University Curriculum Committee
February 9, 2017 Meeting Minutes

The University Curriculum Committee met on Thursday, February 9 at **3:00** p.m. in the Deans' Conference Room, DBRY 200.

Members Present:

Melinda Anderson	Curtis Armstrong	Julie Baker	Rita Barnes
Jeff Boles	Kristine Craven	Dennis Duncan	Edith Duvier
Kurt Eisen	Ahmed Elsawy	Julie Galloway	Bahman Ghorashi
Mike Gotcher	Mark Groundland	Brandi Hill	Bobby Hodum
Sharon Huo	Steve Isbell	Christy Killman	Hayden Mattingly
Allan Mills	Wendy Mullen	Thomas Payne	Ted Pelton
Stephen Peterson	Mohan Rao	James Raymondo	Joseph Rencis
Stephen Robinson	Jennifer Shank	Barry Stein	Huey-Ming Tzeng
Jeremy Wendt	Janet Whiteaker	Brenda Wilson	Kim Winkle
Jerri Winningham	Micayla Holton- student		

Members Absent:

Pedro Arce	Doug Bates	Steve Frye	Mike Harrison
Jeff Roberts	Liz Mullens	Paul Semmes	Mark Stephens
Students Absent:	Jacob Jurkiewicz	Jacob Dodd	Samantha McClain
Guadalupe Mora	Elijah Fetzer	Shelby Williams	

Official Representative(s):

Martha Kosa	*For* Jerry Gannod
Jeff Austen	*For* Wayne Johnson
Chris Brown	*For* Robert Kissell
Robert Wilbanks	*For* Richard Rand
Steve Sharp	*For* Joe Roberts

Guest(s):

Linda Null- speaking re: UNIV 1020	Steve Owens- speaking re: PHYS

Outline of Proceedings:

Approval of agenda

Approval of October 27, 2016 minutes

Curriculum changes and name change for Multidisciplinary Studies

Course changes for Psychology and Educational Psychology

Course deletion for the School of Art, Craft, and Design

Course changes for Electrical and Computer Engineering

Course additions, deletions, and changes for Manufacturing and Engineering Technology

Course changes for Computer Science

Course changes and course addition for Chemistry

Course and curriculum changes for Physics

Course additions, changes, and curriculum changes for Biology

Course changes, new courses, name changes, new options for English/Theatre

Course changes for Professional Communications

New courses and curriculum changes for Agriculture and Human Ecology

New program of study, Bachelor of Science in Vehicle Engineering, for Mechanical Engineering

Course change for University 1020

Changes to Policy No. 260

Other such matters

Proceedings

Perceiving a quorum, Dr. Wendt called the meeting to order at approximately 3:10 p.m.

Approval of agenda.

Motion to approve. Dr. Stein
Second. Dr. Kosa
Vote. Motion carried.

Approval of previous meeting's minutes- October 27, 2016.

Motion to approve. Dr. Barnes
Second. Dr. Isbell
Vote. Motion carried without changes or amendments.

Curriculum changes and name change for Multidisciplinary Studies- Dr. Wendt presenting

1. ***Memo, Sept. 20, 2016: changes to program of study in UG catalog- effective fall 2017 (revised).***
   A. *Multidisciplinary Studies, English as a Second Language, B.S.*
   Remove:
   ESLP 4300(5300)-Field Experience in ESL (credit 3)
   READ 3350-Teaching Reading in the Content Areas (credit 3)
   "Select two:" wording above foreign language classes (reduces credit by 3)
   Elective (credit 2)
   Add:
   CUED 4700-Educational Data & Assessment (credit 2)
   ECSP 4100-Developmentally Appropriate Practices: K-4 (credit 3)
   FOED 3800-Field Experience in Education (credit 1)
   SPED 3050-Universal Design for Special Education (credit 5)
   B. *Secondary Education, Non-Licensure Concentration, B.S. ED.*
   Remove:
   Electives (credit 4)
   Add:
   Upper Division Electives (credit 4)
   C. *Multidisciplinary Studies: English as a Second Language, B.S., Elementary Education Concentration, B.S., Middle School Concentration, B.S.*
   Delete Special Notes:
   "Submit evidence of CPR Training"
   "Must provide evidence of first aid/safety/CPR training as a prerequisite for student teaching"

2. ***Memo, Nov. 15, 2016: changes to program of study in undergraduate catalog- effective fall 2017 (second revision).***

   A. *Multidisciplinary Studies, Elementary Education Concentration, B.S.*

   Remove:

   ARED 3200-Art Applications (credit 1)

   MUS 3540-Music Appreciation (credit 1)

   Add:

   Elective (credit 2)

Motion to approve. Dr. Stein

Second. Dr. Mills

Vote. Motion carried without discussion.

3. ***Memo, Nov. 15, 2016: Multidisciplinary Studies, Elementary Education concentration name change to Elementary Education.***

   This is the largest program in the department; changing the name will be better for marketing promotions. Department also believes the name is confusing and it does not align with state license endorsement codes.

   From: Multidisciplinary Studies, Elementary Education Concentration, B.S.

   To: Elementary Education, B.S.

