
BIOL	3390	MOLECULAR BIOTECHNOLOGY	4
BIOL	4485	SENIOR SEMINAR	2
CHEM	1105	CHEMICAL PRINCIPLES I	5
CHEM	2200	FOUNDATIONS IN BIOCHEMISTRY	4
CHEM	2201	ORGANIC CHEMISTRY I	4
CHEM	2202	ORGANIC CHEMISTRY II	4
TOTAL Required Major Courses			51
Major Electives			12
BIOL	2224	MICROBIOLOGY	4
BIOL	3312	ADVANCED BOTANY	4
BIOL	3315	INVERTEBRATE BIOLOGY	4
BIOL	3316	VERTEBRATE BIOLOGY	4
BIOL	3330	AQUATIC ECOLOGY	4
BIOL	3331	TERRESTRIAL ECOLOGY	4
BIOL	3360	BIOCHEMISTRY	4
BIOL	4420	Cell Biology	4
BIOL	3395	DEVELOPMENTAL BIOLOGY	4
Minor Requirements/Electives (if minor is required)			
TOTAL HOURS FOR MAJOR (and minor if required)			**63**

Required General Studies Courses		
Attribute IA – Critical Analysis		3
	ENGL 2220	
Attribute IB – Quantitative Literacy		3
	MATH 1185 or MATH 2501 (PR for BIOL 3390)	
Attribute IC – Written Communication		
	ENGL 1101	

Attribute ID - Teamwork	
COMM 2200	
Attribute IE – Information Literacy	X
ENGL 1102	
Attribute IF – Technology Literacy	3
TECH 1100	
Attribute IG – Oral Communication	3
COMM 2200	
Attribute III - Citizenship	3
POLI 1100	
Attribute IV - Ethics	3
ENGL 2220	
Attribute V - Health	3
PHED 1100	
Attribute VI - Interdisciplinary	3
POLI 1100	
Attribute VIIA - Arts	X
INTR 1120	
Attribute VIIB - Humanities	3
INTR 1120	
Attribute VIIC – Social Sciences	X
GEOG 2210	
Attribute VIID - Natural Science	X
CHEM 1105	
Attribute VIII – Cultural Awareness	3
GEOG 2210	
TOTAL GENERAL STUDIES HOURS	**30**
TOTAL FREE ELECTIVES	**27**
TOTAL HOURS	**120**

APPENDIX B

Cell Biology course description

Cell Biology is an upper level biology course designed for students in pre-professional and graduate school tracks. This course focuses on the biology of eukaryotic cells: structure, function, bioenergetics, enzymes, cell membranes and organelles; transport across membranes, chemotrophic energy metabolism, receptors, and the endomembrane system. It consists of three one-hour lectures and one single activity per week. Prerequisites: BIOL 1106 and CHEM 2200.

APPENDIX C
Course Outline

001 Preview of Cell Biology
- a) Chapter Objectives
  - i) Explain the cell theory and how the modern field of cell biology emerged from this theory.
  - ii) Investigate the experimental techniques and model organisms used to study cell biology.
  - iii) Apply metric system
  - iv) Recognize the difference between resolution and magnification
  - v) Apply the scientific method to areas of scientific inquiry.
- b) Assessment
  - i) Clicker questions
  - ii) Written Exam

004 Cells and Organelles
- a) Chapter Objectives
  - i) Recount the general properties common to all cells, how these properties likely evolved from primitive cells, and the properties that distinguish eukaryotes, prokaryotes, and archea from each other.
  - ii) Explain the basic structure and function of the major organelles within a typical eukaryotic cell.
- b) Assessment
  - i) Clicker questions
  - ii) Activity, Surface to Volume
  - iii) Written exam

005 Bioenergetics: The Flow of Energy in the Cell
- a) Chapter Objectives
  - i) Describe the importance of energy to the cell and how the energy flows through the biosphere.
  - ii) Use the laws of thermodynamics to calculate different bioenergetic values relevant to cell biology (i.e. entropy, enthalpy, free energy, and the equilibrium constant).
- b) Assessment
  - i) Clicker questions
  - ii) Activity, Photosynthesis lab 2 and problem set
  - iii) Written exam

006 Enzymes the Catalysts of Life
- a) Chapter Objectives
  - i) Summarize the relationship of activation energy to cellular chemistry, and how enzymes (including ribozymes) are able to catalyze chemical reactions.
  - ii) Calculate the important parameters of enzyme kinetics (i.e. Vmax and Km) using the principles of the Michaelis-Menten equation.
  - iii) Distinguish the diverse ways that enzymatic activity is regulated.
- b) Assessment
  - i) Clicker questions

ii) Activity, Bioenergetics Problem set
iii) Written exam

007 Membranes: Structure, Function, and Chemistry

a) Chapter Objectives
   i) Differentiate the five functional roles that biologic membranes play in the biology of the cell.
   ii) Investigate how the fluid mosaic model provides the basis for the structure of cellular membranes.
   iii) Draw the structure of a lipid and explain how the structure allows a lipid bilayer to spontaneously assemble in an aqueous environment
   iv) Explain the importance of membrane lipid and protein component structural asymmetries in membrane function.
   v) Describe the process by which membranes grow, are turned over, or are absorbed
b) Assessment
   i) Clicker Questions
   ii) Activity, Enzyme lab and problem set
   iii) Written exam

008 Transport Across Membranes: Overcoming the Permeability Barrier

a) Chapter Objectives
   i) Compare and contrast the three transport processes used by the cell to move solutes across membranes- simple diffusion, facilitated diffusion, and active transport.
   ii) Calculate the change in free energy (delta G) for the transport of uncharged or charged solutes across membranes.
   iii) Given a set of molecules of differing solubility in water, predict their relative rates of diffusion across a membrane bilayer.
b) Assessment
   i) Clicker questions
   ii) Activity, Diffusion, Osmosis and Active Transport, Concord Consortium
   iii) Written exam

009 Chemotrophic Energy Metabolism: Glycolysis and Fermentation

a) Chapter Objectives
   i) Use the laws of thermodynamics to calculate different bioenergetic values relevant to cell biology (i.e. entropy, enthalpy, free energy, and the equilibrium constant).
   ii) Classify metabolic pathways as either anabolic (i.e. gluconeogenesis) or catabolic (i.e. chemotrophic energy metabolism).
   iii) Investigate the structure and function of ATP as a universal energy coupler.
   iv) Analyze the role of glycolytic enzymes in the process and regulation of glycolysis (using both classical and alternative substrates), fermentation, and other novel roles.
b) Assessment
   i) Clicker questions
   ii) Activity, Diffusion, Osmosis and Active Transport, Concord Consortium
   iii) Written exam

010 Chemotrophic Energy Metabolism: Aerobic Respiration

a) Chapter Objectives

i) Dissect the process of aerobic respiration in mitochondria through the steps of glycolysis, pyruvate oxidation, the TCA cycle, electron transport, proton pumping, and ATP synthesis.
ii) List the types of energy used by cells and give examples of when / in what cells / situations the different energy sources are used
iii) Explain why energy transformations are necessary in the cell
iv) Explain how cyanide, an electron transport chain inhibitor, impacts oxygen consumption within animal cells

b) Assessment
i) Clicker questions
ii) Activity, Chicago Murders: A Case Study in Cellular Respiration
iii) Written exam

012 The Endomembrane System

a) Chapter Objectives
i) Describe the structure and function of each component of the endomembrane system including the endoplasmic reticulum, the Golgi complex, endosomes, lysosomes, and vacuoles (in plant cells).
ii) Examine the role of peroxisomes in eukaryotic cell function.

b) Assessment
i) Clicker Questions
ii) Activity, Structure and function of cell organelles
iii) Written exam

013 Cytoskeletal System

a) Chapter Objectives
i) Distinguish the properties and activities of the three major cytoskeletal components- microtubules, microfilaments, and intermediate filaments.
ii) Differentiate intracellular microtubule-based movement via motor proteins (kinesin and dynein) from microtubule-based motility via cellular appendages (cilia and flagella)

b) Assessment
i) Clicker questions
ii) Structure and function of cell organelles (continued)
iii) Written exam

014 Cellular Movement: Motility and Contractility

a) Chapter Objectives
i) Differentiate intracellular microtubule-based movement via motor proteins (kinesin and dynein) from microtubule-based motility via cellular appendages (cilia and flagella)
ii) Interrogate the role of myosin in actin-based cell movement in both muscle and non-muscle cells.

b) Assessment
i) Clicker questions
ii) Cell Movement
iii) Written exam

015 Beyond the Cell: Cell Adhesions, Cell Junctions, and Extracellular Structures

a) Chapter Objectives

i) Specify the mechanisms whereby cells associate with each other through cell adhesion and cell-cell junctions.
ii) Compare the composition and function of the extracellular matrix of the animal cell to the plant cell surface.

b) Assessment
i) Clicker questions
ii) Activity, I-cell-MATRIX
iii) Written exam

022 Signal Transduction Mechanisms: I, Electrical and Synaptic Signaling in Neurons

a) Chapter Objectives
i) Calculate membrane potential based on ion concentrations using either the Nernst or Goldman equations.
ii) Describe the structure of the neuron and how it is able to transmit the action potential in response to stimuli.
iii) Explain the mechanism used by nerve cells to communicate with each other and deliver signals via synapses (either electrical or chemical).

b) Assessment
i) Clicker Questions
ii) Activity, Signal Transduction in cells
iii) Written exam

023 Signal Transduction Mechanisms: II. Messengers and Receptors

a) Chapter Objectives
i) Summarize the general flow of information used in cell signaling pathways.
ii) Compare and contrast the three main types of receptor-mediated signal transduction pathways used in intercellular communication- G protein-linked receptors, protein kinase-associated receptors, and hormone receptors.
iii) Investigate the role of calcium in cell signaling processes.

b) Assessment
i) Clicker Questions
ii) Activity, Signal Transduction in cells (continued)
iii) Written exam

024 The Cell Cycle and Mitosis

a) Chapter Objectives
i) List the phases of the cell cycle, what occurs in each phase, and how each is regulated.
ii) Investigate the signals that control cell fate (cell proliferation versus apoptosis).
iii) Compare different methods used to coordinate cell division in different cell types.

b) Assessment
i) Clicker questions
ii) Activity, Cell Cycle
iii) Written exam

Appendix D
Outcome Competencies and Methods of Assessment

1) Outcome: Discuss the structure and function of a eukaryotic cell.
   a) Details/Description:
      i) Satisfactory Performance Standard: 70% of participants receive a 70% or better
      ii) Ideal Target: 100% of participants receive 70% or better
      iii) Implementation Plan: TBD
      iv) Key/Responsible Personnel: Phil Yeager
      v) Supporting Attachments:
         (1) Surface area to volume ratio and its importance in cell.
         (2) Photosynthesis lab and problem set
         (3) Bioenergetics problem set
         (4) Cell movement

2) Outcome: Demonstrate the ability to think critically and employ critical thinking skills.
   a) Details/Description:
      i) Satisfactory Performance Standard: 70% of participants receive a 70% or better
      ii) Ideal Target: 100% of participants receive 70% or better
      iii) Implementation Plan: TBD
      iv) Key/Responsible Personnel: Phil Yeager
      v) Supporting Attachments:
         (1) Who would win a “cage match” between the following, and why? “Scorpion vs. Mouse: A Tale of Venom and Action Potentials”
         (2) *“*Caught Red-Handed: Hemoglobin, Carbon Monoxide, and a Butcher’s Knife”
         (3) “How to Make ATP: Three Classic Experiments in Biology

3) Outcome: Evaluate and analyze figures and data.
   a) Details/Description:
      i) Satisfactory Performance Standard: 70% of participants receive a 70% or better
      ii) Ideal Target: 100% of participants receive 70% or better
      iii) Implementation Plan: TBD
      iv) Key/Responsible Personnel: Phil Yeager
      v) Supporting Attachments:
         (1) Enzyme Lab and Problem Set
         (2) Cellular Respiration
         (3) Surface area to volume ratio and its importance in cell

4) Outcome: Illustrate connections between cell biology and concepts across scientific disciplines.
   a) Details/Description:
      i) Satisfactory Performance Standard: 70% of participants receive a 70% or better
      ii) Ideal Target: 100% of participants receive 70% or better
      iii) Implementation Plan: TBD

iv) Key/Responsible Personnel: Phil Yeager
v) Supporting Attachments:
   (1) Chicago Cyanide Murders: A Case Study in Cellular Respiration
   (2) Diffusion, Osmosis and Active Transport
   (3) The Campus Coffee Shop
   (4) Caffeine Conundrums

Appendix E
Course Number Approval

From: Gonzalez, Cheri
To: Yeager, Phillip
Cc: Roof, Steven; Flood, Mark
Subject: RE: Request for conformation of Course Number availability
Date: Wednesday, September 12, 2018 1:57:09 PM

I apologize for my delayed response. BIOL 3395 is approved to be used.
Thank you
Cheri

Cheri L. Gonzalez
University Registrar
Fairmont State University
304-367-4112
Cheri.Gonzalez@fairmontstate.edu

FAIRMONT STATE UNIVERSITY™

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MEMORANDUM

TO: Faculty Senate

FROM: Dr. Susan Ross

DATE: February 4, 2019

SUBJECT: Curriculum Proposal #18-19-05 REV #1
Science and Technology/BCG/Biology

I recommend approval of the attached Curriculum Proposal #18-19-05 REV #1. This proposal adds two new electives, BIOL3301 and BIOL3302, to the biology degree (B.S.). The Biology program lacks the ability to offer 2-semester human anatomy and physiology courses which are prerequisites for students interested in professional schools for Physical Therapy, Occupational Therapy, Physician's Assistant, and strongly recommended for students pursuing medical school. The addition of these courses will improve the ability of students to meet requirements for professional schools without forcing students to attend alternate institutions.

cc: Richard Harvey
Steve Roof
Stephen Rice
Kristy Henson
Laura Ransom
Cheri Gonzalez
Lori Schoonmaker

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number:	#18-19-05
School/Department/Program:	Science and Technology/BCG/Biology
Preparer/Contact Person:	Stephen Rice & Kristy Henson
Telephone Extension:	x4946 / x4877
Date Originally Submitted:	10-22-2018
Revision (Indicate date and label it Revision #1, #2, etc.):	Rev #1:
Implementation Date Requested:	Fall 2019

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

This proposal adds two new electives, BIOL3301 and BIOL3302, to the biology degree (B.S.). The Biology program lacks the ability to offer 2-semester human anatomy and physiology courses which are prerequisites for students interested in professional schools for Physical Therapy, Occupational Therapy, Physician's Assistant, and strongly recommended for students pursuing medical school. The absence of these courses from Fairmont State's curriculum forces students to take courses elsewhere and may negatively impact retention and enrollment. The addition of these courses will improve the ability of students to meet requirements for professional schools without forcing students to attend alternate institutions.

The overall effect of these changes is:

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)

a. B.S. Biology deletions from requirements: None

Total hours deleted 0

B. Addition of course(s) or credit(s) from program(s)

a. Electives that will not affect the Biology B.S. requirements:

BIOL 3301 Advanced Human Anatomy and Physiology I (4 hours)
BIOL 3302 Advanced Human Anatomy and Physiology II (4 hours)

Total hours added 0

C. Provision for interchangeable use of course(s) with program(s):
    a. Not Applicable

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog:
    a. Not Applicable

E. Other changes to existing courses such as changes to title, course number, and elective or required status.
    a. Not Applicable

F. Creation of new course(s). For each new course
    1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU, PC&TC, or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.

Number	Course Title	Credits	Prerequisites	Ownership	Status
BIOL 3301	Advanced Human Anatomy and Physiology I	4	BIOL1106 and either BIOL2203, FORS3200, or permission of instructor	FSU	Elective
BIOL 3302	Advanced Human Anatomy and Physiology II	4	BIOL 3301 with a C or better or permission of instructor	FSU	Elective

See Registrar's approval email in Appendix E

    2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.
        a. Appendix B contains the new course descriptions

    3. Include, as an appendix, a detailed course outline consisting of at least two levels.
        a. Appendix C contains the two-level course outlines

    4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.
        a. Appendix C contains the Outcome Competencies and Methods of Assessment

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

    1. Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A. Biology program (major and minor) will have two additional electives which will not impact the hours needed to complete the program.

    2. Include proof that this proposal meets the degree definition policy (Board of Governor's Policy #52) as part of the Proposed Program in Appendix A.

    3. Exceptions to the degree definition policy: As per policy #52, programs seeking exceptions to any of the maximum credit hour limits must submit formal requests to the Board of Governors for approval. Explain the rationale for the exception by documenting the existence of one or more of the criteria in paragraph 4.2.

RATIONALE FOR THE PROPOSAL.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

Under the current curriculum, students are forced to take 2-semester human anatomy and physiology courses at a different institution to meet the requirements of pre-professional programs. Exercise Science sends 6-8 students per year off campus (Paul Reneau, memo attached) and the biology program reports that approximately 5 students per year leave campus to meet these requirements as well.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

The current curriculum forces students away from Fairmont State to meet program requirements and may negatively impact student recruitment and retention for those in pre-professional career paths. A curricular change is justified to meet the needs of current students and may improve student recruitment and retention for pre-professional careers while additionally offering value to students in Exercise Science. West Virginia University's Physical Therapy program has acknowledged that these courses will be accepted to satisfy the admission pre-requisites for human anatomy and physiology (Brenda Wolfe, memo attached).

Ultimately, students will be best served through the acquisition of additional instructional resources (e.g. histology slides, anatomical charts & models). These additional resources may be used to supplement instruction in additional human biology-focused laboratory courses. These resources are not required to offer the initial curriculum but will greatly improve student retention and engagement. Initial curriculum and activities will use available resources and digital materials.

III. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
Education, Health and Human Performance	Dr. Amanda Metcalf	
Science and Technology	Dr. Steven Roof	

IV. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

a. Not Applicable

V. ADDITIONAL COMMENTS.

Please see the final page of this revised proposal submission for the original page 4 which contains the signatures of both Deans.

APPENDIX A
B.S. Degree in Biology

BIOL 1105	BIOLOGICAL PRINCIPLES I	4
BIOL 1106	BIOLOGICAL PRINCIPLES II	4
BIOL 2202	GENERAL BOTANY	4
BIOL 2203	GENERAL ZOOLOGY	4
BIOL 3306	FUNDAMENTALS OF ECOLOGY.	4
BIOL 3368	ANIMAL PHYSIOLOGY	4
or BIOL 3370	PLANT PHYSIOLOGY	4
BIOL 3380	GENETICS	4
BIOL 3390	MOLECULAR BIOTECHNOLOGY	4
BIOL 4485	SENIOR SEMINAR	2
CHEM 1105	CHEMICAL PRINCIPLES	5
CHEM 2200	FOUNDATIONAL BIOCHEMISTRY	4
CHEM 2201	ORGANIC CHEMISTRY I	4
CHEM 2202	ORGANIC CHEMISTRY II	4

TOTAL Required Major Courses			51 hours
Major Electives			12 hours
BIOL 2224	MICROBIOLOGY	4	
BIOL 3312	ADVANCED BOTANY	4	
BIOL 3315	INVERTEBRATE ZOOLOGY	4	
BIOL 3316	VERTEBRATE ZOOLOGY	4	
BIOL 3330	AQUATIC ECOLOGY	4	
BIOL 3331	TERRESTRIAL ECOLOGY	4	
BIOL 3360	BIOCHEMISTRY	4	
BIOL 4420	DEVELOPMENTAL BIOLOGY	4	
TOTAL HOURS FOR MAJOR			63 hours

Required and Recommended General Studies Courses		
Attribute IA – Critical Analysis		3
	ENGL 2220	
Attribute IB – Quantitative Literacy		4
	MATH 1585 or 2501 (PR for BIOL 3390)	
Attribute IC – Written Communication		3
	ENGL 1101	
Attribute ID - Teamwork		3
	COMM 2200	
Attribute IE – Information Literacy		3
	ENGL1102	
Attribute IF – Technology Literacy		3
	TECH 1100	
Attribute IG – Oral Communication		3
	COMM 2200	
Attribute III - Citizenship		3
	POLI 1100	

Attribute IV – Ethics		3
	ENGL 2220	
Attribute V - Health		3
	PHED 1100	
Attribute VI - Interdisciplinary		X
	POLI 1100	
Attribute VIIA - Arts		3
	INTR 1120	
Attribute VIIB - Humanities		X
	INTR 1120	
Attribute VIIC – Social Sciences		3
	GEOG 2210	
Attribute VIID - Natural Science		X
	CHEM 1105 (PR for CHEM 2200)	
Attribute VIII – Cultural Awareness		X
	GEOG 2210	
TOTAL GENERAL STUDIES HOURS		**30**
TOTAL FREE ELECTIVES		**27**
TOTAL HOURS		**120**

APPENDIX A
B.S. Degree in Biology
Proposed Program

BIOL 1105	BIOLOGICAL PRINCIPLES I	4
BIOL 1106	BIOLOGICAL PRINCIPLES II	4
BIOL 2202	GENERAL BOTANY	4
BIOL 2203	GENERAL ZOOLOGY	4
BIOL 3306	FUNDAMENTALS OF ECOLOGY.	4
BIOL 3368	ANIMAL PHYSIOLOGY	4
or BIOL 3370	PLANT PHYSIOLOGY	4
BIOL 3380	GENETICS	4
BIOL 3390	MOLECULAR BIOTECHNOLOGY	4
BIOL 4485	SENIOR SEMINAR	2
CHEM 1105	CHEMICAL PRINCIPLES	5
CHEM 2200	FOUNDATIONAL BIOCHEMISTRY	4
CHEM 2201	ORGANIC CHEMISTRY I	4
CHEM 2202	ORGANIC CHEMISTRY II	4

TOTAL Required Major Courses			51 hours
Major Electives			12 hours
BIOL 2224	MICROBIOLOGY	4	
BIOL 3312	ADVANCED BOTANY	4	
BIOL 3315	INVERTEBRATE ZOOLOGY	4	
BIOL 3316	VERTEBRATE ZOOLOGY	4	
BIOL 3330	AQUATIC ECOLOGY	4	
BIOL 3331	TERRESTRIAL ECOLOGY	4	
BIOL 3360	BIOCHEMISTRY	4	
BIOL 4420	DEVELOPMENTAL BIOLOGY	4	
BIOL 3301	ADVANCED HUMAN ANATOMY AND PHYSIOLOGY I	4	
BIOL 3302	ADVANCED HUMAN ANATOMY AND PHYSIOLOGY II	4	
TOTAL HOURS FOR MAJOR			63 hours

Required and Recommended General Studies Courses		
Attribute IA – Critical Analysis		3
	ENGL 2220	
Attribute IB – Quantitative Literacy		4
	MATH 1585 or 2501 (PR for BIOL 3390)	
Attribute IC – Written Communication		3
	ENGL 1101	
Attribute ID - Teamwork		3
	COMM 2200	
Attribute IE – Information Literacy		3
	ENGL1102	
Attribute IF – Technology Literacy		3
	TECH 1100	
Attribute IG – Oral Communication		3
	COMM 2200	

Attribute III - Citizenship		3
	POLI 1100	
Attribute IV - Ethics		3
	ENGL 2220	
Attribute V - Health		3
	PHED 1100	
Attribute VI - Interdisciplinary		X
	POLI 1100	
Attribute VIIA - Arts		3
	INTR 1120	
Attribute VIIB - Humanities		X
	INTR 1120	
Attribute VIIC – Social Sciences		3
	GEOG 2210	
Attribute VIID - Natural Science		X
	CHEM 1105 (PR for CHEM 2200)	
Attribute VIII – Cultural Awareness		X
	GEOG 2210	
TOTAL GENERAL STUDIES HOURS		**30**
TOTAL FREE ELECTIVES		**27**
TOTAL HOURS		**120**

Appendix B. Course Descriptions for Existing and Revised/New Courses

Old Catalog Course Description	New Catalog Course Description
	BIOL 3301 Advanced Human Anatomy and Physiology I. 4 hours. This is the first of a two-semester course focusing on the function and structure of the human body and how it maintains homeostasis. Students will begin with an introduction into the study of Human Anatomy and Physiology, histology, and a focus on a systems-based approach in learning the human body. BIOL3301 will cover the following systems: integumentary, skeletal, muscular, nervous, and endocrine. 3 hours of lecture and one 3-hour laboratory per week. PR: BIOL1106 and either BIOL2203, FORS3200, or permission of instructor. Offered on rotation in Fall semester only. See Biology program website for rotation schedule.
	BIOL 3302 Advanced Human Anatomy and Physiology II. 4 hours. This is the second of a two-semester course focusing on the function and structure of the human body and how it maintains homeostasis. Students will begin with a brief review of introductory material and histology and then focus on a systems-based approach in learning the human body. BIOL3302 will cover the following systems: cardiovascular, respiratory, lymphatic, digestive, urinary, and reproductive. 3 hours of lecture and one 3-hour laboratory per week. PR: BIOL 3301 with a C or better or instructor permission. Offered on rotation in Spring semester only. See Biology program website for rotation schedule.

Appendix C. Course Descriptions, Outlines and Outcomes for New and Revised Courses

BIOL 3301 Advanced Human Anatomy and Physiology I

I. introduction to the human body
    a. introduction
        i. define anatomy
        ii. define physiology
    b. structural organization
        i. chemical level
        ii. cellular level
        iii. tissue level
        iv. organ level
        v. organ systems overview
        vi. organismal level
    c. vital functions
        i. movement
        ii. responsiveness
        iii. metabolism
            1. anabolism
            2. catabolism
        iv. development, growth, and reproduction
    d. requirements for human life
        i. oxygen
        ii. nutrients
        iii. temperature
        iv. atmospheric pressure
    e. homeostasis
        i. homeostatic control
            1. variable
            2. receptors
            3. control center
            4. effector
        ii. feedback loops
            1. negative feedback loop
            2. positive feedback loop
    f. anatomical language
        i. anatomical position
            1. body positions
                a. supine
                b. prone
        ii. directional terminology
            1. body
                a. anterior/posterior
                b. cranial/caudal
                c. medial/lateral
                d. proximal/distal
                e. palmar/dorsal
                f. plantar/dorsal

iii. general body region terminology
iv. body cavities
    1. anterior body cavities
        a. thoracic
        b. abdominopelvic
    2. posterior body cavities
        a. cranial
        b. vertebral/spinal
    3. serous membranes
        a. pericardium
        b. pleura
        c. peritoneum
v. regions and quadrants of the peritoneal cavity
vi. planes & sections
    1. coronal / frontal
    2. sagittal
    3. cross / transverse
    4. longitudinal
    5. oblique

II. chemical level of organization
- a. matter
- b. energy
    - i. mechanical
    - ii. chemical
    - iii. electrical
- c. atoms and elements
- d. molecules and compounds
    - i. ions
    - ii. solutes and solvents
- e. chemical bonds
    - i. ionic
    - ii. covalent
    - iii. hydrogen bonds
- f. chemical reactions
    - i. reactant
    - ii. product
    - iii. characteristics of chemical reactions
- g. essential inorganic compounds
    - i. water
    - ii. salts
    - iii. acids and bases
        1. pH scale
        2. buffers
- h. essential organic compounds
    - i. carbon
    - ii. carbohydrates
    - iii. lipids
    - iv. proteins
    - v. nucleic acids

vi. ATP

III. cellular level of organization
- a. plasma membrane
  - i. phospholipid bilayer
  - ii. bilayer components
- b. membrane transport
  - i. active transport mechanisms
  - ii. passive transport mechanisms
- c. cytoplasm
- d. organelles
- e. dna and protein synthesis
- f. cell cycle
  - i. G1
  - ii. S
  - iii. G2
  - iv. M
    1. mitosis
    2. cytokinesis
  - v. cell cycle control and homeostasis
- g. differentiation
  - i. stem cells

IV. tissue level of organization
- a. embryonic origins
- b. epithelial tissue
- c. connective tissue
- d. muscle tissue
- e. nervous tissue
- f. membranes
- g. tissue injury and aging

V. integumentary system
- a. skin anatomy
  - i. epidermis
    1. strata and function
    2. pigmentation
  - ii. dermis
    1. papillary layer
    2. reticular layer
  - iii. hypodermis
  - iv. accessory structures
  - v. histology
- b. function of the integumentary system
  - i. homeostasis and pathology
  - ii. interactions with other organ systems

VI. skeletal system
- a. skeletal system function
- b. classification and structure of bones
  - i. histology
- c. function of bone types
- d. ossification

- i. intramembranous
  - 1. histology
- ii. endochondral
  - 1. histology

e. growth
- i. appositional
- ii. interstitial

f. homeostasis and pathology

g. interactions with other organ systems

VII. skeletal anatomy

a. axial division
- i. skeletal anatomy
- ii. ontogeny

b. appendicular division
- i. skeletal anatomy
- ii. ontogeny

VIII. joints

a. structural and functional classifications

b. fibrous

c. cartilaginous

d. synovial
- i. types of movement
- ii. anatomy of major articulation points

IX. muscle tissue

a. histology

b. skeletal muscle
- i. microanatomy
- ii. neuromuscular junction
  - 1. excitation and control
- iii. muscular physiology
  - 1. sliding filament theory
  - 2. types of muscle fibers
- iv. nervous system control of muscle tension
- v. homeostasis

c. smooth muscle
- i. physiology

d. cardiac muscle
- i. physiology

X. muscular system

a. muscle shapes and lever systems

b. muscle anatomy
- i. origin
- ii. insertion
- iii. action

c. axial muscle anatomy

d. appendicular muscle anatomy

XI. nervous system

a. structure and function of neurons

b. histology and cell types

i. neuron shape and physiology
ii. neuroglia type and physiology
c. action potential
d. neurotransmitters and receptors

XII. central nervous system
a. embryonic development
b. brain
i. anatomy
ii. physiology
c. spinal cord
i. anatomy
ii. physiology
d. interactions with other organ systems
i. meningeal layers
ii. csf and circulation

XIII. peripheral nervous system
a. cranial nerves
i. innervations and function
b. spinal nerves
i. plexuses
ii. innervations and function
c. somatic nervous system
i. sensory perception
1. receptor types
2. anatomy of receptors
3. physiology
ii. central processing
1. ascending pathways
2. sensory homunculus
iii. motor responses
1. cortical responses
2. descending pathways

XIV. special senses
a. photoreception
i. eye anatomy
ii. physiology
b. chemoception
i. olfaction
1. anatomy
2. physiology
ii. gustation
1. anatomy
2. physiology
c. hearing and equilibrium
i. ear anatomy
ii. physiology

XV. autonomic nervous system
a. sympathetic division
i. anatomy

ii. physiology
b. parasympathetic division
i. Anatomy
ii. Physiology
c. chemical signaling
d. central control structures
e. homeostasis
f. interactions with other organ systems

XVI. endocrine system
a. chemical signaling and hormones
i. receptors
ii. target cells
iii. half-life, onset, and duration of hormones
iv. hormone release
b. structures of the endocrine system
i. anatomical structures
ii. hormones produced
iii. physiology of hormones
iv. interactions with other organ systems
v. organs with secondary function
c. development and homeostasis

Outcome Competencies and Methods of Assessment

Learning Outcomes for BIOL3301

1. Explain how structure affects function.
2. Explain homeostasis and feedback loops for each organ system covered.
3. Explain the organization of the human body from chemical to organismal.
4. Explain the physiological functions of each organ system covered and identify the organs and structures within each system.
5. Discuss the interconnectedness of organ systems as covered in BIOL3301

Assessment for lecture/lab learning outcomes

Learning objectives will be assessed initially through in class response systems followed by multiple choice quizzes and homework assignments which focus on critical thinking questions. Learning objectives will also be assessed through standard exam questions which will include multiple choice, matching, short answer, essay, and image identification questions. Learning objectives focused on identification of structure and description of the associated functions will be assessed through laboratory activities and practicals.

BIOL 3302 Advanced Human Anatomy and Physiology II

XVII. BIOL3301 review
- a. define anatomy
- b. define physiology
  - i. homeostasis
  - ii. feedback loops
- c. structural organization of the human body
- d. tissues of the human body
- e. organ system review
  - i. nervous system
  - ii. endocrine system

XVIII. cardiovascular system: blood
- a. blood components and function
- b. formed elements
  - i. histology
  - ii. erythrocytes
    1. development
    2. function
  - iii. leukocytes
    1. types
    2. development
    3. function
  - iv. thrombocytes
    1. development
    2. function
- c. hemostasis
- d. blood typing
- e. diagnostic/clinical blood tests
- f. Interactions with other organ systems

XIX. cardiovascular system: heart
- a. heart anatomy
- b. heart histology and microanatomy
- c. heart physiology
  - i. cardiac cycle and intrinsic conduction
    1. blood flow through the heart
  - ii. cardiac physiology
    1. cardiac output
    2. heart rate, stroke volume
    3. factors affecting physiology
- d. development of the heart

XX. cardiovascular system: blood vessels
- a. structure and function of vessels
  - i. histology
- b. arterial system
  - i. arteries
    1. elastic
    2. muscular
  - ii. arterioles

- c. capillaries
- d. venous system
    - i. veins
    - ii. venules
- e. physiology of circulation
    - i. blood flow
    - ii. blood pressure
    - iii. blood resistance
    - iv. capillary exchange
- f. circulatory pathways
    - i. blood flow through the body
    - ii. fetal circulation
- g. homeostasis and interactions with other organ systems

XXI. lymphatic and immune system

- a. anatomy of the lymphatic system
    - i. lymphatic vessels
    - ii. lymphoid cells and tissue
        1. histology
    - iii. lymph nodes
    - iv. other lymphoid organs
    - v. movement of lymph
- b. physiology of the lymphatic and immune system
    - i. innate immune response
        1. surface barriers
        2. internal defense
        3. mediators and responses
    - ii. adaptive defense
        1. cells of the adaptive immune system
            - a. T-lymphocytes
            - b. B-lymphocytes
    - iii. immune responses
- c. homeostatic imbalances
- d. development of immune system
- e. vaccines

XXII. respiratory system

- a. anatomy
    - i. histology
- b. mechanics of breathing
- c. gas exchange
- d. transport of respiratory gases through the blood
- e. respiratory physiology
- f. homeostasis and interactions with other organ systems
- g. development of the respiratory system

XXIII. digestive system

- a. overview of digestive system
    - i. digestive processes
    - ii. regulation
- b. anatomy
    - i. alimentary canal

ii. accessory structures
iii. histology

c. physiology of chemical digestion and absorption
d. interactions with other organ systems

XXIV. metabolism and nutrition
a. diet and nutrition
b. metabolic functions and reactions
c. metabolism of macronutrients
i. carbohydrates
ii. lipids
iii. proteins
d. metabolic states
e. energy

XXV. urinary system
a. gross anatomy of the urinary system
b. renal anatomy
i. histology
c. renal physiology
i. urine formation
ii. tubular reabsorption
iii. renal blood flow
iv. regulation of renal function
d. homeostasis and interactions with other organ systems

XXVI. reproductive system
a. male anatomy
i. histology
b. male physiology
i. spermatogenesis
ii. hormones
c. female anatomy
i. histology
d. female physiology
i. ovulation
ii. menses
iii. hormones

XXVII. human development
a. fertilization to zygote
b. embryonic and fetal development
c. effects of pregnancy on mother
d. parturition and postnatal changes

Outcome Competencies and Methods of Assessment

Learning Outcomes for BIOL3302

1. Explain the physiological functions of each organ system covered and identify the organs and structures within each system.
2. Discuss the interconnectedness of organ systems as covered in BIOL3302.
3. Discuss the importance of metabolism and nutrition on overall human health and homeostasis.
4. Explain homeostasis and feedback loops for each organ system covered.

