

Armstrong

UNIVERSITY CURRICULUM COMMITTEE
University Hall 282
Minutes, December 3, 2014

PRESENT: Myka Campbell, Suzanne Carpenter, Becky da Cruz, Mirari Elcoro, Katrina Embrey, Sara Gremillion (vice chair), Robert Harris, Jackie Kim, David Lake (chair), Kam Fui Lau, Anthony Parish, James Todesca, Phyllis Fulton (Catalog Editor)

ABSENT: Julie Swanstrom

GUESTS: Bill Baird, James Brawner, Donna Brooks, Maya Clark, Delana Gajdosik-Nivens, Brent Feske, Will Lynch, Doug Masini, Rock McCaskill, Sandy Streater, Anne Thompson, David Ward, Jane Wong

CALL TO ORDER. The meeting was called to order at 3:01 by Dr. David Lake.

APPROVAL OF MINUTES. The minutes of November 5, 2014 were approved as presented.

ITEMS

I. College of Education (no items)

II. College of Health Professions

A. Diagnostic and Therapeutic Sciences

Item 1 from the Department of Diagnostic and Therapeutic Sciences was discussed and approved by the committee. It is being submitted to the Faculty Senate for approval.

1. Modify the following program of study:

Program for the Degree of Bachelor of Science in Radiologic Sciences

- A. General Requirements (Core Areas A, B, C, D.IIB, and E) 42 hours
(~~Nuclear Medicine students must complete a general chemistry course with lab~~)
Core Area F 18 hours
 BIOL 2081 Human Anatomy and Physiology I
 BIOL 2082 Human Anatomy and Physiology II
 HLPR 2000 Research in Health Professions
 Guided Electives from the following list (4 credit hours)

RADS 2000 or RESP 2110

COMM 2280 (except for Sonography track), or a lower-level class (1000- or 2000-level) in MATH, CSCI, ITEC, BIOL, CHEM, PHYS, PHSC, ASTR, or GEOL, ~~or ISCI~~

(Nuclear Medicine students who have not completed a Chemistry sequence in Area D must complete one chemistry course with lab as the science elective)

One of the following:

PHSC 1211/1211L Physical Environment and Lab

PHYS 1111K Introductory Physics I

Rationale: Clarity.

Effective Term: Fall 2015

B. Health Sciences (no items)

C. Nursing (no items)

D. Rehabilitation Sciences

Items 1-3 from the Department of Rehabilitation Sciences were discussed and approved by the committee. They are being submitted to the Faculty Senate for approval.

1. Modify the following Program of Study:

Program for the Degree of Bachelor of Science in Communication Sciences and Disorders

A. General Requirements (Core Areas A, B, C, D.IIB, and E) 42 hours

Core Area F18 hours

CHEM 1151 Survey of Chemistry I

CHEM 1151L Survey of Chemistry I Laboratory

CSDS 1220 Introduction to Communication Disorders

HSCC 2500 Health Issues & Resources

~~PHSC 1211 Physical Science~~

~~PHSC 1211L Physical Science Lab~~

HLPR 2000 Introduction to Research in the Health Professions

HSCC 2200 Health Communication

PSYC 2950 Lifespan Developmental Psych

Physical Education3 hours

First-Year Seminar 1 hour

B. Major Field Courses33 hours

CSDS 2230 Anatomy and Physiology of Speech and Hearing Mechanisms

CSDS 2240 Normal Speech and Language Development

CSDS 2250 Phonetics
 CSDS 3400 Speech Science
 CSDS 3410 Introduction to Audiology
 CSDS 3420 Language Disorders
 CSDS 3430 Organically Based Communication Disorders
 CSDS 3450 Articulation Disorders
 CSDS 4050 Intercultural Communication
 CSDS 4190 Clinical Methods in Speech-Language Pathology
 CSDS 4151 Clinical Writing for the Health Professions

C. Related Field Courses 12-15 hours

~~PSYC 1101 General Psychology (if not taken in area E)~~

~~Note: PSYC 1101 should be completed during the first 36 hours~~

EDUC 3300 Educating Students w/Disabilities

RHAB 4000 Application of Research to the Rehabilitation Professions

PSYC 3400 Introduction to Learning

PSYC 5060U Basic Behavior Principles and Behavior Change

GERO 5500U Survey of Gerontology

D. Electives 12-15 hours

At least ~~six~~ **nine** hours of electives must be courses numbered 3000 or above. **PSYC 1101 Introduction to Psychology should be taken if not taken in Area E.**

~~If the following sequence is taken in American Sign Language: CSDS 1001, 1002, 2001, all of the additional electives must be at 3000 level or higher.~~

Total Semester Hours

124 hours

~~**E. Admission to the program, Preservice Portfolio, Current Certification in CPR/First Aid, Criminal Background Check.**~~

Rationale: Program accreditation standards effective September 1, 2014 recommend a course in chemistry or physics to meet the physical science requirement.