Motion to approve. Dr. Stein

Second. Dr. Baker

The question was raised whether the committee was being asked to approve a name change of a concentration or creation of a new degree program. Dr. Wendt clarified that this will be a new degree program. The request for the new program has been written but was not included in the paperwork for the committee meeting. The proposal will go to THEC if the committee approves. Initially this new degree program will be used alongside the original program as there are students currently enrolled in the Elementary Education concentration, but the department will phase out the current concentration through a process of changing majors of those currently enrolled in MDS ELED. May 2018 is set as the last deadline for graduates from MDS ELED. After there are no longer students in the current concentration, Curriculum & Instruction will present a proposal to the committee to delete the Elementary Education concentration.

Vote. Motion carried.

Course Changes for Educational Psychology and Psychology- Dr. Stein presenting

1. ***Memo, Nov. 1, 2016: Changes in course number and/or name (effective fall 2017).***

   The changes are to comply with the Tenn. Transfer Pathways.

   A. **From:** PSY 2010 General Psychology
      To: PSY 1030 Introduction to Psychology

   B. **From:** EDPY 2200 Educational Psychology
      To: EDPY 2210 Educational Psychology

   C. **From:** PSY 2050 Psychology of Adjustment
      To: PSY 2110 Psychology of Adjustment

   D. **From:** PSY 2130 Life Span Developmental Psychology
      To: PSY 2130 Life Span Developmnt Psychology

Motion to approve. Dr. Stein

Second. Dr. Boles

Vote. Motion carried without discussion.

2. ***Memo, Jan. 12, 2017: Course change.***
   The department proposed to change the title in order to reduce confusion from the community regarding student expectations for the course.
   From: Practicum in Psychology
   To: Field Experience in Psychology

Motion to approve. Dr. Stein
Second. Dr. Eisen
Vote. Motion carried without discussion.

3. ***Memo, Nov. 14, 2016: Course and curriculum changes.***
   A. *Course changes.*
      Add PSY 3020, Information Literacy in Psychology as a prerequisite or co-requisite to PSY 3010.
      PSY 3010 – Statistics and Experimental Design Lec. 2. Lab. 2. Credit 3. Prerequisite: PSY 2010, 3 additional PSY credit hours; MATH 1530 or MATH 1130; Prerequisite or Co-requisite PSY 3020.

Motion to approve. Dr. Stein
Second. Dr. Baker
Vote. Motion carried without discussion.

Course deletion for School of Art, Craft, and Design- Dr. Winkle presenting

1. ***Memo, Nov. 14, 2016: Delete ART 2070 from course catalog.***
   ART 2070- Digital Art Basics- was replaced with a new 3 credit hour course and ART 2070 has not been taught since Spring 2013. Department proposed to delete it from the catalog.

Motion to approve. Dr. Winkle
Second. Dr. Wendy Mullen
Vote. Motion carried.

Course changes for Electrical and Computer Engineering- Dr. Austen presenting

1. ***Memo, Jan. 19, 2017: ECE course and curriculum changes***
   A. *Catalog changes.*
      1) ECE 2011 - Electrical Engineering Lab I Lab. 3. Credit 1.
         Prerequisite: C or better in ECE 2010 (ECE 2010 may be taken concurrently).
         Introduction to electrical and electronic components, circuits, test equipment, and measurement techniques.
      2) ECE 4140 - Embedded System Design Lec. 2. Lab. 3. Credit 3.
         Prerequisite: C or better in ECE 3130 ~~and C or better in ECE 3160~~. Basic hardware and software concepts in the analysis and design of embedded systems, peripheral interfaces and performance analysis with hands-on design project.
      3) ECE 2010 – Electric Circuits I Lec. 3. Credit 3.
         Prerequisites: C or better in MATH 1920, C or better in MATH 2010, and C or better in MATH 2120 (MATH 2120 may be taken concurrently). Introduction to electric circuit quantities and components, systematic application of Ohm's and Kirchhoff's laws, superposition, Thévenin and Norton theorems, operational amplifiers, RL and RC transients, and circuit simulation with SPICE. Circuit applications of probability.
   B. *Changes to program of study for Electrical Engineering majors.*
      1) Junior year:
         From: EE Focus Lab Elective 3 Credit: 1.
         To: EE Lab Elective 3 Credit: 1.
      2) Senior year:
         From: EE Focus Senior Electives 3 Credit: 6.

To: EE Depth Electives 3 Credit: 6.

Motion to approve. Dr. Austen

Second. Dr. Rao

Vote. Motion carried without discussion.

Course additions, deletions, and changes for Engineering Technology- Dr. Elsawy presenting

1. ***Memo, Jan. 19, 2017: MET course and curriculum changes.***

A. *New course.*

MET 4250 (5250) Applied Mechatronics Lec.2. Lab.3. Credit 3.*

Prerequisite: MET 3250 or consent of instructor. Introduction to mechatronic systems; modeling of mixed mechatronic systems; microcontroller programming and interfacing; theory, selection and implementation of sensors and actuators commonly used in mechatronic systems; control architectures and case studies in mechatronic systems. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

**Dr. Huo proposed a friendly amendment to correct the credit hours listed for accuracy- from Lec. 1. Lab. 3. Credit 3 to Lec.2. Lab.2. Credit 3. With no objections*.