Assessment for lecture/lab learning outcomes

Learning objectives will be assessed initially through in class response systems followed by multiple choice quizzes and homework assignments which focus on critical thinking questions. Learning objectives will also be assessed through standard exam questions which will include multiple choice, matching, short answer, essay, and image identification questions. Learning objectives focused on identification of structure and description of the associated functions will be assessed through laboratory activities and practicals.

From: FSU Office of the Registrar
Sent: Tuesday, September 18, 2018 8:26 AM
To: Henson, Kristy
Cc: Ransom, Laura; Gonzalez, Cheri
Subject: RE: Request for Course Number availability

Good morning, Professor Henson—

I'm not sure if Cheri already answered your question, as she is out of the office this week, but the course numbers that you requested are available.

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

Lori Schoonmaker, M.A.
Associate Registrar/PDSO

FAIRMONT STATE UNIVERSITY

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

Fairmont State Enrollment Services (including Financial Aid, Registrar, Student Accounts, and Application Processing) is located in the Turley Student Services Center on the 3rd floor.

Please be sure to check in with our NEMO Queuing System located in the lobby to speak with a Student Services Representative.

FAIRMONT STATE UNIVERSITY

School of Education, Health & Human Performance

September 17, 2018
To Whom It May Concern,

Please accept this letter as evidence that those students majoring in Exercise Science who plan to pursue further professional schooling i.e. Physical Therapy, Occupational Therapy, Physicians Assistant, etc. will take the two course (4 hours each) Human Anatomy & Physiology sequence being proposed by the Biology Department.

Currently an average of 6 – 8 Exercise Science students per year have to take this two course sequence at another college due to professional school entrance requirements and the fact that this sequence is not offered here.

The Exercise Science faculty fully support the implementation of these two courses. Should you have any further questions about this please don't hesitate to contact me.

Sincerely,
Paul Reneau Ph.D.
Professor
School of Education, Health & Human Performance
304-367-4148
preneau@fairmontstate.edu

From: Wolfe, Brenda
Sent: Friday, October 5, 07:56
Subject: RE: Fairmont State HAP courses
To: Henson, Kristy

Hi Kristy

PT admissions committee, said this would be great.

Thank you

Brenda Wolfe
Program Manager

Professional & Undergraduate Programs | WVU School of Medicine
8701-C Health Sciences South | PO Box 9225 | Morgantown, WV 26506-9225

Phone: 304.293.1690 | **Fax**: 304.293.8384 | **Email**: bswolfe@hsc.wvu.edu

MOUNTAINEERS
GO FIRST.

From: Henson, Kristy <Kristy.Henson@fairmontstate.edu>
Sent: Thursday, October 4, 2018 1:46 PM
To: Wolfe, Brenda <bswolfe@hsc.wvu.edu>
Subject: Fairmont State HAP courses

Hi Brenda,
Thank you for speaking with me earlier.
I'm just sending a follow up email for you to verify that WVU's School of Medicine will accept our newly created courses to satisfy the 8 hours of HAP prerequisite:
Human anatomy and physiology I with lab – 4 hours
Human anatomy and physiology II with lab – 4 hours
Together these courses cover all of the body systems.
Thanks again,

Kristy Henson
Assistant Professor of Forensic Science

RATIONALE FOR THE PROPOSAL.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

Under the current curriculum, students are forced to take 2-semester human anatomy and physiology courses at a different institution to meet the requirements of pre-professional programs. Exercise science sends 6-8 students per year off campus (Paul Reneau, memo attached) and the biology program reports that approximately 5 students per year leave campus to meet these requirements as well.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

The current curriculum forces students away from Fairmont State to meet program requirements and may negatively impact student recruitment and retention for those in pre-professional career paths. A curricular change is justified to meet the needs of current students and may improve student recruitment and retention for pre-professional careers while additionally offering value to students in Exercise Sciences. West Virginia University's Physical Therapy program has acknowledged that these courses will be accepted to satisfy the admission pre-requisites for human anatomy and physiology (Brenda Wolfe, memo attached).

To implement these courses, students will be best served through the acquisition of additional instructional resources (e.g. histology slides, anatomical charts & models). These additional resources may be used to supplement instruction in additional human biology focused laboratory courses. These resources are not required to offer the initial curriculum, but will greatly improve student retention and engagement. Initial curriculum and activities will use available resources and digital materials.

III. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
Education, Health and Human Performance	Dr. Amanda Metcalf	Amanda Metcalf
Science and Technology	Dr. Steven Roof	Steven Roof

IV. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.
a. Not Applicable

V. ADDITIONAL COMMENTS.

FAIRMONT STATE UNIVERSITY™

Office of the Provost
1201 Locust Avenue • Fairmont, West Virginia 26554
Phone: (304) 367-4101 • Fax: (304) 367-4902
www.fairmontstate.edu

MEMORANDUM

TO: Faculty Senate

FROM: Dr. Susan Ross

DATE: February 4, 2019

SUBJECT: Curriculum Proposal #18-19-06 REV #1
Leadership Certificate

I recommend approval of the attached Curriculum Proposal #18-19-06 REV #1. This proposal updates the University's Leadership Certification in three ways. First, it will make *INTR 2280: Empowering Leadership*, a University course by renumbering it to *INTR 3330:* Empowering Leadership. Second, INTR 3330 will be an Interdiscilinary Studies course that corresponds to BSBA 3330: Empowering Leadership, which was established last year under Curriculum Proposal 17-18-07. Third, the proposal also establishes HONR 3330 as a cross listing for the first leadership class required by Leadership Certification.

cc: Richard Harvey
J Robert Baker
Laura Ransom
Cheri Gonzalez
Lori Schoonmaker

FAIRMONT STATE UNIVERSITY

Honors Program

1201 Locust Avenue • Fairmont, West Virginia 26554
Phone: (304) 367-4260 • Fax: (304) 367-4986
JRobert.Baker@fairmontstate.edu • www.fairmontstate.edu

MEMORANDUM

TO: Professor Richard Harvey
Provost and Vice President for Academic Affairs

FROM: J. Robert Baker

DATE: 24 October 2018

RE: Curriculum Proposal for Leadership Certification

The attached curriculum proposal will update the Leadership Certification currently on the books by making Empowering Leader, the first leadership class, a University course, accepting BSBA 3330 as an alternative to Empowering Leadership, and creating an Honors version of this leadership course.

Please let me know if you have any questions or need additional information.

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number:	18-19-06
School/Department/Program:	
Preparer/Contact Person:	J Robert Baker
Telephone Extension:	X 4260
Date Originally Submitted:	24 October 2018
Revision (Indicate date and label it Revision #1, #2, etc.):	Revision #1
Implementation Date Requested:	Fall, 2019

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

This proposal updates the University's Leadership Certification in three ways.

First, it makes INTR 2280, Empowering Leadership, a University course by renumbering it INTR 3330, Empowering Leadership. Originally, this was a Fairmont State course, but it has "belonged" to Pierpont Community and Technical College since the institutions separated; renumbering the course will make it a University course and remove the inconsistency of Fairmont State's offering another institution's course.

Second, numbering the first leadership course INTR 3330 will have the Interdisciplinary Studies course correspond to BSBA 3330, Empowering Leadership, which was established last year under Curriculum Proposal 17-18-07. Specifically, this proposal includes BSBA 3330 as an alternative to the required first leadership course.

Third, since the students completing the Leadership Certification in the last five years or so have been Honors students, this proposal also establishes HONR 3330 as a cross listing for the first leadership class required by Leadership Certification.

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)

Total hours 0 deleted.

B. Addition of course(s) or credit(s) from program(s)

Total hours 0 added.

C. Provision for interchangeable use of course(s) with program(s)

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

E. Other changes to existing courses such as changes to title, course number, and elective or required status.

Please see appendix B.

INTR 2280 becomes INTR 3330. It remains a required course for the Leadership Certificate, though BSBA 3330 and HONR 3330 may be substituted.

HONR 3330 is established as a cross-listing for INTR 3330.

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.

   HONR 3330 is established as a cross listing for INTR 3330. It will mirror INTR 3330 and BSBA 3330. It will be owned by Fairmont State and may be used in lieu of INTR 3330 for the Leadership Certification.

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.

   Please see Appendix B.

3. Include, as an appendix, a detailed course outline consisting of at least two levels.

   Please see Appendix C.

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

III. **RATIONALE FOR THE PROPOSAL.**

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

This change is necessitated by the establishment of BSBA 3330, Empowering Leadership, in the previous academic year under Curriculum Proposal 17-18-07. It is also needed to allow the University to offer the Leadership Certification without relying on a Pierpont course.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

The Leadership Certification provides Fairmont State University students with the opportunity to develop their leadership abilities, regardless of their academic major or minor. The Leadership Certification affords students with yet another credential as they graduate and enter the working world as this interdisciplinary humanities program, based in the liberal arts and grounded in both theory and practical experience, is designed to enhance a student's college career by linking leadership to self-awareness, personal growth, organizational theory and practical experience in community service.

IV. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

This proposal does not impact any academic program outside the Leadership Certification.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
Provost	Richard Harvey	Richard Harvey

V. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

VI. ADDITIONAL COMMENTS.

APPENDIX A

Leadership Certification
Current Program

Required Courses: 10 SEM. HRS.

INTR 2280 EMPOWERING LEADERSHIP 3
INTR 2281 GREAT IDEAS OF LEADERS 3
MGMT 3390 ORGANIZATIONAL BEHAVIOR.....3
-OR -
PSYC 4410 THEORIES OF PERSONALITY 3
HUSV 1103 COMMUNITY SERVICE LEARNING..... 1
-OR - PHI THETA KAPPA LEADERSHIP CERTIFICATE 1

Leadership Certification
Proposed Program

Required Courses: 10 SEM. HRS.

INTR 3330 EMPOWERING LEADERSHIP 3
-OR-
BSBA 3330 EMPOWERING LEADERSHIP 3
-OR-
HONR 3330 EMPOWERING LEADERSHIP 3
INTR 2281 GREAT IDEAS OF LEADERS 3
MGMT 3390 ORGANIZATIONAL BEHAVIOR.....3
-OR -
PSYC 4410 THEORIES OF PERSONALITY 3
HUSV 1103 COMMUNITY SERVICE LEARNING..... 1
-OR - PHI THETA KAPPA LEADERSHIP CERTIFICATE 1

APPENDIX B

Course Titles, Descriptions, and Outcomes

INTR 3330, Empowering Leadership. The course description for the renumbered INTR 2280 will remain the same:

The purpose of this course is to help prepare students to assume increasingly responsible leadership roles of empowerment in their personal, professional and academic lives. This interdisciplinary, student-centered course focuses not only on significant theories of empowering leadership and their applicability to leaders of the past and present, but also includes substantial hands-on, experiential learning opportunities in which students practice empowering leadership. PR: ENGL 1101 (with a grade of a "C" or better).

Course Goals and Objectives:

The major student objectives of the course are to
• develop a fundamental understanding of leadership and develop personal leadership philosophy;
• demonstrate effective techniques and strategies for articulating a vision, setting goals, decision making, team
building,
• develop skills in empowering, delegating, initiating change and handling conflict
• define and evaluate the servant-leader's role in leadership; and develop their personal leadership ability.

HONR 3330, Empowering Leadership.

The purpose of this course is to help prepare students to assume increasingly responsible leadership roles of empowerment in their personal, professional and academic lives. This interdisciplinary, student-centered course focuses not only on significant theories of empowering leadership and their applicability to leaders of the past and present, but also includes substantial hands-on, experiential learning opportunities in which students practice empowering leadership. PR: ENGL 1101 (with a grade of a "C" or better).

Course Goals and Objectives:

The major student objectives of the course are to
• develop a fundamental understanding of leadership and develop personal leadership philosophy;
• demonstrate effective techniques and strategies for articulating a vision, setting goals, decision making, team
building,
• develop skills in empowering, delegating, initiating change and handling conflict
• define and evaluate the servant-leader's role in leadership; and develop their personal leadership ability.

APPENDIX C

Course Outline for INTR 3330 and HONR 3330, Empowering Leadership

Leadership - Developing a Personal Philosophy
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

I. Servant Leadership
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

II. Ethical Leadership
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

III. A Vision of Leadership
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

IV. Team-building
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

V. Leading with Goals
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

VI. Making Decisions
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

VII. Guiding through Conflict
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

VIII. Change
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

IX. Empowering Others
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

X. A History of Leadership Studies
- A. Classic Case
- B. Leadership Profile
- C. Readings
- D. Film Studies

FAIRMONT STATE UNIVERSITY™

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MEMORANDUM

TO: Faculty Senate

FROM: Dr. Susan Ross

DATE: February 4, 2019

SUBJECT: Curriculum Proposal #18-19-07 REV #1(Passed 2 readings in Curriculum Committee with minor grammatical revisions and scanned signature page inserted into electronic copy)
Liberal Arts/Behavioral Sciences/Psychology

I recommend approval of the attached Curriculum Proposal #18-19-07 REV #1. The proposal reduces the Psychology program credit hours from 55 to 49 by reclassifying PSYC 3310, Experimental Psychology, and PSYC 4460, Seminar, as elective rather than required courses. The proposal also modifies prerequisites for Experimental Psychology and Research Capstone (PSYC 3390) to accommodate the elective status of Experimental Psychology. Finally, the proposal adds Psychology of Substance Abuse (PSYC 3395), previously offered as Special Topics in Psychology (PSYC 3399), as a permanent Psychology elective in the course catalog.

cc: Richard Harvey
Chris Kast
Zach Moore
Laura Ransom
Cheri Gonzalez
Lori Schoonmaker

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number:	18-19-07
School/Department/Program:	Liberal Arts/Behavioral Sciences/Psychology
Preparer/Contact Person:	Zach Moore
Telephone Extension:	X4669
Date Originally Submitted:	10-31-2018
Revision (Indicate date and label it Revision #1, #2, etc.):	Revision #1 (1-22-2019) – Passed 2 readings in Curriculum Committee with minor grammatical revisions and scanned signature page inserted into electronic copy.
Implementation Date Requested:	August, 2019

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

We propose reducing the Psychology program hours from 55 to 49 by reclassifying PSYC 3310, Experimental Psychology, and PSYC 4460, Seminar, as elective rather than required courses. We also propose modifying prerequisites for Experimental Psychology and Research Capstone (PSYC 3390) to accommodate the elective status of Experimental Psychology.

Finally, we propose adding Psychology of Substance Abuse (PSYC 3395), previously offered as Special Topics in Psychology (PSYC 3399), as a permanent Psychology elective in the course catalog.

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)

- The program hours will be reduced from 55 to 49 by reclassifying PSYC 3310, Experimental Psychology, and PSYC 4460, Seminar, as elective rather than required courses.

Total hours deleted. 6

B. Addition of course(s) or credit(s) from program(s)

- PSYC 3395 Psychology of Substance Abuse (3) as an elective

Total hours added. 0

C. Provision for interchangeable use of course(s) with program(s)

N/A

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

- Content of the courses will remain unchanged.
- Prerequisites in catalog descriptions will be updated (see **appendix B**)
    - Experimental Psychology (PSYC 3310) will now include only one prerequisite: PSYC 2240 or SOCY 2240 (retained). The existing prerequisite of PSYC 3305 or SOCY 3360 will be deleted.
    - Research Capstone (PSYC 3390) will now include the following prerequisites: ENGL 1102 (retained) and PSYC 3305 (added). The existing prerequisite of PSYC 3310 will be deleted.

E. Other changes to existing courses such as changes to title, course number, and elective or required status.

- The status of PSYC 3310 will be changed from required to elective.
- The status of PSYC 4460 will be changed from required to elective.

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.

Number	Course Title	Credits	Prerequisites	Ownership	Status
PSYC 3395	Psychology of Substance Abuse	3	PSYC 1101	FSU	Elective

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.

    - See **appendix B**

3. Include, as an appendix, a detailed course outline consisting of at least two levels.

    - See **appendix C**

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.

    - See **appendix D**

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

The proposed changes will reduce the number of semester hours needed to complete the Psychology program from 55 to 49 for a net loss of 6. Graduation requirements will include 49 hrs. of Psychology courses (40 required and 9 elective), 39 hrs. of General Studies courses, and 32 hrs. of free electives.

III. **RATIONALE FOR THE PROPOSAL**.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

After a review of several comparable programs, we determined that the number of required hours in our current program is significantly greater than what is typical. The two courses we propose reclassifying are rarely included as required courses but often included as electives.
The proposed reduction in hours will bring our program into closer alignment with apparent trends. The proposed retention of PSYC 3310 and PSYC 4460 as electives will maintain the breadth of offerings associated with apparent trends.
The Psychology of Substance Abuse course has been offered multiple times as a special topics course, and it fills to capacity every semester. Additionally, substance abuse has become an increasingly pervasive national and local problem. According to the NIH's National Institute on Drug Abuse (www.drugabuse.gov), for example, *In 2016, West Virginia had the highest rate of opioid-related overdose deaths in the United States—a rate of 43.4 deaths per 100,000—and up from a low 1.8 deaths per 100,000 in 1999*. A substance abuse course is invaluable to those individuals who intend to work with this growing clinical population.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

The proposed changes to the major requirements will provide our majors with the option to pursue advanced interdisciplinary training while retaining the option to pursue advanced Psychology training.
The proposed inclusion of the special topics course as a permanent elective will continue to provide our majors with specialized training in an area of Psychology that is especially relevant to current local and national issues.
No increase or reduction in cost is foreseen.