PSYC 1101 is not a related field course. In addition, the program of study as well as the 15 to Finish Roadmap for the program specifies PSYC 1101 in the first year of study.

PSYC 3400 has been added as a prerequisite for PSYC 5060U/G which is listed in the current program of study.

Elective hours were adjusted in response to the addition of PSYC 3400 in the related field area.

Students are no longer required to gain admissions to the program or submit the Preservice Portfolio, Current Certification in CPR/First Aid, or Criminal Background Checks.

Effective Term: Fall 2015

2. Modify the following Program of Study:

Program for the Associate of Science -Communication Sciences and Disorders Track

A. General Requirements (Core Areas A, B, C, D.IIB, E).....

42 hours

Physical Education.....	3 hours
First-Year Seminar	1 hour
B. Additional Requirements	18 hours
CHEM 1151 Survey of Chemistry I	
CHEM 1151L Survey of Chemistry I Laboratory	
CSDS 1220 Introduction to Communication Disorders	
HLPR 2000 Introduction to Research in the Health Professions	
HSCC 2200 Health Communication	
HSCC 2500 Health Issues and Resources	
PHSC 1211/PHSC 1211L Physical Science with lab	
PSYC 1101 Introduction to Psychology or PSYC 2950 Lifespan Developmental Psychology	
<hr/>	
Total Semester Hours	64
C. Exit Exam	

Rationale: Program accreditation standards effective September 1, 2014 recommend a course in chemistry or physics to meet the physical science requirement.

Effective Term: Fall 2015

3. Create the following program of study:

Post-Baccalaureate Certificate in Communication Sciences and Disorders

The post-baccalaureate program is designed for individuals who have earned a Bachelor's degree in disciplines other than Communication Sciences and Disorders and now wish to complete the prerequisite courses (i.e., "leveling courses") that are often required for admission into a graduate program in either audiology or speech-language pathology.

The certificate is available to students who hold a baccalaureate degree from an accredited institution and have earned a cumulative GPA of 3.0. Interested students should submit an application to the program. Course rotation begins each fall.

Post-Baccalaureate Certificate in Communication Sciences and Disorders....24 hours

CSDS 1220 Introduction to Communication Sciences
 CSDS 2230 Anatomy and Physiology of Speech and Hearing Mechanisms
 CSDS 2240 Normal Speech and Language Development
 CSDS 2250 Phonetics
 CSDS 3400 Speech Science
 CSDS 3410 Introduction to Audiology
 CSDS 3420 Language Disorders
 CSDS 4151 Writing for the Health Professions

Students completing the certificate in Communication Sciences and Disorders are required to obtain twenty-five clinical observation hours verified with a signature by a certified audiologist or speech-language pathologist as required by the American Speech-Language-Hearing Association. Students are also required to obtain 10 hours of volunteer activities that are unpaid and serve the University or the Community for the certificate to be awarded.

While completion of the Post-baccalaureate program does not guarantee admission into the Communication Sciences and Disorders Graduate Program at Armstrong, it does qualify students to submit an application for admission into the graduate program at Armstrong and for many other graduate programs in the United States.

For more information about the certificate or for a career in Communication Sciences and Disorders, please contact the program.

Rationale: Communication Sciences and Disorders programs prepares students for careers in the high demand fields of audiology and speech-language pathology. The professions attract working professionals from various backgrounds who are seeking a career change. A graduate degree (Master's in speech-language pathology or Au.D. in audiology) is required in order to become a certified practitioner in the field of communication sciences and disorders. Many graduate programs in speech-language pathology and audiology require applicants to have either an undergraduate degree in the field or a core of prerequisite coursework in the field. Our post-baccalaureate studies program has been developed to help students who wish to pursue a career in speech-language pathology or audiology, but who have an undergraduate degree in an area other than communication sciences and disorders. The Communication Sciences and Disorders program has received significant interest in post-baccalaureate courses which continues to increase.

Effective Term: Fall 2015

III. College of Liberal Arts

A. Art, Music, and Theatre (no items)

B. Criminal Justice, Social and Political Science

Item 1 from the Department of Criminal Justice, Social and Political Science was discussed and approved by the committee. It is being submitted to the Faculty Senate for approval.

1. Modify the following program of study:

**PROGRAM FOR THE DEGREE OF ASSOCIATE OF APPLIED SCIENCE IN
CRIMINAL JUSTICE**

A. General Requirements: Core Areas28 hours

ENGL 1101 Composition I

ENGL 1102 Composition II

MATH 1001 Quantitative Skills and Reasoning or MATH 1111 College Algebra

HIST/POLS 1100 Political History of America and Georgia

PSYC 1101 Introduction to Psychology

SOC 1101 Introductory Sociology

One course from the following:

HIST 1111, HIST 1112, HIST 2111, HIST 2112, POLS 2100, ANTH 1102,
ECON 2105

One course from the following:

ENGL 2100, ARTS 1100, ARTS 2710, ARTS 2720, THEA 1100, MUSC
1100, PHIL2010, PHIL 2030

One course from the following:

BIOL 1107/1107L, CHEM 1211 (and lab), PHYS 1111K, PHSC 1211/1211L

Rationale: Adding Math 1001 allows the Associate degree to be consistent with the Bachelor degree.