B. *Deletion of courses.*

MET 4010- Technical Communications Lec. 3. Credit 3.

MET 4140- Maintenance Technology II Lec. 2. Lab. 2. Credit 3.

There are no qualified faculty to teach MET 4010 and MET 4140 has been replaced by MET 4550 (5550).

C. *Course changes.*

1) **From**: MET 2063 - Metal Manufacturing Technology Lec. 2. Lab. 2. Credit 3.
   To: MET 2065 - Metal Manufacturing Technology Lec. 1. Lab. 3. Credit 2.
2) **From**: MET 2300 - Applied Fluid Power Lec. 3. Credit. 3.
   To: MET 2310 - Applied Fluid Power Lec. 2. Credit. 2.
3) **From**: MET 3130 - Maintenance Technology I Lec. 3. Credit 3.
   To: MET 3150 - Maintenance Technology I Lec. 2. Credit 2.
4) **From**: MET 3250 - Industrial Electronics Lec. 2. Lab. 2. Credit 3.
   To: MET 3260 - Industrial Electronics Lec. 1. Lab. 2. Credit 2.
5) **From**: MET 3730 - Quality Assurance Lec. 2. Credit 2.
   Prerequisite: Junior Standing and MET 1100. Using 6-Sigma methods for controlling the quality of materials and products in production systems.
   To: MET 3740 – Six Sigma Tools and Techniques Lec. 2. Credit 2.
   Using Lean Six Sigma tools and techniques for enabling optimal performance in service industries including healthcare and distribution, manufacturing companies, and government.*
   ** Dr. Elsawy advised the course description on the memo had not been changed and proposed a friendly amendment to read as above with no objections.*

D. *Additions to B.S. in Engineering Technology (B.S.E.T.).*

1) MET 2310- Applied Fluid Power Lec. 1. Lab. 2. Credit. 2. as a required course
2) ECE 3260- Programmable Logic Controller Lab. 3. Credit 1. as a required course
3) MET 4250 (5250)- Applied Mechatronics Lec. 1. Lab. 3. Credit 2. as an elective in Area of Emphasis I.
4) BMGT 3600 as an elective in Area of Emphasis II.

E. *Concentration Name Changes.* *Tabled until next Curriculum Committee Meeting**

1) Title of Area of Emphasis I
   From: Manufacturing Engineering Technology
   To: Concentration I - Manufacturing Systems Engineering Technology

2) Title of Area of Emphasis II
From: Engineering Technology Management
To: Concentration II – Engineering Technology Management
**Dr. Elsawy added friendly amendment to table discussion of MET concentrations until next meeting.*

Motion to approve *with friendly amendments*. Dr. Elsawy
Second. Dr. Stein
The question was raised in regards to whether Six Sigma is a copywritten term. Dr. Elsawy advised he would check this. Another question raised regarding the changing of the Options to Concentrations. There were insufficient hours to change these to concentrations and so Dr. Elsawy suggested tabling the concentrations.
Vote. Motion carried with friendly amendments.

Curriculum changes for Computer Science- Dr. Kosa presenting

1. Memo, Jan. 25, 2017: Computer Science curriculum changes.

A. *Deletions.*
Remove CSC 2550 from the course catalog
CSC 2550 was a requirement for the CSIT concentration, which has been discontinued.

B. *Course and curriculum changes.*
1) Renumber CSC 1610 and remove prerequisites except for MATH 1910.
From:
CSC 1610 – Discrete Structures for Computer Science Lec. 3. Credit 3. Prerequisite: ACT Math score of 25 or above, MATH 1130, MATH 1710, MATH 1720, MATH 1730, MATH 1830, or MATH 1910. Applications of discrete mathematics to computer science, sets and boolean algebra, relations, and graphs, with applications to computer logic and data structures.
To:
CSC 2700- Discrete Structures for Computer Science Lec. 3. Credit 3. Prerequisite: MATH 1910. Applications of discrete mathematics to computer science, sets and boolean algebra, relations, and graphs, with applications to computer logic and data structures.
2) Replace CSC 2100 (credit 3) and CSC 2101 (credit 1) with CSC 1300 (credit 4) and adjust prerequisites.
From:
CSC 2100 – Introduction to Problem Solving and Computer Programming Lec. 3. Credit 3. Prerequisite: MATH 1910. Corequisite: CSC 2101. Digital computers; problem solving and algorithm development; programming is introduced using a procedural approach, but classes and object-orientation are introduced; design and testing are emphasized. MATH 1910 may be taken concurrently.
AND
CSC 2101 – Problem Solving and Computer Programming Lab Lab 1. Credit 1. Prerequisite: MATH 1910. Co-requisite: CSC 2100. A series of weekly laboratory exercises for developing proficiency in problem solving and computer programming. MATH 1910 may be taken concurrently.
To:
CSC 2300 [2310]* – Introduction to Problem Solving and Computer Programming Lec. 3. Lab. 2. Credit 4. Prerequisite: CSC 1200 or MATH 1910. MATH 1910 may be taken concurrently. Digital computers; problem solving and algorithm development; programming is introduced using a procedural approach, but classes and object-orientation are introduced; design and testing are emphasized. Students complete a series of weekly laboratory exercises for developing proficiency in problem solving and computer programming.