IV. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
College of Liberal Arts	Dr. Shields	Deana Shields

V. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

N/A

VI. ADDITIONAL COMMENTS.

APPENDIX A

B.S. Degree in Psychology
Current Program

Required Major Courses		HRS	
PSYC 1101	Introduction to Psychology	3	
PSYC 2220	History & Systems of Psychology	3	
PSYC 2230	Social Psychology	3	
PSYC 2240	Behavioral Statistics	3	
PSYC 3300	Abnormal Psychology	3	
PSYC 3305	Research Methods in the Behavioral Sciences	4	
PSYC 3310	Experimental Psychology	3	
PSYC 3330	Developmental Psychology	3	
PSYC 3340	Intervention Techniques and Applications	3	
PSYC 3350	Biopsychology	3	
PSYC 3360	Cognitive Psychology **or** PSYC 3370	3	
PSYC 3370	Theories of Learning **or** PSYC 3360	3	
PSYC 3390	Research Capstone	3	
PSYC 4400	Psychometrics	3	
PSYC 4410	Theories of Personality	3	
PSYC 4460	Seminar	3	
Any 3 courses from the PSYC electives listed below		9	
TOTAL Required Major Courses Hours			**46 hrs.**
Major Electives Hours			**9 hrs.**
PSYC 2250	Community Psychology	3	
PSYC 2260	Industrial Personnel	3	
PSYC 3320	Sensation and Perception	3	
PSYC 3399	Special Topics	3	
PSYC 4480	Directed Studies	1-3	
PSYC 4485	Advanced Psychometrics	3	
PSYC 4487	Practicum I	3	
PSYC 4489	Practicum II	3	
PSYC 4490	Directed Research	1-3	
PSYC 4491	Psychopathology Child & Adolescent	3	
PSYC 4493	The Psychology Of Aging	3	
PSYC 4494	Interpersonal Dynamics	3	
Minor Requirements/Electives (if minor is required)			XX
*There is no minor requirement			
TOTAL HOURS FOR MAJOR (and minor if required)			**55**

Required General Studies Courses (example text highlighted)		
Attribute 1 – Critical Analysis		x
	PSYC 3310 (satisfied in major)	
Attribute 2 – Quantitative Literacy		3
	Any course listed in 2, MATH 1407/MATH 1507 recommended	
Attribute 3 – Written Communication		3
	Any course listed in 3, ENGL 1101 recommended	
Attribute 4 - Teamwork		x

	Any course listed in 4, COMM 2200 recommended (May be satisfied in Attribute 7)	
Attribute 5 – Information Literacy		3
	Any course listed in 5, ENGL 1102 recommended	
Attribute 6 – Technology Literacy		3
	Any course listed in 6	
Attribute 7 – Oral Communication		3
	Any course listed in 7, COMM 2200 recommended (May be satisfied in Attribute 4)	
Attribute 8 - Citizenship		3
	Any course listed in 8	
Attribute 9 - Ethics		3
	Any course listed in 9	
Attribute 10 - Health		2
	Any course listed in 10	
Attribute 11 - Interdisciplinary		3
	Any course listed in 11	
Attribute 12 - Arts		3
	Any course in 12	
Attribute 13 - Humanities		3
	Any course in 13	
Attribute 14 – Social Sciences		x
	PSYC 1101 (satisfied in major)	
Attribute 15 - Natural Science		4
	Any course in 15	
Attribute 16 – Cultural Awareness		3
	Any course in 16	
Additional General Studies hours		x
	PSYC 3390 (satisfied in major) (writing intensive course	
TOTAL GENERAL STUDIES HOURS		**39**
TOTAL FREE ELECTIVES		**26**
TOTAL HOURS		**120**

- B.S. in Psychology (120 SEM. HRS)
- General Studies Requirements (39 SEM HRS.)
- Free Electives (26 SEM HRS.)
- Psychology Curriculum (55 SEM. HRS.)
- Required Courses (46 hrs.)
- Required Electives (9 hrs.)
- PSYC 3360 Cognitive Psychology may be taken as one of the required electives or in the place of PSYC 3370 Theories of Learning as a required course. PSYC 3360 may not be used as both an elective course and a required course.

APPENDIX A

B.S. Degree in Psychology
Proposed Program

Required Major Courses		HRS	
PSYC 1101	Introduction to Psychology	3	
PSYC 2220	History & Systems of Psychology	3	
PSYC 2230	Social Psychology	3	
PSYC 2240	Behavioral Statistics	3	
PSYC 3300	Abnormal Psychology	3	
PSYC 3305	Research Methods in the Behavioral Sciences	4	
PSYC 3330	Developmental Psychology	3	
PSYC 3340	Intervention Techniques and Applications	3	
PSYC 3350	Biopsychology	3	
PSYC 3360	Cognitive Psychology **or** PSYC 3370	3	
PSYC 3370	Theories of Learning **or** PSYC 3360	3	
PSYC 3390	Research Capstone	3	
PSYC 4400	Psychometrics	3	
PSYC 4410	Theories of Personality	3	
Any 3 courses from the PSYC electives listed below		9	
TOTAL Required Major Courses Hours			**40 hrs.**
Major Electives Hours			**9 hrs.**
PSYC 2250	Community Psychology	3	
PSYC 2260	Industrial Personnel	3	
PSYC 3310	Experimental Psychology	3	
PSYC 3320	Sensation and Perception	3	
PSYC 3395	Psychology of Substance Abuse	3	
PSYC 3399	Special Topics	3	
PSYC 4460	Seminar	3-6	
PSYC 4480	Directed Studies	1-3	
PSYC 4485	Advanced Psychometrics	3	
PSYC 4487	Practicum I	3	
PSYC 4489	Practicum II	3	
PSYC 4490	Directed Research	1-3	
PSYC 4491	Psychopathology Child & Adolescent	3	
PSYC 4493	The Psychology Of Aging	3	
PSYC 4494	Interpersonal Dynamics	3	
Minor Requirements/Electives (if minor is required)			XX
*There is no minor requirement			
TOTAL HOURS FOR MAJOR (and minor if required)			**49**

Required General Studies Courses (example text highlighted)		
Attribute I – Critical Analysis		3
	Any course listed in 1	
Attribute 2 – Quantitative Literacy		3
	Any course listed in 2, MATH 1407/MATH 1507 recommended	
Attribute 3 – Written Communication		3

	Any course listed in 3, ENGL 1101 recommended	
Attribute 4- Teamwork		x
	Any course listed in 4, COMM 2200 recommended (May be satisfied in Attribute 7)	
Attribute 5 – Information Literacy		3
	Any course listed in 5, ENGL 1102 recommended	
Attribute 6– Technology Literacy		3
	Any course listed in 6	
Attribute 7 – Oral Communication		3
	Any course listed in 7, COMM 2200 recommended (May be satisfied in Attribute 4)	
Attribute 8 - Citizenship		3
	Any course listed in 8	
Attribute 9- Ethics		3
	Any course listed in 9	
Attribute 10 - Health		2
	Any course listed in 10	
Attribute 11 - Interdisciplinary		3
	Any course listed in 11	
Attribute 12 - Arts		3
	Any course in 12	
Attribute 13- Humanities		3
	Any course in 13	
Attribute 14 – Social Sciences		x
	PSYC 1101 (satisfied in major)	
Attribute 15 - Natural Science		4
	Any course in 15	
Attribute 16 – Cultural Awareness		3
	Any course listed in 16	
Additional General Studies hours		x
	PSYC 3390 (satisfied in major) (writing intensive course	
TOTAL GENERAL STUDIES HOURS		**39**
TOTAL FREE ELECTIVES		**32**
TOTAL HOURS		**120**

- B.S. in Psychology (120 SEM. HRS)
- General Studies Requirements (39 SEM HRS.)
- Free Electives (32 SEM HRS.)
- Psychology Curriculum (49 SEM. HRS.)
- Required Courses (40 hrs.)
- Required Electives (9 hrs.)
- PSYC 3360 Cognitive Psychology may be taken as one of the required electives or in the place of PSYC 3370 Theories of Learning as a required course. PSYC 3360 may not be used as both an elective course and a required course.

APPENDIX B

Description of potentially new and changed courses

CHANGED DESCRIPTIONS

PSYC 3310 Experimental Psychology..... 3 hrs.
An introduction to the procedures of experimental research, design and evaluation, using laboratory techniques. PR: PSYC 2240 or SOCY 2240.

PSYC 3390 Research Capstone ..... 3 hrs.
Writing Intensive
A detailed study of the methodological and philosophical issues involved in the analysis of behavior. The course objectives are to provide insight into the nature of applied scientific research, to foster the ability to construct empirical hypotheses, to develop facility in designing experimental tests of hypotheses, to promote effective reading and evaluation of psychological research and to encourage professional writing and speaking about psychological theory and experimentation. PR: ENGL 1102, PSYC 3305 or SOCY 3360.

NEW DESCRIPTION

PSYC 3395 Psychology of Substance Abuse ..... 3 hrs.
This course covers current research and trends related to substance use, abuse, dependence, and treatment. Emphasis will be placed on development of practical knowledge and skills that can be used when dealing with populations that are directly or indirectly impacted by substance use and abuse. PR: PSYC 1101.

APPENDIX C

Course Outline for PSYC 3395 – Psychology of Substance Abuse

I. Introduction to Substance Use and Abuse
   a. Pharmacology and Drugs
      i. Methods of Drug Classification
      ii. Drug Use
   b. Defining Harmful Drug Use
      i. Use of the DSM
      ii. Drug Tolerance, Withdrawal, and Drug-Taking Behavior
      iii. Negative Consequences of Drug Use

II. Legality of Drugs
   a. Medical Science and Drug Use
   b. Development of Drug Laws
      i. The San Francisco Ordinance
      ii. Pure Food and Drug Act
      iii. Harrison Narcotics Tax Act
      iv. Alcohol Prohibition
      v. Post-Prohibition Legislation
   c. Current Drug Laws

III. Pharmacology
   a. Pharmacokinetics
      i. Routes of Administration
      ii. Drug Absorption
      iii. Drug Elimination
   b. Pharmacodynamics
      i. The Dose–Effect Curve
      ii. Effective and Lethal Doses
      iii. Drug Interactions

IV. Psychopharmacology
   a. Characteristics of Users
   b. Social and Environmental Factors
   c. Tolerance
      i. Types of Tolerance
      ii. Explanations of Tolerance
   d. Behavioral Pharmacology
      i. Reinforcement and Punishment
      ii. Operant Principles and Drug Dependence
      iii. Conflict Paradigm
   e. Animal Models and Human Drug Use
   f. Human Behavioral Pharmacology
      i. Ethical Issues
      ii. Placebo Controls
   g. New Drug Development
      i. Clinical Trials and FDA Approval
      ii. Distribution and Marketing
      iii. Generic Drugs

V. Drug Types, Effects, and Usage
    a. Stimulants
        i. Prevalence of use and abuse
        ii. Mechanism of Action
        iii. Physiological, Psychological, and Behavioral Effects
            1. Acute effects
            2. Chronic effects
        iv. Tolerance, Dependence, and Withdrawal
    b. Tobacco and Nicotine
        i. Prevalence of use and abuse
        ii. Mechanism of Action
        iii. Physiological, Psychological, and Behavioral Effects
            1. Acute effects
            2. Chronic effects
        iv. Tolerance, Dependence, and Withdrawal
    c. Alcohol
        i. Prevalence of use and abuse
        ii. Mechanism of Action
        iii. Physiological, Psychological, and Behavioral Effects
            1. Acute effects
            2. Chronic effects
        iv. Tolerance, Dependence, and Withdrawal
    d. Opiates
        i. Prevalence of use and abuse
        ii. Mechanism of Action
        iii. Physiological, Psychological, and Behavioral Effects
            1. Acute effects
            2. Chronic effects
        iv. Tolerance, Dependence, and Withdrawal
    e. Marijuana
        i. Prevalence of use and abuse
        ii. Mechanism of Action
        iii. Physiological, Psychological, and Behavioral Effects
            1. Acute effects
            2. Chronic effects
        iv. Tolerance, Dependence, and Withdrawal
    f. Hallucinogens
        i. Prevalence of use and abuse
        ii. Mechanism of Action
        iii. Physiological, Psychological, and Behavioral Effects
            1. Acute effects
            2. Chronic effects
        iv. Tolerance, Dependence, and Withdrawal

VI. Psychotherapeutic Medications
    a. Historical Overview
        i. The Pre-Chlorpromazine Era
        ii. The Age of Chlorpromazine
    b. Epidemiology
    c. Classes of Drugs and Their Actions
        i. Antipsychotics

ii. Antidepressants
iii. Antianxiety Agents
iv. Nonbenzodiazepine Treatment
v. Mood-Stabilizing Drugs

d. Psychotherapeutic Drugs and Pregnancy

VII. Other Prescription and Over-the-Counter Drugs

a. Prescription Drugs
i. Birth Control Drugs
ii. Anabolic Steroids

b. Over-the-Counter Drugs
i. Analgesics
ii. Cold and Allergy Medications
iii. Stimulants and Sedatives

c. Herbal Products, Hormones, and Dietary Supplements
i. Areca (Betel)
ii. Ephedra/Ma Huang
iii. Ginkgo Biloba
iv. Melatonin
v. St. John's Wort
vi. Valerian

d. Inhalants

VIII. Treatment of Substance Use Disorders

a. Models of Substance Use Disorders
i. Five Model Categories
ii. Biopsychosocial Model

b. Change without Formal Treatment

c. Self-Help Groups
i. Alcoholics Anonymous
ii. Other Self-Help Groups

d. Professional Treatment: Assessment and Goals
i. Abstinence or Moderation?
ii. Harm Reduction

e. Alcohol Treatment Settings and Services
i. Types of Settings and Services
ii. Pharmacological Treatment
iii. Effectiveness of Alcohol Treatment
iv. Nonpharmacological Professional Treatment
v. Self-Help Treatment
vi. Effectiveness of Pharmacological Treatments

f. Other Drug Treatment Settings and Services
i. Treatment of Nonopiate Drug Abusers
ii. Pharmacotherapy of Other Drug Problems
iii. Effectiveness of Drug Treatment
iv. Nonpharmacological Professional Treatment
v. Self-Help Treatment
vi. Pharmacological Treatments
vii. Promising Treatment Techniques

g. Special Topics in Alcohol and Drug Treatment
i. Treatment of the Polysubstance Abuser

ii. Treatment of Dual-Diagnosis Patients
iii. Relapse

IX. Prevention of Substance Abuse
a. Defining Prevention
b. Models of Prevention
i. Sociocultural Model
ii. Distribution of Consumption Model
iii. Proscriptive Model
c. Principles of Drug Abuse Prevention
d. Current Topics in Prevention
i. Education and Mass Media Efforts
ii. Affect-Oriented Programs
iii. Alternative Behaviors and Resistance-Skills Training
iv. Temperament-Based Interventions
v. Worksite Programs
vi. Programs for College Students

APPENDIX D

Outcomes and Measures for PSYC 3395 – Psychology of Substance Abuse

Learning Outcomes

1. Discuss historical, legal, social, and cultural impacts of substance abuse.
2. Critique methods to prevent and treat substance abuse on an individual, family and societal level.
3. Demonstrate knowledge of therapeutic techniques for treating substance abuse and their theoretical underpinnings
4. Compare various classes of licit and illicit drugs in terms of effects; prevalence of use and abuse; tolerance, withdrawal and dependence; and treatment.
5. Prepare an individual presentation on an approved substance abuse topic.

Measures and Assessment

Learning outcomes will be assessed by discussion activities (in-class and online); article critiques; standard exam questions which may be multiple choice, matching, fill-in-the-blank, short answer, or essay; and a final presentation.

APPENDIX E

Course Number Approval for PSYC 3395 – Psychology of Substance Abuse

Professor Moore—

The course number that you requested is available. Please see confirmation below.
Please let me know if you have any questions. Sincerely,

Lori Schoonmaker, M.A.

Associate Registrar/PDSO

From: Ransom, Laura
Sent: Tuesday, October 30, 2018 1:52 PM
To: FSU Office of the Registrar <registrar@fairmontstate.edu>
Subject: RE: Course Number availability

Hi!

It's available.

Laura

From: FSU Office of the Registrar
Sent: Tuesday, October 30, 2018 1:24 PM
To: Ransom, Laura <lransom@fairmontstate.edu>
Subject: FW: Course Number availability

Could you check this for me?

Thanks!