Effective Term: Fall 2015**C. Economics**

Item 1 from the Department of Economics was discussed and approved by the committee. It is being submitted to the Faculty Senate for approval.

1. Modify the major field courses for the BS in Business Economics**PROGRAM FOR THE DEGREE OF BACHELOR OF SCIENCE IN
BUSINESS ECONOMICS****B. Major Field Courses30 hours**

ECON 3230 Finance

ECON 3700 Econometrics or ECON/**MKTG** 3800 Quantitative Marketing
Research

MGMT 3220 Management

MGMT 4111 Entrepreneurship or ECON 4900 Economic Methods and Senior
Thesis

MKTG 3210 Marketing

Six credits selected from:

ECON 3050 Intermediate Macroeconomics and ECON 3060 Intermediate
MicroeconomicsECON 3050 Intermediate Macroeconomics and ECON 3500 Managerial
Economics

ECON 3060 Intermediate Microeconomics and ECON 3300 Money and Banking

~~Nine hours~~ Six credits selected from:

ECON 3100 Multinational Economic Enterprises

ECON 3200 International Trade

ECON 3300 Money and Banking

ECON 3400 Economics of Labor

ECON 3450 Environmental Economics

ECON 3460 Economics of Immigration

ECON 3470 Economics of Health

ECON 3500 Managerial Economics

ECON/MKTG 3800 Quantitative Marketing Research

ECON 4100 Financial Economics: Portfolio Analysis

ECON 4150 Money and Capital Markets

ECON 4310 International Finance

ECON 4410 Regional Economics

~~ECON 4450 Comparative Economics~~

ECON 4451 Industrial Organization

ECON 4460 Economic Analysis of the Law

ECON 4500 Public Finance

~~ECON 4520 Internship~~

Three credits of upper division economics, 3000 and above, except for ECON 5150U.

Rationale: ECON 3100 and 4460 are sufficiently business oriented to be included in the major field courses. ECON 4450 and 4520 were removed because they are taught as experiential learning courses. The new structure with six credits from a list and three credits from any upper division economics course allows the student to take no more than three credits of the major as experiential learning or as a less business-oriented economics course. Title and crosslist corrections.

Effective Term: Fall 2015

- D. Gender Studies (no items)
- E. History (no items)
- F. Languages, Literature, & Philosophy (no items)
- G. Liberal Studies (no items)
- H. Honors Program (no items)

IV. College of Science and Technology

A. Biology

Items 1-6 from the Department of Biology were discussed and approved by the committee. They are being submitted to the Faculty Senate for approval.

1. Create the following course:

BIOL 4240 BEHAVIORAL ECOLOGY

3-0-3

Prerequisite: BIOL 3030 (minimum grade of C) or BIOL 3050 (minimum grade of C)
Examines the survival value of behavior; how behavior is shaped by the environment; and the evolution of behavior.

Rationale: Biology majors will benefit from a comprehensive examination of animal behavior, a subject of biology that is not well addressed by the current curriculum. The subject has been previously offered on two occasions as a section of BIOL 4970, SPECIAL TOPICS.

Effective Term: Fall 2015

CURCAT:

Major Department: Biology

Can Course be repeated for additional credit? No

Maximum Number of Credit Hours: 3

Grading Mode: Normal

Instruction Type: Lecture

Course Equivalent: None

2. Modify the following course:

**BIOL 3770 ~~DEVELOPMENTAL AND COMPARATIVE~~ Vertebrate
ANATOMY ~~OF THE VERTEBRATES~~**

~~3-6-43-3-4~~

Prerequisite: BIOL 1108 (minimum grade of C) or BIOL 1108H (minimum grade of C)

~~Development, anatomy, and evolution of vertebrate organ systems. Form, function, and evolution of major vertebrate systems. Laboratories examine the anatomy of different vertebrate taxa.~~

Rationale: To better align the focus of the course with that of other institutions and address the needs of pre-veterinary biology students.

Effective Term: Fall 2015

3. Modify the following course:

BIOL 2010 MICROBIOLOGY

3-3-4

Prerequisite: BIOL ~~4407-1108~~ (minimum grade of C) or BIOL 1108H (minimum grade of C), and both CHEM 1211 (minimum grade of C) and CHEM 1211L (minimum grade of C). ~~and BIOL 1107L (minimum grade of C) or BIOL 1107H (minimum grade of C) and BIOL 1107A (minimum grade of C).~~

Rationale: Students will benefit from exposure to concepts in evolution addressed in BIOL 1108 and will benefit from practice with microscopic techniques in BIOL 1108L. Students will benefit from having learned basic chemistry principles that they can apply to understanding microbial metabolism.