**Records advised this number had been used previously. Dr. Kosa proposed a friendly amendment to change the course to CSC 2310, which was approved by all present*.

3) Replace CSC 2110 (credit 3) and CSC 2111 (credit 1) with CSC 1310 (credit 4) and adjust prerequisites.

   From:

   CSC 2110 – Data Structures and Algorithms Lec. 3. Credit 3.
   Prerequisite: C or better in CSC 2100, CSC 2101 and MATH 1910. Corequisite: CSC 2111. Abstract data types and fundamental data structures including stacks, queues, and trees; algorithms to search, sort, and manipulate data using such structures; and introduction to runtime analysis.

   AND

   CSC 2111 – Data Structures and Algorithms Lab Lab 1. Credit 1.
   Prerequisite: C or better in CSC 2100, CSC 2101 and MATH 1910. Corequisite: CSC 2110. A series of weekly laboratory exercises for developing proficiency in implementing and utilizing data structures.

   To:

   CSC 1310 – Data Structures and Algorithms Lec. 3. Lab. 2. Credit 4.
   Prerequisite: C or better in CSC 1300; or C or better in CSC 2100 and CSC 2101. Abstract data types and fundamental data structures including stacks, queues, and trees; algorithms to search, sort, and manipulate data using such structures; and introduction to runtime analysis. Students complete a series of weekly laboratory exercises for developing proficiency in implementing and utilizing data structures.

4) Replace CSC 2120 (credit 3) and CSC 2121 (credit 1) with CSC 2300 (credit 4) and adjust prerequisites.

   From:

   CSC 2120 – Object-Oriented Programming and Design Lec. 3. Credit 3. Prerequisite: C or better in CSC 2110 and CSC 2111. Corequisite: CSC 2121. Theory and practice of object-oriented programming and design. Encapsulation, inheritance, dynamic binding, and polymorphism; and introduction to UML and design patterns.

   AND

   CSC 2121 – Object-Oriented Programming and Design Lab Lab. 1. Credit 1. Prerequisite: C or better in CSC 2110 and CSC 2111.
   Corequisite: CSC 2120. A series of weekly laboratory exercises for developing proficiency in object-oriented programming and design.

   To:

   CSC 2310* – Object-Oriented Programming and Design Lec. 3. Lab 2. Credit 4. Prerequisite: C or better in CSC 1310; or C or better in CSC 2110 and CSC 2111. Theory and practice of object-oriented programming and design. Encapsulation, inheritance, dynamic binding, and polymorphism; and introduction to UML and design patterns. Students complete a series of weekly laboratory exercises for developing proficiency in object-oriented programming and design.

   **Friendly amendment- 2300 was previously used for CSC; Dr. Kosa proposed to change the number to 2310 with no objections.*

5) Modify prerequisites for courses affected by renumbering CSC 1610 and restructuring and renumbering of introductory sequence:
   a) CSC 2400- Design of Algorithms Lec. 3. Credit 3. Prerequisite: MATH 1920; and C or better in CSC 1610, CSC 1310 or both CSC 2110, and CSC 2111; and MATH 1920.
   b) CSC 2500- Unix Lab Lab. 2. Credit 1.
      Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111.
   c) CSC 2710- Foundations of Computer Science Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1610 or CSC 2700; and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Application of discrete structures to model computational processes; techniques for analysis of algorithms; and automata and concepts of language theory. CSC 1310 or both of CSC 2110 and 2111 may be taken concurrently.

d) CSC 3020- Numerical Methods Lec. 3. Credit 3.
Prerequisite: MATH 1920, and C or better in CSC 1310 or CSC 2100 or ENGR 1120.

e) CSC 3030- Practical and professional Issues in Computer Science Lec. 1. Lab. 1. Credit 1.
Prerequisite: Junior Standing, SPCH 2410 or PC 2500, and C or better in CSC 1310 or both CSC 2110 and CSC 2111.

f) CSC 3040- Professionalism, Communication and Research in Computing Lec. 3. Credit 3.
Prerequisite: Junior Standing, SPCH 2410 or PC 2500, and C or better in CSC 1310 or both CSC 2110 and CSC 2111.

g) CSC 3100 – Web Programming Lec. 3. Credit 3. Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111.

h) CSC 3300 – Database Management Systems Lec. 3. Credit 3. Prerequisite: Junior Standing; and C or better in CSC 1610, CSC 1310 or both CSC 2110 and CSC 2111.

i) CSC 3340 – Deterministic Computer Models Lec. 3. Credit 3. Prerequisite: C or better in CSC 1310 or both CSC 2110, and CSC 2111; and MATH 2010.

j) CSC 3410 – Computer Organization and Assembly Language Programming Lec. 3. Credit 3. Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111.

k) CSC 4100 (5100) – Operating Systems Lec. 3. Credit 3. Prerequisite: C or better in CSC 1310 or both CSC 2110, and CSC 2111; and either C or better in CSC 3410 or ECE 3130.

l) CSC 4575 (5575) – Information Assurance and Cryptography Lec. 3. Credit 3. Prerequisite: Junior Standing and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Course introduces students to the fundamentals of information assurance and cryptographic techniques along with their application to the prevention, detection, and mitigation of cyber threats.

m) CSC 4710 (5710) – Design and Development of Human and Web Interfaces Lec. 3. Credit 3. Prerequisite: C or better in CSC 1310 or both CSC 2110, and CSC 2111; and either C or better in CSC 3030 or CSC 3040.