Lori

From: Moore, Zachariah
Sent: Tuesday, October 30, 2018 9:48 AM
To: FSU Office of the Registrar <registrar@fairmontstate.edu>
Subject: Course Number availability

Hello,
Could you please check the availability of the course number PSYC 3395 to be used in a new course proposal? Thank you for your time and support. Best,

Zach Moore, PhD
Assistant Professor of Psychology
Fairmont State University

FAIRMONT STATE UNIVERSITY

FAIRMONT STATE UNIVERSITY™

Office of the Provost and Vice President for Academic Affairs
1201 Locust Avenue • Fairmont, West Virginia 26554
Phone: (304) 367-4101 • Fax: (304) 367-4902
Richard.Harvey@fairmontstate.edu • fairmontstate.edu

MEMORANDUM

TO: Faculty Senate

FROM: Dr. Richard Harvey

DATE: January 9, 2019

SUBJECT: Curriculum Proposal #18-19-2
Science and Technology/BCG/Forensic Science

I recommend approval of the attached Curriculum Proposal 18-19-2. The Forensic Science curriculum is being revised to include new forensic focused specialization courses (Human Osteology FORS 3301, Forensic Anthropology FORS 3305, Forensic Toxicology FORS 3310, Forensic Taphonomy FORS 3225, and Fingerprint Analysis FORS 3215). These courses will give students forensic specific specialization electives. These courses will allow us to grow our Forensic Science Program and to give our students more relevant forensic science electives. See Appendix D.

cc: Susan Ross
Steve Roof
Mark Flood
Kristy Henson
Laura Ransom
Cheri Gonzalez
Lori Schoonmaker

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number:	18-19-2
School/Department/Program:	Science and Technology/BCG/Forensic Science
Preparer/Contact Person:	Mark Flood & Kristy Henson
Telephone Extension:	x4309 / x4877
Date Originally Submitted:	Oct. 2018
Revision (Indicate date and label it Revision #1, #2, etc.):	
Implementation Date Requested:	Fall 2019

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

The Forensic Science curriculum is being revised to include new forensic focused specialization courses (Human Osteology FORS 3301, Forensic Anthropology FORS 3305, Forensic Toxicology FORS 3310, Forensic Taphonomy FORS 3225, and Fingerprint Analysis FORS 3215). These courses will give students forensic specific specialization electives. These courses will allow us to grow our Forensic Science Program and to give our students more relevant forensic science electives. See Appendix D.

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)

1. B.S. Forensic Science deletions from requirements:

Remove elective options:	Any BIOL above 3000		
	BIOL 2224	Microbiology	4
	BIOL 4420	Developmental Biology	4

Total hours deleted. 0

B. Addition of course(s) or credit(s) from program(s)

1. B.S. Forensic Science additions: these will all be options for specialization elective category

FORS 3301 Human Osteology	(4)
FORS 3305 Forensic Anthropology	(4)
FORS 3310 Forensic Toxicology	(4)
FORS 3225 Forensic Taphonomy	(2)
FORS 3215 Fingerprint Analysis	(2)

Total hours added. 0

C. Provision for interchangeable use of course(s) with program(s)

Not applicable.

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

Revised catalog course descriptions for all the courses shown in the table in Appendix B and course outline is included in Appendix C. **FORS 2225 Trace Evidence and Microscopy**.

E. Other changes to existing courses such as changes to title, course number, and elective or required status.

Name change: FORS 2225 Forensic Microscopy and Spectroscopy (3) to **FORS 2225 Trace Evidence and Microscopy**. See Appendix C #1.

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU, PC&TC, or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.

Number	Course Title	Credits	Prerequisites	Ownership	Status
FORS 3301	Human Osteology	4	BIOL 1106 with a C or higher	FSU	Elective
FORS 3305	Forensic Anthropology	4	FORS 3200 with a C or higher	FSU	Elective
FORS 3310	Forensic Toxicology	4	FORS 3200 with a C or higher	FSU	Elective
FORS 3225	Forensic Taphonomy	2	FORS 3200 with a C or higher	FSU	Elective
FORS 3215	Fingerprint Analysis	2	FORS 3200 with a C or higher	FSU	Elective

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.

Appendix B contains the catalog course descriptions for the proposed new courses.

3. Include, as an appendix, a detailed course outline consisting of at least two levels.

Appendix C #2-6 contains the two-level course outlines for the proposed new courses.

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.

Appendix C also contains the Outcome Competencies and Methods of Assessment for the proposed new courses.

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

1. Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

2. Include proof that this proposal meets the degree definition policy (Board of Governor's Policy #52) as part of the Proposed Program in Appendix A.

3. Exceptions to the degree definition policy: As per policy #52, programs seeking exceptions to any of the maximum credit hour limits must submit formal requests to the Board of Governors for approval. Explain the rationale for the exception by documenting the existence of one or more of the criteria in paragraph 4.2.

RATIONALE FOR THE PROPOSAL.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

- The Forensic Science Program is making elective revisions based on course offerings at similar institutions, along with alumni feedback, and feedback of the Forensic Science program review. In order to compete with similar institutions we need to offer more direct forensic science courses, replacing biology and chemistry electives.

- There are currently 70 forensic science majors and each student is required to take a minimum of 8 specialization, elective hours. We hope to grow the major and reach 150 total majors in the next 3-5 years.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

- According to the past AAFS visit, we were lacking in forensic science specialized courses and full-time faculty members. When comparing to other accredited institutions we lack heavily in specialized forensic science courses. Four out of five of these courses are extremely cheap to run and can incorporate materials already present in the forensic science laboratory.

- Forensic Toxicology is the only course that will require additional purchases. The instrument that will be used in this course was purchased last year on an Instrumentation Grant which this department co-authored. Monetary needs to successfully run this course would include: lab supplies (reagents, chemicals, kits). Other monetary needs would go towards the chemistry faculty member assisting in developing laboratory methods. This could be met with release time.

- As the program grows, the forensic science budget should grow accordingly.

- The new courses will be offered every-other year until the program grows and demand increases. These courses will fit into the 12-hour faculty load with no faculty overload.

Example of when the course would be offered:

Courses	Offered
Human Osteology	Fall 2018, Fall 2020, etc.
Forensic Anthropology	Spring 2019, Spring 2021, etc.
Forensic Toxicology	Fall 2019, Fall 2021, etc.
Forensic Taphonomy	2nd 8 weeks - Spring 2020, Spring 2022, etc.
Fingerprint Analysis	1st 8 weeks - Spring 2020, Spring 2022, etc.

III.

Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
Science & Technology	Steven Rost	Steven Rost

IV. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

No.

V. ADDITIONAL COMMENTS.

APPENDIX A

B.S. Degree in Forensic Science
Current Program

Required Major Courses		**HRS**
BIOL 1106	Biological Principles II	4
BIOL 3360	Biochemistry	4
BIOL 3380	Genetics	4
BIOL 3390	Molecular Biotechnology	4
CHEM 1105	Chemical Principles I	5
CHEM 2200	Foundational Biochemistry	4
CHEM 2201	Organic Chemistry I	4
CHEM 2202	Organic Chemistry II	4
CHEM 2205	Analytical Chemistry	4
CHEM 3315	Instrumental Analysis	4
FORS 2201	Introduction to Forensic Science	4
FORS 2225	Microscopy and Spectrometry	3
FORS 3200	Forensic Biology	4
FORS 3385	Research in Forensic Science	3
FORS 4401	Capstone Seminar in Forensic Science	3
FORS 4411	Forensic Science Internship	2
MATH 1113	Applied Statistics	3
TOTAL Required Major Courses		63
Specialization Electives - 8 hours		
BIOL 2224	Microbiology	4
BIOL 4420	Developmental Biology	4
CHEM 3301	Physical Chemistry I	4
CHEM 3304	Inorganic Chemistry	4
CHEM 4404	Synthetic Methods and Materials	4
CHEM 4412	Physical Chemistry II	4
		8
TOTAL HOURS FOR MAJOR		**72**

Required and Recommended General Studies Courses	
Attribute IA – Critical Analysis	3
ENGL 1102 (required)	
Attribute IB – Quantitative Literacy	4
MATH 1585 or 2501 (required)	
Attribute IC – Written Communication	3
ENGL 1101 (required)	
Attribute ID – Teamwork	3
CRIM 2295 (required)	
Attribute IE – Information Literacy	IA
ENGL 1102 (required)	
Attribute IF – Technology Literacy	3
TECH 1100	

Attribute IG – Oral Communication		3
	COMM 2200	
Attribute III - Citizenship		3
	POLI 1103	
Attribute IV - Ethics		ID
	CRIM 2295 (required)	
Attribute V - Health		3
	CRIM 2212	
Attribute VI - Interdisciplinary		III
	POLI 1103	
Attribute VIIA - Arts		3
	INTR 1120	
Attribute VIIB - Humanities		VIIA
	INTR 1120	
Attribute VIIC – Social Sciences		V
	CRIM 2212	
Attribute VIID - Natural Science		4-5
	PHYS 1101 or 1105 (required)	
Attribute VIII – Cultural Awareness		3
	Any course in VIII	
Additional General Studies hours		4-5
	PHYS 1102 and 1106 (required)	
Writing Intensive	BIOL 3390	X
TOTAL GENERAL STUDIES HOURS		**39-41**
TOTAL FREE ELECTIVES		**7-9**
TOTAL HOURS		**120**

Required Major Courses		HRS
BIOL 1106	Biological Principles II	4
BIOL 3360	Biochemistry	4
BIOL 3380	Genetics	4
BIOL 3390	Molecular Biotechnology	4
CHEM 1105	Chemical Principles I	5
CHEM 2200	Foundational Biochemistry	4
CHEM 2201	Organic Chemistry I	4
CHEM 2202	Organic Chemistry II	4
CHEM 2205	Analytical Chemistry	4
CHEM 3315	Instrumental Analysis	4
FORS 2201	Introduction to Forensic Science	4
FORS 2225	Trace Evidence and Microscopy	3
FORS 3200	Forensic Biology	4
FORS 3385	Research in Forensic Science	3
FORS 4401	Capstone Seminar in Forensic Science	3
FORS 4411	Forensic Science Internship	2
MATH 1113	Applied Statistics	3
TOTAL Required Major Courses		63
Specialization Electives - 8 hours		
CHEM 3301	Physical Chemistry I	4
CHEM 3304	Inorganic Chemistry	4
CHEM 4404	Synthetic Methods and Materials	4
CHEM 4412	Physical Chemistry II	4
FORS 3301	Human Osteology	4
FORS 3305	Forensic Anthropology	4
FORS 3310	Forensic Toxicology	4
FORS 3225	Forensic Taphonomy	2
FORS 3215	Fingerprint Analysis	2
		8
TOTAL HOURS FOR MAJOR		**71**

Required and Recommended General Studies Courses	
Attribute IA – Critical Analysis	3
ENGL 1102 (required)	
Attribute IB – Quantitative Literacy	4
MATH 1585 or 2501 (required)	
Attribute IC – Written Communication	3
ENGL 1101 (required)	
Attribute ID – Teamwork	3
CRIM 2295 (required)	
Attribute IE – Information Literacy	IA
ENGL 1102 (required)	
Attribute IF – Technology Literacy	3
TECH 1100	
Attribute IG – Oral Communication	3

	COMM 2200	
Attribute III - Citizenship		3
	POLI 1103	
Attribute IV - Ethics		ID
	CRIM 2295 (required)	
Attribute V - Health		3
	CRIM 2212	
Attribute VI - Interdisciplinary		III
	POLI 1103	
Attribute VIIA - Arts		3
	Any course in VIII	
Attribute VIIB - Humanities		3
	History or Literature that also counts for attribute VIII	
Attribute VIIC – Social Sciences		V
	CRIM 2212	
Attribute VIID - Natural Science		4-5
	PHYS 1101 or 1105 (required)	
Attribute VIII – Cultural Awareness		VIIB
	History or Literature that also counts for attribute VIIB	
Additional General Studies hours		4-5
	PHYS 1102 and 1106 (required)	
Writing Intensive	BIOL 3390	X
TOTAL GENERAL STUDIES HOURS		**39-41**
TOTAL FREE ELECTIVES		**8-10**
TOTAL HOURS		**120**

Appendix B. Course Descriptions for Existing and Revised/New Courses

Old Catalog Course Description	New Catalog Course Description
	FORS 3301 Human Osteology. 4 hours. This course introduces methods and concepts used to analyze human skeletal remains in forensic and archaeological contexts. Osteology is a hands-on course providing a basis for advanced studies such as: comparative anatomy, forensic anthropology, bioarchaeology, paleoanthropology, and gross anatomy. Students will learn standard osteological analyses using real human remains. The course will consist of hands-on lectures and mostly independent laboratory activities. In this course students will learn: 1) how to identify whole and fragmentary human skeletal remains, 2) how to distinguish between human and non-human bone, and 3) how to estimate age, sex, ancestry, and stature of an individual. PR: BIOL 1106 with a C or higher
	FORS 3305 Forensic Anthropology. 4 hours. This course provides a broad overview of the sub-discipline forensic anthropology. Forensic anthropology applies human osteology to a legal setting. In this course students will build on previously learned human osteology by applying it to scenarios such as, mass disasters, human rights, and trauma. Students will learn how to differentiate between comingled remains and fragmentary remains. This course will also give a brief overview of human decomposition as it leads to skeletal identification and time since death. This course will consist of hands-on laboratory activities. PR: FORS 3200 with a C or higher.
	FORS 3225 Forensic Taphonomy 2 hours. This course looks into human taphonomy with an emphasis on forensics. We will focus on the process of decomposition, burial, and re-exposure of individuals. This course will look at how taphonomy alters evidence during forensic investigations. This is an 8 week course. FORS 3200 with a C or higher.
FORS 2225 Forensic Microscopy & Spectroscopy. 3 hrs. This course is an introduction to the microscopy and spectroscopic techniques employed by forensic scientists to analyze trace evidence including hairs, fibers, paint chips, glass fragments, etc. The course will consist of two hours of classroom instruction and two hours of laboratory each week. PR: CHEM 2200 and MATH 1115 or higher. Spring semester of even years.	FORS 2225 Trace Evidence and Microscopy. 3 hours This course is designed to teach students how to properly evaluate and compare impression evidence, and apply forensic microscopy of unknown materials. Students will analyze various hair, fibers, glass, paint, and soil using microanalysis. This course is hands-on providing extensive experience with microanalysis. PR: CHEM 2200 and MATH 1540 or higher. Spring semester of even years.
	FORS 3310 Forensic Toxicology. 4 hours. This course focuses on aspects of drug chemistry with an emphasis in forensics. Students will learn standard analytical testing techniques. This course will also focus on how forensic toxicology relates to pharmacokinetics and metabolism, drug abuse, postmortem toxicology, and driving under the influence of alcohol and drugs. We will address mechanisms of drugs and toxins with their physiological and pathological consequences. PR: CHEM 2200, FORS 3200 with a C or higher.

	FORS 3215 Fingerprint Analysis. 2 hours. Fingerprints play a large role in forensic science. In this course we explore different techniques and methods to capture and analyze fingerprints. Students will learn advanced techniques in latent fingerprints, lifting fingerprints, and preparation of fingerprints in a forensic setting. We will also discuss factors that may affect fingerprint analysis. PR: FORS 3200 with a C or better or permission.

Appendix C. Course Descriptions, Outlines and Outcomes for New and Revised Courses

1. FORS 2225 Trace Evidence and Microscopy

I. Microscope maintenance
II. Stereomicroscope
    a. Familiarization with the stereomicroscope
III. Compound light microscope
    a. Familiarization with the compound light microscope
    b. Measurements using the ocular micrometer
    c. Microscopic mounting techniques
    d. Determining refractive index
IV. Polarized light microscope
    a. Familiarization with the polarized light microscope
    b. Determining refractive index of anisotropic materials
    c. Determining birefringence and sign of elongation
V. Fluorescence microscope
    a. Familiarization with the fluorescence microscope
VI. Phase contrast microscope
    a. Familiarization with phase contrast microscope
VII. Physical match examinations
VIII. Construction examinations of evidence
IX. Lamp filament examination
X. Fingerprint examinations and comparison
XI. Took mark examination
XII. Firearm examination
    a. Firearms
    b. Gunshot residue
XIII. Shoe and tire print/impression examination
XIV. Botanical examinations
XV. Paint examinations
XVI. Hair examinations
    a. Hair
    b. Animal hair
    c. Determination of racial and somatic origin characteristics of human hair
    d. Human hair examinations and comparisons
    e. Evaluation of human hair for DNA
XVII. Glass examination
    a. Glass
    b. Glass breakage determinations
XVIII. Fiber examination
    a. Textile fibers
    b. Natural fibers
    c. Man-made fiber
    d. Fiber comparison
XIX. Soil examination
    a. Soil
    b. Identification of minerals in soil
XX. Microchemical testing – inorganic ions
XXI. Microscopic analysis of controlled substances
XXII. Semen examinations

Outcome Competencies and Methods of Assessment

LEARNING outcomes for Trace Evidence and Microscopy

1. Demonstrate basic microscope maintenance and proper use techniques.
2. Discuss types of objects and demonstrate proper examinations.
3. Demonstrate successful analysis of trace materials.
4. Differentiate between trace materials (fingerprint, tool, firearm, shoe, tire, botanical, paint, hair, glass, fiber, and soil).
5. Defend trace analysis and matching materials in a court room setting.

Assessment for lecture/discussion/lab LEARNING outcomes

Learning outcomes will be assessed by standard exam and quiz questions that are multiple choice or matching or essay format. Other objectives will be tested by lab practicals. 1.1 Broad Knowledge and 2.1 Graduate Competitiveness.