Effective Term: Fall 2015

4. Modify the following course:

BIOL 3050 GENERAL ECOLOGY

3-4-43-0-3

Prerequisites: BIOL 1108 (minimum grade of C) or BIOL 1108H (minimum grade of C) and BIOL 2010 (minimum grade of C)

Introduction to behavioral, individual, population, community, and ecosystem ecology. ~~Field and laboratory activities cover ecological principles and emphasize sampling procedures and data analysis.~~

Rationale: Currently, the laboratory section is required for all students who take General Ecology. With recent ecologist hires in Biology, more upper-level ecology courses will be offered and for these, BIOL 3050 will be a pre-requisite. The number of seats in the laboratory section are currently limiting enrollment and this course suffers from bottlenecks. With the proposed change, BIOL 3050 will still be a required major field course for two tracks, but the lab will count as a biology elective.

Effective Term: Fall 2015

CURCAT:

Major Department: Biology

Can course be repeated for additional credit? No

Maximum number of credit hours: 34

Instruction type: Lecture and Laboratory

Course Equivalent: None

5. Modify in Banner/add to catalog the following course:

BIOL 3050L GENERAL ECOLOGY Laboratory

0-4-00-4-1

Prerequisites: BIOL 1108 (minimum grade of C) or BIOL 1108H (minimum grade of C) and BIOL 2010 (minimum grade of C)

Prerequisite or Corequisite: BIOL 3050

Field and laboratory activities cover ecological principles and emphasize sampling procedures and data analysis.

Rationale: Currently, the laboratory section is required for all students who take General Ecology. With recent ecologist hires in Biology, more upper-level ecology courses will be offered and for these, BIOL 3050 will be a pre-requisite. The number of seats in the laboratory section are currently limiting enrollment and this course suffers from bottlenecks. With the proposed change, BIOL 3050 will still be a required major field course for two tracks, but the lab will count as a biology elective.

Effective Term: Fall 2015

CURCAT:

Major Department: Biology

Can course be repeated for additional credit? No

Maximum number of credit hours: 0 1

Instruction type: Laboratory

Course Equivalent: None

6. Modify the following course:

BIOL 2400 Introduction to Cell and Molecular Biology

3-0-3

Prerequisite: **Both** BIOL 1107 (minimum grade of C) and BIOL 1107L (minimum grade of C) or **both** BIOL 1107H (minimum grade of C) and BIOL 1107A (minimum grade of C), **and both** CHEM 1211 (minimum grade of C) and CHEM 1211L (minimum grade of C).

Rationale: Students will benefit from having learned basic chemistry principles that they can apply to understanding metabolic pathways, energy transformations, and molecular concepts.

Effective Term: Fall 2015

Item 7, modification of the program of study for the B.S. in Biology, was remanded so errors/omissions could be corrected.

B. Chemistry and Physics

Items 1-7 from the Department of Chemistry and Physics were discussed and approved by the committee. They are being submitted to the Faculty Senate for approval.

1. Modify the following course:

PHYS 3120 DIGITAL ELECTRONICS AND MICROCONTROLLERS

1-5-32-2-3

Prerequisite: PHYS 2212K (minimum grade of C) or both MATH 1161 and PHYS 1112K (minimum grade of C)

~~Introduction to discrete components and integrated circuits. Hands on lab experience in constructing and investigating an array of digital circuits that are directly applicable in instrumentation.~~ **Digital circuits, analysis of logic signals, microcontroller programming and interfacing with applications to physical systems.**

Rationale: Given the rapid evolution of digital technology, the Digital Electronics course must be updated to reflect the current state of the art. The extreme increase in capabilities and decrease in cost that has transformed the personal computer industry has had the same effect on the microcontroller industry. As a result, many problems that would previously have required a handful of integrated circuits can now be addressed with a single microcontroller and several lines of code. The lab and lecture

hours are being adjusted to reduce the number of lab contact hours and increase the number of lecture contact hours.

Effective term: Fall 2015

Courses for the proposed Robotics and Mechatronics Track:

2. Create the following course:

PHYS 3170 SENSOR DEVELOPMENT AND DATA ANALYSIS **2-2-3**

Prerequisite: PHYS 2212K (minimum grade of C) or both MATH 1161 and PHYS 1112K (minimum grade of C)

Design and construction of a variety of sensors for physical quantities. Implementation, data collection, and analysis of sensor output.

Rationale: The ubiquity of computers and embedded systems in modern life illustrates the importance of the interaction between the physical and virtual worlds. This course will discuss the principles behind that interaction and focus on ways to develop sensors for a variety of stimuli, as well as the analysis and interpretation of the data collected.