6. Add a prerequisite choice and modify a prerequisite for CSC 3220.
CSC 3220 - Fundamentals of Data Science Lec. 3. Credit 3.
Prerequisite: MATH 2010, MATH 3070 or MATH 3470 or MATH 4470, CSC 3300, and C or better in CSC 2400CSC 1310 or both of CSC 2110 and CSC 2111. CSC 3300 may be taken concurrently.
Introduction to the tools and techniques for developing data science applications … The foundation is laid for big data applications ranging from fraud detection to healthcare informatics.
7. Remove prerequisite for CSC 4240.
CSC 4240 (5240) – Artificial Intelligence Lec. 3. Credit 3. Prerequisite: C or better in CSC 2400 and CSC 2710.
8. Modify prerequisite for CSC 4320
CSC 4320 (5320) – Computer ArchitectureLec. 3. Credit 3. Prerequisite: C or better in CSC 3410 or equivalent.
9. Modify prerequisites for CSC 4610
CSC 4610 – Software Engineering ILec. 2. Lab. 2. Credit 3. Prerequisite: C or better in CSC 2120 or CSC 2310, CSC 2400, CSC 3030 or CSC 3040, and CSC 3300, and Senior Standing.
10. Change prerequisites for CSC 4220
CSC 4220 - Data Mining and Machine Learning Credits 3.
11. Add the requirement of ‘C’ or better in CSC 2400.

12. Replace CSC 1200 requirement with CSC Elective Credit
13. Move CSC 2700 from freshman to sophomore year
14. Restructure the placement of CSC courses in the recommended curriculum for each concentration.
15. Allow either MATH 3070 or MATH 3470 to satisfy the statistics requirement for all four concentrations
16. Modify the requirements for the Computer Science minor.
    A computer science minor should have completed CSC 1310 or both CSC 2110~~/~~ and CSC 2111, plus 6 hours of upper division computer science courses for a total of at least 15 hours in computer science ~~(not to include CSC 1100 or CSC 1070)~~.

Motion to approve *with friendly amendment****.*** Dr. Isbell
Second. Dr. Stein
Dr. Boles suggested moving "CSC may be taken concurrently" to immediately after the prerequisite listings for CSC 3220 to make sure students see it, to which Dr. Kosa agreed. Dr. Ghorashi asked Dr. Kosa to recommend implementation of an assessment tool to monitor the effect of the changes on student performance. Dr. Hodum asked whether the faculty were comfortable that students could stay on track to graduation with all of the changes, and Dr. Kosa advised they were.
Vote. Motion carried with friendly amendment.

Course name and number changes (TTP) and course additions for Chemistry- Dr. Boles presenting

1. ***Memo, Sept. 29, 2016: TBR mandated change in course names and numbers to meet Tenn. Transfer Pathways criteria.***
   A. **From**: CHEM 1310
      To: CHEM 1050*
   B. **From**: CHEM 1000 – Foundations of Chemistry
      To: CHEM 1000- Chemistry Problem Solving
   C. **From**: CHEM 1010- General Chemistry I
      To: CHEM 1010- Introductory Chemistry I
   D. **From**: CHEM 1020- General Chemistry II
      To CHEM 1020- Introductory Chemistry II
      **CHEM 1050 has already been used. Dr. Boles removed this item and will bring it back for approval later.*

Motion to approve. Dr. Boles
Second. Dr. Stein
Vote. Motion carried without discussion.

2. ***Memo, Sept. 29, 2016: New Course***
   CHEM 4950- Internship in Chemistry Credit 6
   The department did not have an internship course, but they have had several students participate in internship experiences in the past and the department wishes to give credit for these experiences.

Motion to approve. Dr. Boles
Second. Dr. Barnes
The question was raised whether this change would apply to students under previous catalog editions and whether students under those catalogs would be able to substitute this course for other requirements. Dr. Boles advised that the department did not wish students under previous catalog editions to use this course as a sub for other required courses.
Vote. Motion carried.
Friendly Amendment: *The course number 4940 was previously used. Records suggested 4950 as an alternative and Dr. Boles agreed.*

Course and curriculum changes for Physics- Dr. Robinson presenting

1. ***Memo, Feb. 1, 2017: course and curriculum changes***

   CSC has renumbered their courses prompting the following changes.

   A. *Option I and Option II curricula*

      Replace CSC 2100 – 2101 with CSC 1300

   B. *Option I curriculum*

      Replace CSC 2110 – 2111 with CSC 1310

Motion to approve. Dr. Robinson

Second. Dr. Mills

Vote. Motion carried without discussion.

Course additions and changes and curriculum changes for Biology- Dr. Chris Brown presenting

1. ***Memo, Jan. 19, 2017: course additions and changes and program changes***

   A. *Course Additions.*

      All have been taught as special topics courses and the faculty feel they should be given their own course numbers. They will be added as directed electives for the related concentrations.