1. FORS 3301 Human Osteology

XXIII. Introduction

- a. Introduction to human osteology
  - i. Watch video about Dr. William Bass and the creation of the first ever Body Garden and its importance in forensic anthropology.
- b. Sub-fields of osteology
  - i. Forensic osteology
  - ii. Paleoanthropology
  - iii. Archaeology
    1. bioarchaeology
- c. Information gained from skeletal morphology
  - i. Environment
  - ii. Populations
  - iii. Cultural behaviors
  - iv. Evolutionary history
  - v. Age, sex, stature, diet, ancestry, and pathology of an individual
- d. Differentiating between human and non-human remains
  - i. Quadruped long bones
  - ii. Biped long bones
    1. Give example of local business owners reaching out to determine if bones discovered were animal or human and how hard/easy it is to distinguish.
- e. Differentiating between multiple human remains
  - i. How many individuals
  - ii. What you can gain from fragmentary remains
  - iii. How to distinguish between multiple individuals

XXIV. Anatomical language

- a. Anatomical position
- b. Cranial & post cranial
- c. Axial & appendicular
- d. Plans & sections
  - i. Coronal
  - ii. Frontal
  - iii. Sagittal
  - iv. Cross
  - v. Longitudinal
  - vi. Oblique

e. Directional terminology
    i. Body
        1. Anterior/posterior
        2. Cranial/caudal
        3. Medial/lateral
        4. Proximal/distal
        5. Palmar/dorsal
        6. Plantar/dorsal
    ii. Teeth
        1. Distal/mesial
        2. Buccal/lingual
f. Anatomical regions
g. Joint movement
    i. Flexion/extension/hyperextension
    ii. Abduction/adduction
    iii. Circumduction
    iv. Medial/lateral rotation
    v. Elevation/depression
    vi. Dorsiflexion/plantar flexion
    vii. Inversion/eversion
    viii. Radial deviation/ulnar deviation
    ix. Supination/pronation
        1. Joint movement corresponds with a lab activity using a goniometer to test joint range-of-motion of class and compares it to the average. Use real tools common in a PT clinic, AT clinic, or other Sport's medicine facility.
h. General meaning of words and how it affects skeletal feature

XXV. Ethics in osteology
a. Ethics
    i. Define
    ii. Components of ethics
        1. Legal
        2. Political
        3. Societal
        4. Economical
        5. Expert Witnessing
    iii. Common ethical issues
        1. NAGPRA
        2. Australian Aborigines
        3. Orthodox Jews
        4. African Americans
    iv. Caring for the dead
        1. Religious
        2. Cultural
    v. Discuss potential solutions to ethical issues studying human remains have
        1. 3D scanning
        2. Racial repayment
        3. Only that ethnicity working with remains
        4. Etc.

XXVI. Bone Biology and Variation
a. Skeletal system
    i. Function & structure

b. Blood formation
    i. Red bone marrow
    ii. Yellow bone marrow
    iii. WBC
    iv. RBC
c. Skeletal ontogeny
d. Skeletal morphology & high amounts of variation
    i. Every skeleton is unique
    ii. Sexual dimorphism
    iii. Population variation
    iv. Idiosyncratic variation
e. Bone materials
    i. Collagen
    ii. Hydroxyapatite
    iii. Periosteum
    iv. Collagen
f. Bones as levers to the muscular system
    i. 1,2,3 levers
    ii. Joints
        1. Tendon vs ligament
    iii. Types of joints
        1. Fibrous
            a. Syndesmoses
            b. Gomphosis
            c. Synostosis
        2. Cartilaginous
            a. Synchondroses
            b. Symphysis
        3. Synovial
            a. Pivot
            b. Ball and socket
            c. Hinge
            d. Condyloid
            e. Saddle
            f. Plane
    iv. Origin/insertion
        1. Agonist/antagonist
g. Gross anatomy of bone
    i. Cortical/trabecular
        1. Endosteal surface
        2. Periosteal surface
        3. Medullary cavity
h. Ontogeny
    i. Diaphysis
    ii. Osteogenic tissue
    iii. Metaphysis
    iv. Epiphyses
        1. Epiphyseal plate
        2. Epiphyseal line
        3. Pseudo-epiphysis
i. Skeletal histology

i. Differentiate between mature and immature bone
ii. Secondary osteons
iii. Haversian canal
iv. Volkmann's canal
v. Lacunae
vi. Osteoblasts
vii. Osteoclasts

j. Osteogenesis
i. Intramembranous ossification
ii. Endochondral ossification
iii. Medical issues- osteogenesis imperfecta

k. Bone repair
i. Callus
ii. Primary bony callus
iii. Compact bone
iv. Medical issue- fibrodysplasia ossificans profressiva (FOP)

XXVII. Skull & Teeth

a. 20 bones of the skull
i. Articulated & disarticulated
1. Cranial bones
2. Facial bones
3. Wormian bones
4. Inca bone
5. All bony landmarks
6. Siding
7. Age
8. Sex
9. Stature
10. Ancestry

b. Bone growth
i. Skull bones
ii. Suture fusion
iii. Teeth
1. Deciduous
2. Adult

c. Craniometric & odontometrics

d. Dental form and function
i. Dental terminology
ii. Dental formula
1. 2:1:2:3/2:1:2:3
iii. Tooth anatomy

e. Medical issues
i. Cavities
ii. Infections
iii. Braces
iv. Concussions
v. Early skull fusion

XXVIII. Hyoid and vertebrae

a. Disarticulated and articulated bones
1. Age
2. Sex

3. Stature
4. Ancestry

b. Bone growth
c. Function of vertebrae and hyoid
d. Joints
e. Medical
    i. Scoliosis
    ii. Lordosis
    iii. Hyoid fracture
    iv. Spinal injuries
    v. Disk problems

XXIX. Thorax: sternum and ribs

a. Disarticulated and articulated bones
    1. Age
    2. Sex
    3. Stature
    4. Ancestry
b. Bone growth
c. Siding
d. Function and purpose
e. Joints
f. Medical
    i. CPR
    ii. Rib fracture

XXX. Shoulder girdle

a. Disarticulated and articulated bones
    1. Age
    2. Sex
    3. Stature
    4. Ancestry
b. Bone growth
c. Siding
d. Joints
e. Medical
    i. Rotator cuff

XXXI. Arm

a. Disarticulated and articulated bones
    1. Age
    2. Sex
    3. Stature
    4. Ancestry
b. Bone growth
c. Siding
d. Joints
e. Medical
    i. Fractures
    ii. Tennis elbow

XXXII. Hand

a. Disarticulated and articulated bones
    1. Age
    2. Sex

3. Stature
4. Ancestry

b. Bone growth
c. Joints
d. Medical
    i. Carpal tunnel
    ii. Arthritis

XXXIII. Pelvis

a. Disarticulated and articulated bones
    1. Age
    2. Sex
    3. Stature
    4. Ancestry
b. Bone growth
c. Siding
d. Joints
e. Medical
    i. Hip dysplasia
    ii. Arthritis
    iii. Hip dislocation
    iv. Coccyx facture
    v. Human ‘tail’
    vi. Hip replacement

XXXIV. Leg

a. Disarticulated and articulated bones
    1. Age
    2. Sex
    3. Stature
    4. Ancestry
b. Bone growth
c. Siding
d. Joints
e. Medical
    i. Knee replacement
    ii. Athletic injuries

XXXV. Foot

a. Disarticulated and articulated bones
    1. Age
    2. Sex
    3. Stature
    4. Ancestry
b. Bone growth
c. Joints
d. Medical
    i. Sprained ankle
    ii. Bipedal
    iii. Broken foot

XXXVI. Biomechanics

a. Muscular attachments and movements
b. Walking, running
c. Medical

i. How to tell if someone has a bone condition based on gait
ii. Athletic effects on skeleton

XXXVII. Field procedures for skeletal remains
a. How to excavate human remains
i. Document
ii. Photo
iii. Sketch
iv. Bag
v. Clean
vi. Label
vii. Analyze
b. Common archeological tools

XXXVIII. Laboratory procedures and reports
a. Clean
b. Stabilize/repair broken bones
c. Prepare skeletons for analysis
d. Difference between fossil and skeletal
e. Restoration
i. CT
ii. MRI
iii. 3D scan
iv. 3D print
f. Use standard osteometric tools
i. Calipers
ii. Osteometric board
iii. Mandibulometer
iv. Spreading calipers
g. Students will conduct osteological analyses on a set of skeletal remains and file these reports

XXXIX. Pathology
a. Antemortem
b. Postmortem
c. Perimortem
d. Paleoepidemiology
e. Paleopathology
f. Fracture
g. Dislocation
h. Artificial deformities
i. Trephining
ii. Skull binding
i. Skeletal disorders
i. Cranial
ii. Vertebral
iii. Circulatory
iv. Osteoarthritis
v. Infectious disease
vi. Metabolic disease
vii. Endocrine disorders
viii. Periodontal disease

XL. Postmortem skeletal modifications
a. Taphonomy
b. Antemortem

c. Bone fracture
d. Chemistry
e. Weather
f. Human vs non-human
g. Scavenging
h. Human bone modification
    i. Cuts, chops, gun, scraps

Outcome Competencies and Methods of Assessment

LEARNING outcomes for Osteology

1. Utilize methods for advanced and accurate skeletal identification. I.e.: siding, age, sex, ancestry, height.
2. Distinguish between human and non-human remains.
3. Discuss the accepted theory of the nature and origin of diversity between human populations and how these are affected by cultural practices.
4. Analyze biomechanical functions of the skeletal system of living and non-living individuals.
5. Execute proper handling and respect when working with human skeletal remains.

Assessment for lecture/discussion/lab LEARNING outcomes

Learning outcomes will be assessed by standard exam and quiz questions that are multiple choice or matching or essay format. Other objectives will be tested by lab practicals. Students are responsible for conducting an in-class research project that will overlap with all concepts learned throughout the semester. This resulting project will end with a scientific poster and presentation to the class. – This ties into the overarching program outcomes: 3.1 Written Expression and 4.1 Oral Expression.

2. FORS 3305 – Forensic Anthropology

Introduction to Forensic Anthropology Course Outline

XLI. Introduction

a. What is Forensic anthropology?
b. History of Forensic Science
    i. Thomas Dwight- father of forensic anthropology
    ii. Wilton Marion- wrote FBI manual on skeletal identification
    iii. William Bass, Ellis Kerley, Clyde Snow- Body farm
c. Medicolegal
    i. Define
d. Forensic anthropology protocol
    i. Are they human?
    ii. How many individuals?
    iii. When was death?
    iv. How old?
    v. Sex, race, stature?
    vi. Anatomical anomalies?
    vii. COD?
    viii. Manner of death?
e. Anthroposcopy
    i. Osteometry

ii. Standard osteometric tools
iii. Contemporary/noncontemporary remains
iv. Regression for skeletal data

XLII. Basics of human osteology and odontology
- a. Anatomical language
  - i. Anatomical position
  - ii. Cranial & post cranial
  - iii. Axial & appendicular
  - iv. Plans & sections
    1. Coronal
    2. Frontal
    3. Sagittal
    4. Cross
    5. Longitudinal
    6. Oblique
  - v. Directional terminology
    1. Body
       a. Anterior/posterior
       b. Cranial/caudal
       c. Medial/lateral
       d. Proximal/distal
       e. Palmar/dorsal
       f. Plantar/dorsal
    2. Teeth
       a. Distal/mesial
       b. Buccal/lingual
- b. Skeleton
  - i. All bones and landmarks
  - ii. Histology

XLIII. Medicolegal significance
- a. What is medicolegal?
- b. Distinguishing bone and teeth from other materials
  - i. Human and non-human
  - ii. Residue
  - iii. Ash
    1. Histological differences in each
- c. Distinguishing bone maturity
  - i. Human vs non-human
  - ii. Morphology of human vs non-human
- d. State of preservation
  - i. Color
  - ii. Texture
  - iii. Hydration
  - iv. Weight
  - v. Condition
  - vi. Fragility
  - vii. Soft tissue
- e. Body modifications
  - i. Personal belongings
- f. Condition of interment
  - i. graves

XLIV. Recovery scene methods
    a. Issues
        i. Police and the forensic anthropologist
    b. Locating the remains
        i. GPR
        ii. Magnetometer
        iii. Visual assessment
    c. Searching for remains
        i. Soil compaction
    d. Searching for associated materials
        i. Search patterns
        ii. Mapping
    e. Datum point
        i. Quadrates
        ii. Rough sketch
        iii. Final sketch
    f. Grave excavation
        i. Common tools
        ii. Excavating and documenting
        iii. Collecting remains
            1. Labeling
            2. Chain of custody
    g. Mass disasters
        i. Personnel
        ii. Locating, mapping, collecting
        iii. Temporary morgue
        iv. Victim information
        v. DMORT
    h. Genocide investigation
        i. Field conditions
        ii. Excavating mass graves

XLV. Postmortem interval
    a. Forensic taphonomy
    b. Postmortem interval PMI
    c. Decomposition
        i. Autolysis
        ii. Putrefaction
        iii. Adipocere
        iv. Mummification
        v. Skeletonization
    d. Surface finds
        i. Climate
            1. Hot/dry
            2. Warm/moist
            3. Cold
        ii. Buried
        iii. Submerged
        iv. Body score
    e. Animal scavenging
        i. Stages of scavenging
    f. Forensic entomology

g. Forensic botany
h. Chemical analysis

XLVI. Treatment and examination
a. Forensic anthropology laboratory
b. Preparing remains
c. Examination
i. Removal of soft tissue
ii. Disarticulation
iii. Reconstruction
iv. Sorting
v. Reassembly
d. Inventorying
i. Standard osteological analysis
e. Fragmented remains
i. MNI- minimum number of individuals
ii. GIS- geographic information system

XLVII. Ancestry
a. Cultural affiliation
i. NAGPRA
b. Ethnicity/race
c. Anthroposcopic traits
i. Eyes
ii. Nose
iii. Maxilla
iv. Face
v. Vault
vi. Jaw/teeth
vii. Frequency of traits
d. Osteometric traits
i. Direct measurements
1. Long bones
2. Skull
e. Other ancestral characteristics
i. Mandible
ii. Hair
f. Genetics
i. Blood types
ii. DNA
1. Ancestry Informative markers (AIMS)

XLVIII. Sex
a. Pelvis
b. Anthroposcopic traits
i. Pelvis
ii. Skull
iii. Mandible
iv. Sacrum
c. Osteometric traits
d. Subadults

XLIX. Age at death
a. Subadults
i. Epiphyses

ii. Diaphysis
iii. Long bone length
iv. Primary and secondary ossification centers
1. Epiphyseal union
v. Deciduous teeth
1. Tooth eruption
vi. Skull fusion

b. Adults
i. Symphyseal surface
1. Pubic symphysis
2. Os coxae auricular surface
3. Ribs
4. Sutures

L. Stature

a. Long bones
i. Various formulas for each bone and ethnicity
ii. Partial long bone formula

LI. Death, trauma, and the skeleton

a. Define trauma
b. Cause and manner of death
c. Basic bone trauma
i. Fractures
1. Complete
2. Incomplete
3. Hinge
4. Greenstick
5. Displacement
6. Simple
7. Comminuted
8. Hoop
9. Radiating
10. Pathological
11. Stress
12. Fatigue

d. Characteristics of force trauma
i. Direction
ii. Tension
iii. Compression
iv. Torsion
v. Shearing
vi. Speed
vii. Focus

e. Types of trauma
i. Blunt
ii. Sharp
iii. Projectile
iv. Miscellaneous

f. Timing of bone injury
i. Antemortem
ii. Perimortem
iii. Postmortem

LII. Projectile trauma
- a. Ammunition & firearms
  - i. Caliber
  - ii. Gauge
  - iii. Pellets
  - iv. Bullet construction
    1. Hollow
    2. Full-metal
    3. Semijacket
- b. Velocity
  - i. Calculating velocity
  - ii. Rifling
  - iii. Entry wound
  - iv. Exit wound
- c. Bullets on bone
- d. Wound beveling
  - i. Inward beveling
  - ii. Beveling
  - iii. Outward beveling
  - iv. Reverse beveling
- e. Wound shape
  - i. Round
  - ii. Oval
  - iii. Keyhole
  - iv. Irregular
  - v. Fracture lines
    1. Radiating
    2. Concentric
    3. Butterfly
- f. Bullet wound analysis
  - i. Description
  - ii. Caliber
  - iii. Bullet construction
  - iv. Velocity
  - v. Direction of fire
  - vi. Sequence
- g. Pellet wound analysis
  - i. Misc projectiles
- h. Determining cause & manner of death

LIII. Blunt trauma
- a. Size
  - i. Length x width
- b. Shape
  - i. Round
  - ii. Angular
- c. Weight
  - i. Heavy vs light objects
- d. Fractures
  - i. Bow
  - ii. Plastic
  - iii. Bruise

iv. Occult intraosseous
v. Torus/buckling
vi. Greenstick
vii. Toddler's
viii. Vertical
ix. Depressed
x. Complete fractures
1. Transverse fracture
2. Oblique fracture
3. Spiral fracture
4. Comminuted fracture
5. Epiphyseal fracture

e. Effects of BFT
i. Outbending
ii. Inbending
1. Skull
iii. Buttresses
1. Alveolar ridge
2. Malar eminences
3. Nasofrontal process
4. LeFort fracture
a. LeFort 1
b. LeFort 2
c. LeFort 3
5. Midfrontal
6. Midoccipital
7. Posterior temporal
8. Anterior temporal
iv. Ring fracture
v. Long bones
vi. Other bones

f. Wound analysis
i. Description
1. Size
2. Shape
3. Direction
4. Energy
5. Number of blows
6. Sequence
7. Misc analysis
8. Cause & manner of death

LIV. Sharp and miscellaneous trauma

a. Sharp trauma
i. Wastage
ii. Effects of sharp trauma
1. Puncture
2. Incisions
3. Characteristics
4. Clefts
iii. Wound analysis
1. Description

2. Instrument characteristics
3. Force
4. Number of traumatic events
5. Sequence

b. Blast trauma
c. Strangulation
    i. Hanging
    ii. Ligature
    iii. Manual
        1. Hyoid
            a. Mature
            b. Immature
d. Chemical trauma
e. Cause and manner of death