Effective Term: Fall 2015

CURCAT:

Major Department: Chemistry and Physics

Can course be repeated for additional credit: No

Maximum Number of Credit Hours: 3

Grading Mode: Normal

Instruction Type: Lecture-Lab

Equivalent Course: None

3. Create the following course:

PHYS 4200 ANALYSIS AND SYNTHESIS OF MECHATRONIC SYSTEMS

2-2-3

Prerequisite: PHYS 3170 (minimum grade of C) and either ENGR 1371 or CSCI 1301 (minimum grade of C)

Students will design and construct complete systems involving sensors, algorithms, and physical action on the environment. Hands-on lab experience through applications in experimental physics. Includes a variety of oral and written assignments. Physics faculty involved in assessments.

Rationale: The capstone course for students in the Mechatronics track. This will represent the synthesis of previous coursework; sensors, microcontrollers, and actuators will be combined into a unified device built to accomplish a particular task.

Effective Term: Fall 2015

CURCAT:

Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture-Lab
Equivalent Course: None

4. Create the following course:**PHYS 3370 HUMAN COMPUTER INTERACTION****3-0-3**

Prerequisite: CSCI 1301 or ITEC 1310 or ENGR 1371

Paradigms in user interface design and related human factors. Topics include: user-system compatibility analysis, techniques for user interface design, methods for interface analysis, multimodal interaction and interaction analysis.

Rationale: A key component in the construction of systems that collect data, analyze it, and act on the results is the way the system interfaces with its human programmer or operator. This course will involve haptic devices and their use to provide another channel for the bidirectional flow of information between human and computer.

Effective Term: Fall 2015**CURCAT:**

Major Department: Chemistry and Physics
Can course be repeated for additional credit: No
Maximum Number of Credit Hours: 3
Grading Mode: Normal
Instruction Type: Lecture
Equivalent Course: CSCI 3370

5. Create the following course:**PHYS 2030 INTRODUCTION TO COMPUTER ENGINEERING****3-0-3**

Prerequisite: CSCI 1060 or CSCI 1301 or ENGR 1371 or CSCI 1371

Computer systems and digital design principles. Architectural concepts, software, Boolean algebra, number systems, combinational datapath elements, sequential logic, storage elements. Design of DRAM control and I/O bus.

Rationale: The design and development of computer hardware allows the students to move beyond prepackaged general purpose control devices and begin to create their own specialized circuitry.

Effective Term: Fall 2015**CURCAT:**

Major Department: Chemistry and Physics
Can course be repeated for additional credit: No

Maximum Number of Credit Hours: 3

Grading Mode: Normal

Instruction Type: Lecture

Equivalent Course: ENGR 2030

6. Create the following course:

PHYS 2031 DIGITAL DESIGN LABORATORY

1-3-2

Prerequisite: ENGR 2030 or PHYS 2030 (minimum grade of C)

Design and implementation of digital systems, including a team design project. CAD tools, project design methodologies, logic synthesis, and assembly language programming.

Rationale: The design of special-purpose circuitry using FPGA (Field Programmable Gate Array) devices is an invaluable aid in finding solutions to problems involving sensor management and control. This lab will show students how to use the FPGA to combine the flexibility of software with the high performance of special-purpose integrated circuits.

Effective Term: Fall 2015

CURCAT:

Major Department: Chemistry and Physics

Can course be repeated for additional credit: No

Maximum Number of Credit Hours: 2

Grading Mode: Normal

Instruction Type: Lecture-Lab

Equivalent Course: None

7. Create the following course:

PHYS 2035 PROGRAMMING FOR HARDWARE/ SOFTWARE SYSTEMS

3-3-4

Prerequisite: ENGR 2030 or PHYS 2030 (minimum grade of C)

Programming techniques for hardware and software systems including creation of complex execution and storage mechanisms based on instruction set architecture and software design including programming languages and operating systems. Students will apply and develop these concepts through programming design projects.

Rationale: Most programming courses focus on programs to be executed by personal computers; the microcontroller and embedded-device environments are quite different in terms of chip capabilities, capacities, and support circuitry. This course will move beyond standard PC programming and investigate these other areas.

Effective Term: Fall 2015

CURCAT:

Major Department: Chemistry and Physics

Can course be repeated for additional credit: No

Maximum Number of Credit Hours: 4

Grading Mode: Normal

Instruction Type: Lecture-Lab

Equivalent Course: ENGR 2035

Items 8-12, courses for the proposed Health Physics Track, were withdrawn by the department.

Items 13-14 from the Department of Health Sciences were discussed and approved by the committee. They are being submitted to the Faculty Senate for approval.