      1) BIOL 4140 (5140) – Pathogenic Bacteriology Lec. 3. Credit 3.
      2) BIOL 4170 (5170) – Population and Conservation Genetics Lec. 3. Credit 3.
      3) BIOL 4340 (5340) – Plant-Animal Interactions Lec. 2. Lab. 3. Credit 3.
      4) WFS 4800 – Conservation Techniques Lec. 1. Lab. 6. Credit 3.
      5) BIOL 6810 – Ecological Ordination Lec. 2. Lab. 3. Credit 3.

   B. *Course Changes.*

      1) **FROM**:
         BIOL 2110 – General Botany Lec. 3. Lab. 2. Credit 4.
         TO:
         BIOL 2110 – General Botany Lec. 3. Lab. 3. Credit 4.
      2) **FROM**:
         WFS 4870 (5870) – GIS for Wildlife and Fisheries Lec. 3. Credit 3.
         TO:
         WFS 4870 (5870) – GIS for Wildlife and Fisheries Lec. 2. Lab. 3. Credit 3.
      3) BIOL 4220 (5220) Biostatistics
         Add Prerequisite MATH 1530 OR MATH 1830
      4) Change the math requirements, currently listed as a footnote at the bottom of the curriculum in the catalog, for all BIOL and WFS majors.
         FROM:
         Required courses are MATH 1130, MATH 3070, and a choice of either MATH 1830 or MATH 3080.
         TO:
         Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL/WFS 4220.
      5) Add BIOL 4140 (Pathogenic Bacteriology) to the list of directed electives in the footnotes for the Microbiology Option in the Biology Concentration listed in footnote 3, and the Biology Health Sciences Concentration listed as footnote 2 in the curriculum listing in the catalog.
      6) Add WFS 4800 (Conservation Techniques) to the list of directed electives for the Wildlife and Fisheries Science, Conservation Biology Concentration listed as footnote 2 in the curriculum listing in the catalog.
      7) Add BIOL 3330 (Entomology) as an alternative course to WFS 4610 (Invertebrate Zoology) in the Zoology option of the Biology Concentration, currently listed as footnote 1, and in the Wildlife

and Fisheries Science, Conservation Biology Concentration, currently listed as bullet 5 under the Junior Year in the curriculum listing in the catalog.

Motion to approve. Dr. Brown

Second. Dr. Eisen

The question was raised whether the courses being added as directed electives would be available for students in other concentrations. Dr. Brown advised he would check with the department, but he believed that would be the case. It was also indicated the graduate course and the courses cross-listed would need to be approved through the Graduate School Executive Committee.

Vote. Motion carried.

Course changes, new courses, name changes, and new options for English/Theatre- Dr. Pelton presenting

1. ***Memo, Nov. 8, 2016: course changes, new course proposals, renaming a concentration, creation of new options.***

A. *Course changes.*

The changes are to comply with Tenn. Transfer Pathways.

1) **From**:
THEA 2200 - Stagecraft. Lec. 3. Credit 3. Lecture-laboratory covering basic elements of scenery construction, painting, lighting, stage-properties, and costuming.
To:
THEA 2025 - Stagecraft II. Prerequisite: THEA 1025. Spring. Lec. 3. Credit 3. Advanced stagecraft continues with scenic techniques including renderings and scale models, stage lighting theory and practice, sound design, and projections. Advanced students will serve as assistants to the technical director and as crew heads for TTU theatre productions.

2) **From**:
THEA 2100 - Acting. Fall (O). Readings, improvisations, scene study; voice and movement for the stage; and basic rehearsal techniques.
To:
THEA 2015 - Acting II. Spring. Lec. 3. Credit 3. Prerequisite: THEA 1015 and THEA 2155 or permission of the instructor. Continuation of the principles explored in THEA 1015 with a greater emphasis on scene work, text analysis, and character development.

B. *New courses.*

1) THEA 1025 - Stagecraft I. Fall. Lec. 3. Credit 3. An introduction to theatre technology including construction techniques, shop safety, types of scenery, scale drawing, common materials, and scene painting. Students will gain practical experience working on TTU theatre productions.
2) THEA 1015 - Acting I. Fall. Lec. 3. Credit 3. Fundamentals of the acting process examined through improvisation, characterization, text analysis, and basic acting technique.
3) THEA 4200 - Theatre Design Practicum. Prerequisite: THEA 1025, THEA 2025, THEA 3200. Lec. 3. Credit 3. Students are assigned as scenic, lighting, sound, or costume designers for a TTU theatre production.

C. *Curriculum changes.*

1) Rename the Dramatic Arts Concentration
From: Dramatic Arts
To: Theatre
2) Create two options within the Theatre Concentration
a) Technical Option
THEA 1025 Stagecraft I
THEA 2025 Stagecraft II
THEA 3200 Theatrical Design
THEA 4200 Theatre Design Practicum

b) Performance Option
THEA 1015 Acting I
THEA 2155 Voice and Diction
THEA 2015 Acting II
THEA 4300 Directing

Motion to approve. Dr. Pelton
Second. Dr. Eisen
Vote. Motion carried without discussion.