LV. Antemortem skeletal conditions
a. Accessory ossicle
    i. Accessory foramen
    ii. Foramen of Huschke
    iii. Septal aperture
b. Skeletal anomalies
    i. Wormian bones
    ii. Epipteric bone
    iii. Japonium
    iv. Metopism
    v. Spondylolysis
    vi. Spina bifida
    vii. Bipartite patella
    viii. Congenital pseudoarthrosis
    ix. Persistent ulna styloid ossicle
    x. Os trigonum
c. Markers of occupational stress
    i. Hypertrophy
    ii. Insertion of muscles
    iii. Osteophytosis
    iv. Facets
    v. Grooves
    vi. Deformations
    vii. Accessory bones
d. Pathological conditions
    i. Osteolytic disease
    ii. Osteoproliferative lisions
    iii. Rickets
    iv. Lytic lesions
        1. Anemia
        2. Porotic hyperstosis
        3. Schmorl’s nodes
    v. Proliferative lesions
        1. Osteophytes
        2. Generalized bone disease
        3. Button osteoma
    vi. Deformative lesions

1. Wedging
2. Osteomalacia
3. Kyphosis

e. Misc anomalies
   i. Trephination
   ii. Trauma-induced pseudoarthrosis

LVI. Postmortem changes to bone
   a. Dismemberment
   b. Saw & saw damage
      i. Crosscut saws
      ii. Rip saws
      iii. Tooth set
         1. Kerf
      iv. Superficial false start scratches
         1. False start kerf
      v. Sectioned bone cut
      vi. Breakaway spur
      vii. Analysis of saw marks
         1. Description
         2. Direction
         3. Teeth
         4. Blade width
         5. Blade type
         6. Blade shape
         7. Energy
   c. Animal scavenging
      i. Carnivores
      ii. Punctures
      iii. Pits
      iv. Scoring
      v. Furros
         1. Rodents
   d. Fire damage
      i. Temperature
      ii. Color change
   e. Weathering
   f. Burial damage
   g. Water transport damage
   h. Miscellaneous
      i. Cryoturbation
      ii. Mineralization

LVII. Additional aspects of individualization
   a. Define individualization
   b. Facial approximation
      i. Facial thickness
         1. Width = opening width + 12.2
         2. Width = opening width + 1.63
         3. PP = 0.56 X Na-M
      ii. Epicanthic fold
      iii. Pat pads
      iv. Everted lips

v. Ear length
1. Length = 54.95 + (4.85*sex) + (.1*age)

c. Handedness

d. Body weight
i. Wt = 0.024 (dry skeletal wt) + 50.593
ii. Wt = 0.013 (dry skeletal wt) + 85.406

LVIII. Obtaining an identification

a. Positive
i. Personal identification
ii. Radiography
1. Frontal sinuses
2. Septum
3. Scalloping
iii. Dental/surgical devices

b. Probable
i. Point comparison
ii. Combing information
1. Match to antemortem characteristics
2. Bayesian statistics
iii. Photographic superimposition

c. Misc
i. Identification by exclusion
1. DNA testing

LIX. Ethics

a. Responsibilities
i. Confidentiality
ii. Honesty
iii. Evidence
iv. Opinion
v. Expert witnessing
vi. Possible
vii. Probable
viii. General tendency
ix. Certainty
x. Word qualifiers
xi. inconsistent

b. Personal ethics

c. Final report
i. Court testimony
ii. Pretrial meeting
iii. Qualifications
iv. Direct examination
v. Corss-examine
vi. Impeach
vii. Redirect examination

Outcome Competencies and Methods of Assessment

LEARNING outcomes for Forensic Anthropology

1. Apply advanced and accurate skeletal identification to individuals with pathologies.
2. Distinguish between multiple individuals based on fragmentary remains.

3. Apply proper forensic techniques when analyzing cause of death on skeletal remains.
4. Execute proper handling and respect when working with human skeletal remains.

Assessment for lecture/discussion/lab LEARNING outcomes
Learning outcomes will be assessed by standard exam and quiz questions that are multiple choice or matching or essay format. Other objectives will be tested by lab practicals. Students are responsible for conducting an in-class research project that will overlap with all concepts learned throughout the semester. This resulting project will end with a scientific poster and presentation to the class. – This ties into the overarching program outcomes: 3.1 Written Expression and 4.1 Oral Expression.

3. FORS 3225 – Forensic Taphonomy

LX. Introduction
- a. What is taphonomy?
- b. Osseous data
- c. Taphonomic characteristics
- d. How to collect materials

LXI. Microscopic destruction of bone
- a. Skeletal histology
  - i. Bone regrowth
  - ii. Bone death

LXII. Human decomposition ecology
- a. Grave autopsy
  - i. Recognizing graves
  - ii. Collecting
  - iii. Preserving

LXIII. Forensic entomology
- a. Define
- b. Collection techniques
- c. Insect life
  - i. Flies
  - ii. Beetles
  - iii. Bees
- d. Insect development and temperature

LXIV. Human decomposition
- a. Algor mortis
- b. Rigor mortis
- c. Livor mortis
- d. Adipocere
- e. Autolysis
- f. Putrefaction
- g. Mummification
- h. Skeletonization
  - i. How weather/environment affects each of these

LXV. Decomposition effects
- a. Burial
  - i. Open
  - ii. Grave
  - iii. Shallow grave
  - iv. Under cement

v. Greenhouse effect
vi. water

b. Weather
i. Hot/dry
ii. Hot/humid
iii. Cold
iv. wet

c. Insect activity
i. Flesh eating beetles
ii. Flies
iii. Other beetles

d. Drugs, toxins

Outcome Competencies and Methods of Assessment

LEARNING outcomes for Forensic Taphonomy

1. Explain the stages of decomposition and recognizes such stages when encountering remains.
2. Analyze insect activity to determine time of death.
3. Compare and contrast insect activity and decomposition.
4. Discuss how environment, weather, and location can affect decomposition.
5. Apply proper preservation techniques.

Assessment for lecture/discussion/lab LEARNING outcomes

Learning outcomes will be assessed by standard exam and quiz questions that are multiple choice or matching or essay format. Other objectives will be tested by lab practicals. Students are responsible for conducting an in-class research project that will overlap with all concepts learned throughout the semester. This resulting project will end with a scientific poster and presentation to the class. – This ties into the overarching program outcomes: 3.1 Written Expression and 4.1 Oral Expression.

4. FORS 3310 – Forensic Toxicology

LXVI. Fundamentals

a. Introduction
i. Define forensic toxicology
ii. Job of forensic toxicologists

b. History of forensic toxicology
i. Ancient Egypt
ii. Ancient Greece
iii. Ancient Rome
iv. Dark Ages and Medieval period
v. Dr. addington
vi. Orfila, the father of forensics
vii. Marsh text
viii. Lafarge case
ix. Reinsch test
x. Isolation of alkaloid poisons
xi. Development of forensic toxicology
1. Europe
2. US
a. Dr. Buchanan

b. Alcohol testing
xii. Chromatography
xiii. Mass spectrometry

c. Toxicity and toxidromes
i. Prongs of toxicity
1. Exposure
2. Dose
3. Mechanism
ii. Multiple drug effects
1. Additive
2. Synergistic
3. Potentiation
4. Antagonism
iii. Descriptions of toxicity or toxic potential
1. Issues
a. Concentration units
b. Unexpected effects
c. Class descriptions of toxicity
2. Measuring and describing
a. Measuring /describing the environment
b. Epidemiological studies
c. Individual symptoms/behaviors
d. Characterization of toxin levels
iv. Medical response
1. Clinical evaluation and response
a. Evaluation/stabilization
b. Emergency medical technician response
c. Consciousness assessment
d. History and physical examination
2. Patient monitoring and clinical laboratory testing
3. Toxidromes
a. Cholinergic
b. Anticholinergic
c. Sympathomimetic
d. Opiate
e. Hallucinogenic
f. Sedative-hypnotic
4. Antidotes
5. Decontamination

d. Toxicokinetics
i. Introduction to toxicokinetics
1. Mechanism
2. Expression
3. Magnitude
4. Pharmacokinetics
5. Pharmacodynamics
6. Toxicokinetics
ii. Fate of drugs and poisons in the body
iii. Blood
iv. Routes in & out
1. Absorption

a. Mechanisms of absorption
b. Factors affecting absorption
c. Drug delivery mechanisms
d. Bioavailability

2. Distribution
    a. Distribution process
    b. Compartments
    c. Volume of distribution
3. Elimination
    a. Parameters
    b. Kinetics
    c. Multiple dose considerations

e. Biotransformation
    i. Metabolism
        1. How metabolism occurs
        2. Metabolic transformations are enzymatic processes
        3. Limitation of enzymatic processes
            a. Saturation of enzyme catalysis
            b. Enzyme induction
            c. Inhibition of enzymatic processes
        4. Drug-drug interaction
    ii. Phase I and phase II reactions
        1. Phase I
            a. Cytochrome P450s
            b. Flavin-containing monooxygenases
            c. Cytosolic enzymes
        2. Phase II
            a. Glucuronidation
            b. Sulphation
            c. Methylation
            d. Acetylation
            e. Amino acids
            f. Glutathione
            g. Mercapturic acids
    iii. Reactive metabolites
f. Postmortem toxicology
    i. Postmortem examinations
        1. Role of medical examiner
        2. Scene investigation
        3. Types of postmortem examinations
            a. Records review
            b. External examination
            c. Autopsy
        4. Findings and reports
        5. Autopsy process
    ii. Role of toxicologist in postmortem forensic examinations
        1. Samples and sampling
        2. Scope of testing
            a. Screening
            b. Quantitative analysis
            c. Specialized toxicology testing

3. Challenges and confounders of postmortem testing
    a. Analytical
    b. Interpretive
4. Pediatric cases
5. Geriatric cases

LXVII. Organ system toxicology

a. Neurotoxicology
    i. Anatomy
    ii. Physiology
        1. Neurons
        2. Glial cells
    iii. Neurotoxicologic responses
        1. Susceptibility of the nervous system
        2. Manifestations of neurotoxicity
    iv. Neurotransmission
        1. Neuronal membrane potential
        2. Propagation of depolarization
        3. Events at the synapse
        4. Inhibitory neurotransmission
    v. Ion channel toxins
        1. Sodium channel agents
            a. Antiarrhythmic sodium channel agents
            b. Local anesthetics
        2. Potassium channel agents
        3. Calcium channel agents
    vi. GABA receptor inhibitors and agonists
    vii. Neural body toxins
    viii. Toxins that attack myelin
    ix. Toxins that attack axons
    x. Toxins that affect synaptic functions
    xi. Cholinergic toxins
b. Cardiac toxicology
    i. Anatomy and physiology
        1. Normal anatomy
        2. Normal electrophysiology
        3. Electrocardiogram
        4. Clinical assessment of heart conditions
    ii. Disease state
        1. Hypertrophy
        2. Ischemia and infarction
        3. Rate abnormalities
        4. Rhythm disturbances
            a. Atrial fibrillation
            b. Ventricular fibrillation
            c. Long QT syndrome and Torsades de Pointes
        5. Cardiomyopathies
        6. Tamponade
        7. Inflammation
        8. Heart failure
        9. Valvular disease
    iii. Mechanisms of therapy

1. Inhibition of Na-K ATPase
2. Sodium channel blockers
3. Calcium channel blockers
4. Potassium channel blockers
5. Adrenergic receptor blockers
6. Nitrates
7. Angiotensin-converting enzyme (ACE) inhibitors

iv. Common toxins
1. Cocaine and other sympathetic amines
2. Nicotine
3. Digoxin/digitalis
4. Doxorubicin
5. Tricyclic antidepressants

v. Uncommon toxins
1. Aconitine
2. Tetrodotoxin
3. Grayanotoxins
4. The yew plant
5. Lily of the valley
6. Oleander

c. Hepatotoxicity

i. Anatomical description
1. Gross description
2. Microscopic description
a. Classic lobule
b. Liver acinus
c. Portal lobule

ii. Physiological processes
1. Energy and nutrient processing
2. Synthesis of biomolecules
3. Detoxification
4. Bile formation and elimination
5. Storage

iii. Hepatic injury
1. Hepatocellular death: apoptosis and necrosis
2. Cholestasis and jaundice
3. Fatty liver
a. Steatosis
4. Cirrhosis
5. Disease states
a. Hepatitis
b. Diabetes

iv. Liver function tests
1. Other hepatic function measures

v. Hepatotoxins
1. Acetaminophen
2. Alcohol
3. Carbon tetrachloride
4. Mushroom toxins
5. Microcystins
6. Bromobenzene

7. Warfarin

d. Kidney toxicology
    i. General overview
        1. Anatomy and physiology, and basic functions
    ii. Excretion
        1. Filtration
        2. Reabsorption
        3. Secretion
    iii. Blood pressure control
    iv. Hormone production
        1. Erythropoietin
        2. Calcitriol
        3. Gluconeogenesis
    v. Clinical measurements of renal function
        1. Blood urea nitrogen
        2. Creatinine
        3. Glomerular filtration rate
    vi. Examples of toxins
        1. Heavy metals
        2. Aminoglycosides
        3. Chemotherapeutic agents
        4. Hexachorobutadiene
        5. Aristolochic acid
        6. Orellanine
e. Pulmonary toxicology
    i. Anatomy and physiology
        1. Lungs
        2. Physiology of breathing
        3. Clinical assessment of pulmonary function
    ii. Disease states
        1. Bronchial disease
        2. Parenchymal disease
        3. Interstitial diseases
    iii. Asphyxia
        1. Interference with cellular utilization of oxygen
            a. Biochemistry and physiology of respiration
            b. Cyanide
            c. Hydrogen sulfide
        2. Interference with transport/absorption- carbon monoxide
        3. Caustic action within the airway
            a. Mechanism
            b. Symptoms
            c. Pathology
                i. Smoke inhalation
    iv. Oxygen blockage and displacement
        1. Hypoxic environments
        2. Physical asphyxia
        3. Huffing solvents and aromatic hydrocarbons
    v. Common toxins
        1. Nicotine
        2. Ammonia gas

3. Chlorine gas
4. Sulfur dioxide
5. Ozone
6. Nitrogen dioxides

vi. Uncommon toxins

1. Phosgene
2. Silicon
3. Asbestos
4. Paraquat

LXVIII. Toxins, drugs, and drug classes

a. Alcohol

i. Ethanol

1. Ethanol pharmacokinetics
    a. Absorption
    b. Distribution
    c. Metabolism
    d. Elimination
2. Physiological effects of ethanol
    a. Mechanism of action
    b. Effects of ethanol and correlation with blood alcohol concentration
3. Alcohol calculations and inferences
    a. Back-extrapolation
4. Alcohol and diabetes
5. Health effects of chronic ethanol use
6. Alcohol testing
7. Ethanol consideration in postmortem cases
    a. Ethanol-drug combinations

ii. Methanol

1. Pharmacokinetics
2. Methanol toxicity
    a. Toxic mechanism
    b. Clinical presentation
    c. Treatment
    d. Pathology
    e. Forensic toxicology considerations

iii. Isopropanol

1. Pharmacokinetics
2. Toxicology

iv. Ethylene glycol

1. Pharmacokinetics
2. Ethylene glycol toxicity

b. Opiates and opioids

i. History

ii. Chemistry

1. Morphine and structural analogs

iii. Pharmacokinetics

1. Absorption/distribution
2. Metabolism
3. Elimination

iv. Mechanism of action

1. Effects on the nociceptive response

v. Physiological effects
    1. Analgesia
    2. Euphoria
    3. Respiratory depression
    4. Intestinal motility
    5. Cardiovascular effects
    6. Miosis
    7. Cough suppression
vi. Opiate/opioid toxicity
    1. Mechanism
    2. Clinical presentation
    3. Treatment
    4. Withdrawal
    5. Postmortem considerations
vii. Tolerance and dependence
viii. Morphine analogs and related compounds
    1. Heroin
    2. 6-mono-acetylmorphine
    3. Codeine
    4. Thebaine
    5. Hydrocodone, hydromorphone, oxycodone, oxymorphone
    6. Meperidine
    7. Methadone
    8. Fentanyl
    9. Buprenorphine
    10. Naloxone and naltrexone

c. Non opiate sedative/hypnotic drugs
    i. Barbiturates
    ii. Benzodiasepines
    iii. Z-drugs
    iv. Antihistamines
    v. Herbal medications
    vi. Tricyclic antidepressants
    vii. Antipsychotics
    viii. Misc compounds
        1. Trazodone
        2. Chloral hydrate
        3. Glutethimide
        4. Methaqualone
        5. Craisoprdol/meprbamate
        6. Y-hydroxybutyric acid

d. Sympathomimetic amines
    i. History
    ii. Examples and mechanisms
        1. Amphetamine
        2. Methamphetamine
        3. MDA and MDMA
        4. Ephedrine, pseudoephedrine, and related b-hydroxyphenylethylamines
        5. Methylphenidate
        6. Cocaine
        7. Cathinones

8. Benzyl-and phenylpiperazines

iii. Analysis and interpretation of SMA results

e. Hallucinogens, psychedelics, and cannabinoids
   i. Psychedelics
      1. Serotonin-releasing agents and receptor agonists
      2. Tryptamines
      3. Lysergic acid and related structures
      4. Phenethylamines
      5. Cannabinoids
   ii. Dissociative agents
   iii. Deliriants
f. Cholinergic and anticholinergic toxins
   i. History
   ii. Cholinergic synapse
      1. Normal cholinergic neurotransmission
      2. Cholinergic toxins and mechanisms
         a. Presynaptic toxicity
         b. Synaptic toxicity
         c. Postsynaptic toxicity
      3. Anticholinergic toxins and mechanism
         a. Presynaptic toxicity
         b. Postsynaptic
g. Metals
   i. Arsenic
   ii. Antimony
   iii. Cadmium
   iv. Lead
      1. Gastrointestinal toxicity
      2. Heme synthesis toxicity
      3. Neurotoxicity
   v. Mercury
      1. Elemental mercury toxicity
      2. Organic mercury toxicity
      3. Inorganic mercury toxicity

Outcome Competencies and Methods of Assessment

LEARNING outcomes for Forensic Toxicology

1. Utilize proper collection methods.
2. Discuss how types of drugs will affect an individual and the physiology behind the organ systems.
3. Test various substances to determine presence of drugs.
4. Differentiate between toxins, drugs, and other chemicals.
5. Apply toxicology to a forensics setting.