13. Modify the following program of study:

PROGRAM FOR THE DEGREE OF BACHELOR OF SCIENCE IN APPLIED PHYSICS

Track 1: Applied Physics

A. General Requirements

Core Areas A, B, C, D.IIA, and E42 hours

Applied physics majors are required to take MATH 1113 in core area A and MATH 1161 in core area D

Area F18 hours

PHYS 2211K, 2212K Principles of Physics I, II (unless taken to satisfy core area D, in which case replace with 8 hours of lower division electives)

MATH 2072 Calculus II

MATH 2083 Calculus III

One hour excess for MATH 1161 from Core Area D

1 hour excess from PHYS 1000 or from any science or math course

Physical Education3 hours

First-Year Seminar 1 hour

B. Major Field Courses30 hours

Choose one of the following courses:

PHYS 3100 Electrical Circuit Analysis or ENGR 3100 Circuit Analysis

PHYS 3120 Digital Electronics

PHYS 3300 Thermodynamics or PHYS 3400 Chemical Thermodynamics

PHYS 3801K Modern Physics

PHYS 3802 Introduction to Quantum Mechanics

PHYS 4120 Scientific Measurement with Digital Interfacing

PHYS 4170 Advanced Mechanics

Choose twelve semester hours from:

PHYS 2900 Introduction to Research in Physics

PHYS 3100 Electrical Circuit Analysis or ENGR 3100 Circuit Analysis (if not previously counted above)

PHYS 3120 Digital Electronics (if not previously counted above)

PHYS 3142 Computational Physics
 PHYS 3200 Mathematical Methods for Physicists
 PHYS 3220 Mechanics of Deformable Bodies
 PHYS 3230 Fluid Mechanics
 PHYS 3312 Electromagnetism
 PHYS 3500 Diffraction and Crystallography
 PHYS 3700K Optics
 PHYS 4800 Pedagogy and Supplemental Instruction in Physics (maximum of 3 hours can be used in this section)
 PHYS 4900 Independent Study in Physics
 PHYS 4950 Special Topics in Physics
 PHYS 4960 Physics Internship
 PHYS 4991 Advanced Research in Physics

C. Related Field Courses23 hours

CHEM 1211 Principles of Chemistry I (and lab)
 CHEM 1212 Principles of Chemistry II (and lab)
 CSCI 1301 Introduction to Programming Principles or ENGR 1371 Computing for Engineers
 MATH 2160 Linear Algebra
 MATH 3411 Differential Equations
 A three semester-hour upper-division math course (3000 or 4000 level, excluding MATH 3411, 3900, 3911, 3912, 3932, 4000, 4750, 4900, 4910, 4961, 4962, 4963, 5412U, 5600U, 5700U, 5900U, 5911U)
 Three semester hours of related field electives approved by the physics faculty

D. Electives7 hours

Upper-division courses (6 semester hours)
 Free elective (1 semester hour)

Total Semester Hours 124 hours

E. Exit Exam

Rationale: See Item 14, below.

Effective Term: Fall 2015

14. Create the following track for the B.S. in Applied Physics:

Track II: Robotics and Mechatronics

A. General Requirements

Core Areas A, B, C, D.IIA, and E42 hours

Applied physics majors are required to take MATH 1113 in core area A and MATH 1161 in core area D

Area F18 hours

PHYS 2211K, 2212K Principles of Physics I, II (unless taken to satisfy core area D, in which case replace with 8 hours of lower division electives)

MATH 2072 Calculus II	
MATH 2160	
CSCI 1301 or ENGR 1371	
Physical Education	3 hours
First-Year Seminar	1 hour
B. Major Field Courses	30 hours
PHYS 2030 Introduction to Computer Engineering	
PHYS 2031 Digital Design Laboratory	
PHYS 2035 Programming for Hardware/Software Systems	
PHYS 3100 Electrical Circuit Analysis	
PHYS 3120 Digital Electronics and Microcontrollers	
PHYS 3142 Computational Physics	
PHYS 3170 Sensor Development and Data Analysis	
PHYS 3801K Modern Physics	
PHYS 4200 Analysis and Synthesis of Mechatronic Systems	
PHYS 3370 Human Computer Interaction	
C. Related Field Courses	23 hours
CHEM 1211 Principles of Chemistry I (and lab)	
CHEM 1212 Principles of Chemistry II (and lab)	
MATH 3411 Differential Equations	
Twelve semester hours (nine hours of which must be upper division level) of related field electives approved by the physics faculty.	
D. Electives	7 hours
Upper-division courses (6 semester hours)	
Free elective (1 semester hour)	
<hr/>	
Total Semester Hours	124 hours
E. Exit Exam	

Rationale: As a result of program review, the physics program has concluded that the program should seek to become more attractive than just being able to offer the traditional applied physics major. We see this as an opportunity to offer specialized tracks in Robotics and Mechatronics.