Course changes for Professional Communications- Dr. Pelton presenting

1. ***Memo, Nov. 3, 2016: course title change, prerequisite change, and program name change***
   A. *Course title and prerequisite change.*
   From: PC 4990 Seminar in Professional Communication. Prerequisite: PC 4970 (5970)
   To: PC 4990 Business and Grant Proposal Writing. Prerequisite: ENGL/PC 3250
   B. *Program name change.*
   From: Professional Communication
   To: Professional and Technical Communication

Motion to approve. Dr. Pelton
Second. Dr. Mills
Vote. Motion carried without discussion.

2. ***Memo, Nov. 3, 2016: graduate-level internship credit-hour change***
   To:
   PC 4850 (5850)—Internship Credit 3, 6, 9. Pre-requisite: PC 4940/5940 or 4970/5970.
   Part-time or full-time employment in a business, industrial, or institutional communications setting related to student academic and career goals. Includes a reflective component in the form of a paper or journal that connects the student's work with research covered in pre-requisite courses. Course may be repeated for up to a total of nine credit hours. Undergraduate students may not take more than nine credit hours of PC 4850 during their degree programs. Graduate students may take no more than six credit hours of PC 5850 during their degree programs.

Motion to approve. Dr. Pelton
Second. Dr. Mills
Vote. Motion carried without significant discussion.

New courses and curriculum changes for Agriculture and Human Ecology- Dr. Anderson & Dr. Duncan presenting

1. ***Memo, Sept. 26, 2016: AGHE prefix creation***
   This prefix would be used to offer a University Connections course specific to College of Agriculture & Human Ecology that would enroll students from both schools.

Motion to approve. Dr. Duncan
Second. Dr. Baker
Vote. Motion carried without significant discussion.

2. ***Memo, Sept. 26, 2016: course addition***
   AGHE 1020- AGHE Connections in Agriculture & Human Ecology Lec.2. Credit 1. Prerequisite: Freshman classification.

Motion to approve. Dr. Duncan
Second. Dr. Baker
Vote. Motion carried without significant discussion.

3. ***Memo, Oct. 5, 2016: HEC curriculum and course changes***
   A. *New Course.*

HEC 4910- Internship in Child Development and Family Relations

B. *Curriculum Changes.*
   1) CDFR curriculum:
      a) Sophomore year- total credit hours from 31 to 30 hours
      b) Junior year-
         Delete HEC elective credit 3
         Add EXPW 2150- Human Sexuality credit 3
         Remove HEC 3660- Interpersonal Relationships
      c) Senior year-
         Elective credits from 5 to 6
         Add HEC 3660- Interpersonal Relationships
         Change total credit hours from 28 to 29
   2) All Human Ecology Major programs of study:
      a) Freshman year-
         Remove UNIV 1020 1 credit
         Add AGHE 1020 Credit 1
   3) All applicable programs of study:
      a) Remove CFS 2410 Credit 1
         Total credit hours for Sophomore year from 31 to 30
         Total Senior year elective credits from 1 to 2
         Total credit hours Senior year from 28 to 29
   4) Food Systems Administration curriculum sheet, Note 3, Nutrition and Dietetics curriculum sheet, Note 1 and Note 2-
      Replace the word 'option' in each with 'curriculum'

Motion to approve. Dr. Anderson
Second. Dr. Baker
Vote. Motion carried without significant discussion.

4. Memo, Jan. 12, 2017: curriculum changes, HEC education concentration, course changes.

A. *Curriculum Changes.*
   1) Family and Consumer Sciences concentration:
      a) Freshman year:
         Credits from 34 to 31
         Remove HEC 1020, 1030, and 2031
         Add HEC 2020- Nutrition for Health Sciences
      b) Sophomore year:
         Credits from 33 to 36
         Add HEC 3290- Nutrition through the Life Cycle

B. *Course Changes.*
   HEC 3066- Family Violence Across the Lifespan-
   Add prerequisite HEC 2065 OR approval of instructor.

Motion to approve. Dr. Anderson
Second. Dr. Baker
Vote. Motion carried without discussion.

New program of study, Bachelor of Science in Vehicle Engineering, for Mechanical Engineering- Dr. Rao presenting

1. Memo, not dated: curriculum, implementation plan for new BSVE program

Mechanical Engineering proposes to create a new Bachelor of Science in Vehicle Engineering.

Motion to approve *with friendly amendment in regards to the course renumbering from CSC*. Dr. Rao

Second. Dr. Elsawy

The question was raised whether this program would involve fuels, and if so would CHEM 1110 would be sufficient for study of fuels. Dr. Rao and Dr. Elsawy advised it would be mostly focused on batteries and fuel cells. Concern was expressed regarding the financial impact and whether financial analysis had been done. The first year would require $488K to start; the first year would incur a $249K loss; the second year would incur a $23K loss. The third year would finally bring the program into the black. Questions were posed as to where funds would come from for this new program considering the current budget difficulties. Dr. Rencis advised that they are also pursuing funding from the state, and that approval is being sought at this time so that when funds become available, the program can go forward. He also advised that he believed this program would bring in more international student revenue.