Assessment for lecture/discussion/lab LEARNING outcomes

Learning outcomes will be assessed by standard exam and quiz questions that are multiple choice or matching or essay format. Other objectives will be tested by lab practicals. Students are responsible for conducting an in-class research project that will overlap with all concepts learned throughout the semester. This resulting project will end with a scientific research paper and presentation to the class. – This ties into the overarching program outcomes: 3.1 Written Expression and 4.1 Oral Expression.

5. FORS 3215 Fingerprint Analysis

LXIX. Fingerprint Analysis
- a. History of fingerprints
  - i. Nonsystematic methods of identification
- b. Systematic methods of identification
  - i. Bertillonage
  - ii. Fingerprints
    1. Define
    2. Fingerprint patterns and characteristics
    3. Additional fingerprint definitions
- c. Fingerprint pattern types and associated terminology
  - i. Loop pattern
    1. Loop ridge counting
    2. Radial and ulnar loops
    3. Issues
  - ii. Plain arch and tented arch patterns
    1. Plain arch
    2. Tented arch
  - iii. Whorl pattern
    1. Plain whorl
    2. Central pocket loop whorl
    3. Double loop whorl
    4. Accidental whorl
    5. Ridge tracing and counting whorl patterns
    6. Palm print
- d. Classification
  - i. Henry with FBI Extensions, NCIC, IAFIS
    1. Henry with FBI extensions
       a. Ridge count conversion
       b. Conversion chart
       c. Referencing
       d. Filing sequence
    2. NCIC classification system
    3. IAFIS
    4. Other systems
       a. Manual methods

LXX. Development, identification, and presentation of fingerprints
- a. Known fingerprints
  - i. Manual method
  - ii. Live scan
- b. Unknown fingerprints
  - i. Conditions affecting latent prints
  - ii. Crime scene search and fingerprint development
  - iii. Fingerprint development techniques
    1. Powder techniques
    2. Chemical techniques
  - iv. Procedure after developing prints
  - v. Fingerprint comparison and identification
- c. Court presentation
  - i. Preparation
  - ii. Court presentation

1. Verbal
2. Nonverbal

iii. Challenges to the science of fingerprints

Outcome Competencies and Methods of Assessment

LEARNING outcomes for Fingerprint analysis

1. Apply manual and live scanning methods to fingerprint collection.
2. Critique known and unknown fingerprint collection methods.
3. Differentiate between systematic and nonsystematic methods of identification.
4. Apply proper identification techniques.
5. Defend fingerprint identification in a court room setting.

Assessment for lecture/discussion/lab LEARNING outcomes

Learning outcomes will be assessed by standard exam and quiz questions that are multiple choice or matching or essay format. Other objectives will be tested by lab practicals. Students are responsible for conducting an in-class research project that will overlap with all concepts learned throughout the semester. This resulting project will end with a scientific paper and presentation to the class. – This ties into the overarching program outcomes: 3.1 Written Expression and 4.1 Oral Expression.

Appendix D. FEPAC Accreditation standards

FEPAC accreditation standards comparison of current and proposed Forensic Science program

Standard	**Current program**	**Proposed program**
4.1.1a Natural science core At least one biology course with lab One year of physics At least 4 courses in chemistry with lab At least one course in calculus and stats	BIOL 1106 – Biological Principles II Physics 1101 and 1102 (or 1105 and 1106, which are calculus based) CHEM 1105, 2200, 2201, and 2202 MATH 1185 or 1190 and MATH 1113	BIOL 1106 – Biological Principles II Physics 1101 and 1102 (or 1105 and 1106, which are calculus based) CHEM 1105, 2200, 2201, and 2202 MATH 1185 or 1190 and MATH 1113
4.1.1b Specialized science courses Additional 12 semester hours of advanced chemistry or biology	BIOL 3360 - Biochemistry – 4 hours CHEM 2205 – Analytical Chemistry – 4 hours CHEM 3385 – Instrumental Analysis – 4 hours	BIOL 3360 - Biochemistry – 4 hours CHEM 2205 – Analytical Chemistry – 4 hours CHEM 3385 – Instrumental Analysis – 4 hours
4.1.1c Forensic Science courses A minimum of 15 hours, with at least 9 hours having a lab component	FORS 2201 – Intro to For. Sci. – 4 hours FORS 2225 – Forensic Microscopy – 3 hours FORS 4401 – Forensic Capstone – 3 hours FORS 4411 – Internship – 2 hours BIOL 4495 or CHEM 4403 – 2 hours	FORS 2201 – Intro to For. Sci. – 4 hours FORS 2225 - Trace Analysis and Microscopy – 3 hours (new name) FORS 3201 – Forensic Biology – 4 hours FORS 4411 – Internship – 2 hours FORS 4401 – Forensic Capstone – 3 hours
4.1.1d Additional courses A minimum of 19 semester hours of advanced, upper level course	BIOL 3380 – Genetics – 4 hours BIOL 3390 – Molecular Biotech. – 4 hours FORS3385 – Research – 3 hours Specialization electives BIOL or CHEM electives – 8 hours	BIOL 3380 – Genetics – 4 hours BIOL 3390 – Molecular Biotech. – 4 hours FORS 3385 – Research – 3 hours Specialization electives CHEM electives – 8 hours FORS 3301 – Human Osteology – 4 hours (new) FORS 3305 – Forensic Anthropology – 4 hours (new) FORS 3225 – Forensic Taphonomy – 2 hours (new) FORS 3310 – Forensic Toxicology – 4 hours (new) FORS 3215 – Fingerprint Analysis – 2 hours (new)

Appendix E. Registrar course number approval

Hi Professor Henson—

These course numbers are available as well.

Lori

From: Ransom, Laura
Sent: Tuesday, September 18, 2018 11:24 AM
To: FSU Office of the Registrar <registrar@fairmontstate.edu>
Cc: Gonzalez, Cheri <Cheri.Gonzalez@fairmontstate.edu>
Subject: RE: Request for Course Number availability

Hi Lori,

They are all available. Mark Flood and Kristy Henson sent the same list.

Laura

From: FSU Office of the Registrar
Sent: Tuesday, September 18, 2018 10:51 AM
To: Ransom, Laura <lransom@fairmontstate.edu>
Cc: Gonzalez, Cheri <Cheri.Gonzalez@fairmontstate.edu>
Subject: FW: Request for Course Number availability

Laura—

Can you check these courses as well?

Thanks, again!

Lori

From: Henson, Kristy
Sent: Tuesday, September 18, 2018 9:16 AM
To: FSU Office of the Registrar <registrar@fairmontstate.edu>
Subject: Re: Request for Course Number availability

Thank you Lori,

If you have time could you please check these FORS course numbers?
FORS 3301
FORS 3305
FORS 3310
FORS 3225
FORS 3215

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Office of the Provost and Vice President for Academic Affairs
1201 Locust Avenue • Fairmont, West Virginia 26554
Phone: (304) 367-4101 • Fax: (304) 367-4902
Richard.Harvey@fairmontstate.edu • fairmontstate.edu

MEMORANDUM

TO: Faculty Senate

FROM: Dr. Richard Harvey

DATE: January 9, 2019

SUBJECT: Curriculum Proposal #18-19-4
Science and Technology/Natural Science/Forensic Science

I recommend approval of the attached Curriculum Proposal 18-19-4. The B.S. in Forensic Science is growing and going towards accreditation from the American Academy of Forensic Science, we believe it is time to add a 22/23-hour **Forensic Investigative Science minor**. Students would be able to adopt courses already available in the Forensic Science program and Criminal Justice program.

cc: Susan Ross
Steve Roof
Mark Flood
Kristy Henson
Laura Ransom
Cheri Gonzalez
Lori Schoonmaker

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number:	18-19-04
School/Department/Program:	Science and Technology/Natural Science/Forensic Science
Preparer/Contact Person:	Mark Flood & Kristy Henson
Telephone Extension:	x4309 &
Date Originally Submitted:	
Revision (Indicate date and label it Revision #1, #2, etc.):	
Implementation Date Requested:	Fall 2019

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

The B.S. in Forensic Science is growing and going towards accreditation from the American Academy of Forensic Science, we believe it is time to add a 22/23-hour **Forensic Investigative Science minor**. Students would be able to adopt courses already available in the Forensic Science program and Criminal Justice program.

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)

1. N/A

Total hours deleted. 0

B. Addition of course(s) or credit(s) from program(s)

1. Minor in Forensic Investigative Science

CRIM 1100 Introduction to Criminal Justice (3)
CRIM 2226 Crime Scene Investigation (3)
CHEM 1101 General Chemistry I (4) or CHEM 1105 Chemical Principles (5)
BIOL 1106 Biological Principles II (4)
FORS 2201 Introduction to Forensic Science (4)
FORS 3200 Forensic Biology (4)

Total hours added. 22-23

C. Provision for interchangeable use of course(s) with program(s)

N/A.

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

N/A

B.

E. Other changes to existing courses such as changes to title, course number, and elective or required status.

N/A

F. Creation of new course(s). For each new course

N/A

1. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.

Appendix A contains the catalog course descriptions for the proposed minor.

2. Include, as an appendix, a detailed course outline consisting of at least two levels.

N/A

3. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.

Appendix C also contains the Outcome Competencies and Methods of Assessment for the proposed new course.

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

1. Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

2. Include proof that this proposal meets the degree definition policy (Board of Governor's Policy #52) as part of the Proposed Program in Appendix A.

3. Exceptions to the degree definition policy: As per policy #52, programs seeking exceptions to any of the maximum credit hour limits must submit formal requests to the Board of Governors for approval. Explain the rationale for the exception by documenting the existence of one or more of the criteria in paragraph 4.2.

RATIONALE FOR THE PROPOSAL.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

The Forensic Science program is growing. We currently have 70 declared majors and 5-7 recruit visits a semester. With graduation numbers of typically 1-5 students per academic year, our program needs to continue to work on recruitment and retention. Several of our Forensic Science majors transfer into Chemistry or Criminal Justice majors here on campus. As the Forensic Science program grows, a minor will entice those students obtaining degrees such as Criminal Justice, Biology, and Chemistry to obtain this minor. The Criminal Justice program requires all students declare a minor. Forensic Science and Criminal Justice are intertwined careers, as criminal justice graduates usually enter into law enforcement and forensic science graduates enter into laboratory environments processing evidence collected by law enforcement. As criminal justice houses 300 majors, it is fair to say some of these students will be interested in pursuing a forensics minor as the topics overlap. This minor would increase forensic science student enrollment and assist in retention of students who chose to change majors later on in their college career.

The addition of this minor allows us to compete with WVU, as they are currently the only institution in the state that offers a forensic investigative science minor. We know of at least 2 students who have transferred to WVU because we did not offer this type of minor on our campus.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

This minor will increase the amount of students in the Forensic Science program's sophomore level courses (FORS 2201 and FORS 3200) by 5-10 students per year. That will help solidify our program's course offerings of higher level specialization courses if we could also convince half of those students to also take an upper level forensics elective. It will also increase student retention if/when a student changes their major from Forensic Science, as they are still able to obtain a minor in Forensic Investigative Science. It is important to continue to attract new Forensic Science students and to offer students options that will improve their marketability. New facilities, faculty and equipment will not be needed to implement this new Forensic Investigative Science minor.

III. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

By signing here, you are indicating your college's/school's notification of this proposal.

College/School	Dean	Signature
Sci Tech	Steven Root	Steven Root
Social Science	Jeff Snowside	

IV. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

V. ADDITIONAL COMMENTS.

APPENDIX A

Minor in Forensic Investigative Science
Proposed Program

Required Minor Courses		**HRS**	
BIOL 1106	Biological Principles II	4	
CHEM 1101	General Chemistry I	4	
or			
CHEM 1105	Chemical Principles	5	
CRIM 1100	Intro to Criminal Justice	3	
CRIM 2226	Crime Scene Investigation	3	
FORS 2201	Introduction to Forensic Science	4	
FORS 3200	Forensic Biology	4	
TOTAL Required Courses			22-23

TOTAL HOURS FOR MINOR	**22-23**

APPENDIX B

Minor in Forensic Science
Proposed schedule

Fall	**Spring**
CHEM 1101- General Chemistry 1 – (4hrs) /or/ **CHEM 1105** – Chemical Principles - (5hrs)	**BIOL 1106** – Biological Principles II – (4hrs)
CRIM 1100 – Introduction to Criminal Justice – (3hrs)	**CRIM 2226 –** Crime Scene Investigation – (3hrs)

Fall	**Spring**
FORS 2201 – Introduction to Forensic Science – (4hrs)	**FORS 3200** – Forensic Biology - (4hrs)

APPENDIX C

Minor in Forensic Investigative Science
Program Outcomes and Assessments

Outcomes for the minor in Forensic Investigative Science:
Students who complete this program will:

- **Develop a basic fundamental knowledge of the natural sciences, including, scientific inquiry, cell theory, and basic chemistry of life.**
    - Courses mapped to outcome: BIOL 1106 and CHEM 1101/CHEM 1105

This will be assessed by quizzes and exams in FORS 2201 and FORS 3200 that incorporate underlying information from these courses, students earning a 70% or higher deemed as success.

- **Apply crime scene processing, collecting, and analyzing skills, from the viewpoint of field collection and lab analysis.**
    - Courses mapped to outcome: CRIM 2226, FORS 2201, FORS 3200

This will be assessed by graded assignments and lab activities with students earning a 70% or higher deemed as success.

- **Develop a basic fundamental knowledge of forensic science and how it relates to the natural sciences.**
    - Courses mapped to outcome: FORS 2201, FORS 3200

This will be assessed by exams, assignments, and quizzes with students earning a 70% or higher deemed as success.

- **Apply scientific inquiry to forensic science.**
    - Courses mapped to this outcome: FORS 2201, FORS 3200

This will be assessed by in class research projects with students earning a 70% or higher deemed as success.

FM

Flood, Mark

Thu 8/9, 4:15 PM

Shields, Deanna; Smallridge, Joshua; Roof, Steven; Hemler, Debra; Henson, Kristy

Reply all

Deleted Items

[redacted]

Kristy Henson is a new faculty member in Forensic Science and we are now looking to expand our course offerings and improve our program. We would like to possibly discuss offering a new Forensic Investigative Science minor.

A rough idea would be that students take:
Intro to CJ (3 credits)
CSI (3) or perhaps Criminalistics (3)
Chem 1101 (4) (basic chem course)
BIOL 1106 (4) (basic cell biology course)
Intro to Forensic Science (4)
Forensic Biology (4)
Forensic specialization elective (4 hours)
That would mean the minor would 26 hours. What are your thoughts on this?? Please reply to all so that everyone gets to see and reflect on the responses.
Mark

Mark Flood, PhD
Professor of Biology and Forensic Science
Coordinator of Forensic Science Program
117 Hunt Haught Hall
Fairmont State University
Fairmont, WV 26554
email Mark.Flood@fairmontstate.edu
cell phone 304-290-1758
office phone 304-367-4309
fax 304-367-4304

#SoarFalcons

FAIRMONT STATE UNIVERSITY

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Office of the Provost

Deans Meeting

January 16, 2019

GUEST: 10:00 Cindy Curry References

Discussion Topics:

- ELT question – too much activity in last 2 weeks of Fall term
- CLASS CANCELLATIONS!
- Textbook Adoptions
- Faculty Handbook Revision
- Current low-enrolled courses
- Probationary Faculty Evaluations, First & Second Year……**DUE March 1**
- Program Reviews…….**DUE March 18**
- Faculty resignations/departures/searches
- Second 8 week courses Spring 2019 term
- Envirothon and Education Fair?
- Planning for summer and fall schedules
- Writing skills of our students/graduates

Open Forum

FAIRMONT STATE UNIVERSITY™
Office of the Provost

Deans Meeting

January 23, 2019

We can only meet until 10:00 am because of an ELT meeting.

Discussion Topics:

- IT issues: updates on all computers, common institutional image, wireless printing
- Adjunct evaluations
- "Super" adjuncts, aka Instructors
- Current low-enrolled courses
- Writing skills of our students/graduates
- Probationary Faculty Evaluations, First & Second Year……**DUE March 1**
- Program Reviews…….**DUE March 18**

Open Forum

FAIRMONT STATE UNIVERSITY™
Office of the Provost

Deans & Chairs Meeting

January 30, 2019

10:00-10:30 Jesse Isner, Foundation to discuss scholarhips
10:30-11:30 Reservations/Scheduler Demo, Falcon Center Conference rooms

Discussion Topics:

- Present/Not Present grades – over 360 sections were not reported
- IRB compliance issues
- Travel Authorizations – develop new form
- Textbook Advisory (affordability) committee – need reps selected
- Floor plan updates?
- Responses to Scantron questions; last call
- IT issues in classrooms, labs, or faculty offices; last call
- Probationary Faculty Evaluations, First & Second Year……**DUE March 1**
- Program Reviews…….**DUE March 18**

Open Forum