The Robotics and Mechatronics track would prepare the graduate the skills from not only the world of physics but from engineering and computer science to be capable of understanding the processes of measurement and control that are being utilized in industry and manufacture. This would require the creation of six new physics courses. However, three of these courses are being created to cross-list pre-existing one CSCI and two ENGR courses as equivalent to physics courses in the physics major field. This is being done by consultation and agreement with CSCI and ENGR programs.

Effective Term: Fall 2015

Item 15, the proposed Health Physics Track, was withdrawn by the department.

C. Computer Science and Information Technology

Item 1 from the Department of Computer Science and Information Technology was discussed and approved by the committee. It is being submitted to the Faculty Senate for approval.

1. Create the following track:

PROGRAM FOR THE DEGREE OF ASSOCIATE OF SCIENCE.

Cyber Security Track

A. General Requirements (Core Areas A, B, C, D.I, and E)	42 hours
Physical Education	3 hours
First-Year Seminar	1 hour
B. Additional Requirements	18 hours
MATH 1111- College Algebra (if not taken in Core Area A)	
ITEC 1310 – Programming for IT	
CSCI 2070 - Ethical Considerations in Computer Science	
ITEC 3700 – Cyber Security I	
ITEC 4200 – Cyber Security II, Network Security	
ITEC 4300 – Cyber Security III, Ethical Hacking	
If MATH 1111 was taken in Core A, then select one of the following:	
MATH 1113 – Pre-Calculus Mathematics	
CSCI 1150 – Fundamentals of the Internet and the World Wide Web (if not taken in Area D)	

Total Semester Hours

64

Rationale: By offering an Associate of Science with a Cyber Security track, the Cyber Security curriculum will become “stackable.” The courses for the Undergraduate Certificate in Cyber Security stack within this track, allowing a certificate-seeking student to apply them to an Associate’s degree. Should that student decide to earn a Bachelor’s in Information Technology at Armstrong, or an equivalent Bachelor’s degree at another institution (especially another USG institution), the Associate degree will allow that student to seamlessly transition into the major program.

Effective Term: Fall 2015

D. Engineering Studies

Items 1-2 from the Engineering Studies Program were discussed and approved by the committee. They are being submitted to the Faculty Senate for approval.

- 1. Cross-list the following course as PHYS 2030:**
ENGR 2030 INTRODUCTION TO COMPUTER ENGINEERING 3-0-3

Rationale. This course is required for electrical and computer engineers in the engineering transfer program, it is also a course that may be taken towards obtaining an Associates of Science with a concentration in engineering. The physics program is currently proposing a mechatronics track within the BS Physics program. ENGR2030 would be a requisite course in this track, cross listed as PHYS 2030.

Effective Term: Fall 2015

CURCAT:

Course Equivalent: PHYS 2030

- 2. Cross-list the following course as PHYS 2031:**
ENGR 2031 DIGITAL DESIGN LABORATORY 1-3-2

Rationale. This course is required for electrical and computer engineers in the engineering transfer program, it is also a course that may be taken towards obtaining an Associates of Science with a concentration in engineering. The physics program is currently proposing a mechatronics track within the BS Physics program. ENGR2031 would be a requisite course in this track, cross listed as PHYS 2031.

Effective Term: Fall 2015

CURCAT:

Course Equivalent: PHYS 2031

E. Mathematics

Items 1-4 from the Department of Mathematics were discussed and approved by the committee. They are being submitted to the Faculty Senate for approval.

- 1. Create the following course:**
MATH 0987 Foundations for Quantitative Reasoning (MATH 1001) 3-0-3
 Prerequisite: Placement according to Math Placement Index (MPI) < 1075
 Description: Study of set relationships, Venn diagrams, real number arithmetic, algebraic expressions, equations, functions, slopes, rates of change, coordinate graphing, and introductory statistics topics. This course is designed to review common arithmetic topics as well as introduce students to foundational algebra and statistics topics covered in MATH 1001.

Rationale: This course is being created for all University System of Georgia institutions offering remediation for MATH 1001. It is intended as a full semester

remedial course to be followed by MATH 1001, together with corequisite course MATH 0997.

Effective Term: Fall 2015

CURCAT:

Major Department: Mathematics

Can course be repeated for additional credit? No

Maximum Number of Credit Hours: 3

Grading Mode: S/U

Instruction Type: Lecture

Course Equivalent: None

2. Create the following course:

MATH 0997 Support for Quantitative Reasoning (MATH 1001) 2-0-2

Prerequisite: Placement according to Math Placement Index ($1075 \leq \text{MPI} < 1165$) or successful completion of MATH 0987.

Description: Provides just-in-time support for students concurrently enrolled in MATH 1001. Additional review and practice will be provided for relevant MATH 1001 course topics: logic and reasoning, sets and Venn diagrams, units of measure, percentages, formulas, fundamentals of statistics and statistical graphics, probability, functions, and modeling.

Rationale: This course is being created for all University System of Georgia institutions offering remediation for MATH 1001. It will be taught concurrently with MATH 1001.

Effective Term: Fall 2015

CURCAT:

Major Department: Mathematics

Can course be repeated for additional credit? No

Maximum Number of Credit Hours: 2

Grading Mode: S/U

Instruction Type: Lecture

Course Equivalent: None

3. Create the following course:

MATH 0989 Foundations for College Algebra (MATH 1111) 3-0-3

Prerequisite: Placement according to Math Placement Index ($\text{MPI} < 1100$)

Description: A study of the essential mathematical concepts required for success in College Algebra (MATH 1111). Topics include properties of real numbers, linear equations and inequalities, quadratic equations, graphs, polynomials, and roots.

Rationale: This course is being created for all University System of Georgia institutions offering remediation for MATH 1111. It is intended as a full semester

remedial course to be followed by MATH 1111, together with corequisite course MATH 0999.

Effective Term: Fall 2015

CURCAT:

Major Department: Mathematics

Can course be repeated for additional credit? No

Maximum Number of Credit Hours: 3

Grading Mode: S/U

Instruction Type: Lecture

Course Equivalent: None

4. Create the following course:

MATH 0999 Support for College Algebra (MATH 1111)

2-0-2

Prerequisite: Placement according to Math Placement Index ($1100 \leq \text{MPI} < 1265$) or successful completion of MATH 0989.

Description: Provides just-in-time support for students concurrently enrolled in MATH 1111. Topics will parallel topics studied in MATH 1111, as well as essential quantitative skills needed to be successful in MATH 1111, including factoring, polynomial expressions, and roots.

Rationale: This course is being created for all University System of Georgia institutions offering remediation for MATH 1111. It will be taught concurrently with MATH 1111.

Effective Term: Fall 2015

CURCAT:

Major Department: Mathematics

Can course be repeated for additional credit? No

Maximum Number of Credit Hours: 2

Grading Mode: S/U

Instruction Type: Lecture

Course Equivalent: None

F. Psychology

Items 1-3 from the Department of Psychology were discussed and approved by the committee. They are being submitted to the Faculty Senate for approval.

1. Modify the following course:

PSYC 2190 – Careers and Professional Skills in Psychology

3-0-3

Prerequisites: PSYC 1101 and MATH 2200 (minimum grade of C)

Corequisites: PSYC 2200 and 2201

Rationale: The course content in PSYC 2190, 2200, and 2201 are complementary and taking these courses as a learning community will help students synthesize the course content across all three courses.

Effective Term: Fall 2015

2. Modify the following course:

PSYC 2200 INTRODUCTION TO PSYCHOLOGICAL RESEARCH 3-0-3

Prerequisites: PSYC 1101 and MATH 2200 (minimum grade of C)

~~Prerequisite or e~~Corequisites: PSYC 2190 and PSYC 2201

An introduction to scientific methodology and its application to psychology, with emphasis on data collection methods and statistical ~~techniques~~ techniques including, but not limited to, correlation, factorial ANOVA, and nonparametric procedures. Students are required to perform statistical analyses using SPSS statistical programs, conduct an original psychological investigation, and write an APA style report of the research.

Rationale: The course content in PSYC 2190, 2200, and 2201 are complementary and taking these courses as a learning community will help students synthesize the course content across all three courses.

Effective Term: Fall 2015

3. Modify the following course:

PSYC 2201 INTRODUCTION TO PSYCHOLOGICAL RESEARCH LAB 0-1-1

Prerequisites: PSYC 1101 and MATH 2200 (minimum grade of C)

Co-requisites: ~~PSYC 2190~~ and PSYC 2200

Rationale: The course content in PSYC 2190, 2200, and 2201 are complementary and taking these courses as a learning community will help students synthesize the course content across all three courses.

Effective Term: Fall 2015

OTHER BUSINESS

A. Requiring courses in the Core. Dr. Brooks followed up on the question from the November meeting regarding whether or not particular courses can be required in Core Areas A-E. She received verification from the system office that institutions must apply for permission to do this. In addition, Courses in Areas A-E may not be prerequisites for courses in the major. There are exceptions, as listed in the USG Academic and Student Affairs Handbook, Section 2.4.7. Any requirements in place as of the 2008-2009 catalog are allowed.

B. CIP in CURCAT. There was discussion of whether or not to add a field for the CIP code to the CURCAT information for new courses. It was agreed that the CIP is really only

necessary for new course prefixes, and Mr. McCaskill said his office would be happy to work with faculty on determining the CIP codes in these cases. Therefore, the field will not be added to required CURCAT information.

ADJOURNMENT. The meeting was adjourned at 4:25 p.m.

Respectfully submitted,

Phyllis L. Fulton
Catalog Editor and Secretary to the Committee