Vote. Motion carried.

Course Changes for University 1020 and all related University Connections courses- Dr. Null presenting

1. ***Memo, not dated: change of course description for University Connections***

   A. *Change course description for UNIV 1020- First-Year Connections*

   To:

   Rec. 2 Credit 1. Prerequisite: Freshman standing. Engages students in meaningful academic and nonacademic, in-class and out-of-class activities. Emphasizes ethical behavior and the use of critical thinking in the formation of academic and social goals and support groups, and in self-management and study skills. Includes a creative inquiry project/activity which students should share.

   B. *Change the student learning outcomes for all First-Year Connections courses*

   From:

   To connect students with other students, encouraging both academic and personal networks
   To connect students with the University and the Department
   To connect students' college experiences with their future plans and ambitions
   To improve retention, especially between the freshman and sophomore years

   To:

   Build meaningful connections
   With other students (develop personal and professional networks);
   With the faculty and staff in your department/program;
   With the student life of the University;
   With available resources and support systems for both academics and student life;
   Integrate students' college experiences with their future plans and career ambitions;
   Demonstrate proficiency in the identification and evaluation of information sources to support academic inquiry and introduce students to elements of creative inquiry/research;
   Exercise written and oral communication skills to discover, develop, and articulate ideas and viewpoints.

   C. *First-Year Connections Program Goals.*

   Foster student success, as measured through first-semester to second-semester retention rates;
   Utilize and promote support networks for a diverse student body, including at-risk and high-achieving populations;
   Support students in building personal, curricular, and co-curricular connections across the campus as part of their continued transition to the University;
   Provide pathways to address academic challenges of college transition, including the development of foundational skills in critical thinking, information literacy, and ethical reasoning;
   Cultivate a growth mindset for TTU students, including attention to articulating and achieving both short- and long-term personal, academic, and career goals;
   Promote service learning and civic engagement.

Motion to approve. Dr. Eisen

Second. Dr. Baker

The question was raised regarding whether research would be involved in the creative inquiry element and how much; in other words, would students be required to do active research to fulfill this element? Dr. Null advised that this element can be tailored to the specific major and can be addressed in a variety of ways. Dr. Ghorashi advised that there needs to be a process in place for the implementation of this change in regards to working with all University Connections instructors. Dr. Null advised the information would be made available on the website and the teachers will be contacted directly once assigned to courses in the fall.

Vote. Motion carried with objections.

Revisions to Policy 260- Dr. Hodum presenting

Changes approved by Academic Council Nov. 9, 2016 pending University Curriculum Committee approval. There were two major changes Dr. Hodum brought before the committee.

A. *Degree Requirements.*
   1) Under section I, letter C, Item i: "Not more than ~~33~~ 60 semester hours may be earned toward a baccalaureate degree by Prior Learning Assessment…"
      This is to align with the THEC recommendations.
   2) Under the same section, letter D: "…a student transferring credit from a two-year institution must complete a minimum of ~~60~~ 50 semester hours at a four-year institution.

Motion to approve. Dr. Hodum

Second. Dr. Baker

The question was posed whether the 60 and 50 semester hour limits would be firm or if there would be room for exceptions. Dr. Hodum advised that there would be some degree of flexibility depending on the circumstances of the individual student. There was another question as to whether this would be an immediate change if approved in the committee or if there would be further steps. Dr. Hodum advised it will also have to go to the Board for approval.

Vote. Motion carried.

Other such matters

A. *New chair for the University Curriculum Committee.*
   Dr. Huo asked the committee members to prepare to elect a new chair as Dr. Wendt's term is ending; she sought volunteers for the position.
B. *TBR is no longer processing changes*
   1) Academic Action Notifications
      Once all necessary college-level approvals are obtained, these proposals will go to THEC for final approval
   2) Program Modifications
      Checklist
   3) New Programs
      Letter of Approval must include a feasibility study by an independent entity
      Once the L.O.A. is approved, there is a window of three (3) years to submit the proposal
      If not submitted during this window, must start the process over again
   4) New Academic Units

No other items being presented for discussion and no objections being given, the meeting was adjourned at **5:15** p.m.

Department of Curriculum and Instruction
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MEMORANDUM

TO: University Curriculum Committee (UCC)

VIA: Teacher Education Committee (TEC)

VIA: College of Education Executive Leadership Council (ELC)

FROM: Dr. Jeremy Wendt, Chair, Department of Curriculum & Instruction

DATE: November 15, 2016

SUBJECT: Changes to Program of Study in Undergraduate Catalog-Effective Fall 2017 (Revision)

I. Course Additions: None

II. Course Deletions: None

III. Course Changes: None

IV. Curriculum changes to Program of Study

A. Multidisciplinary Studies, Elementary Education Concentration, B.S.

1. **Remove:**
   ARED 3200-Art Applications (credit 1)
   MUS 3540-Music Appreciation (credit 1)
2. **Add:**
   Elective (credit 2)

Justification: Curriculum changes tied to Residency and edTPA.

Financial Impact: None

Effective: Fall 2017

Curriculum Changes to Program of Study: see attached for Program of Study

Multidisciplinary Studies, Elementary Education Concentration, B.S.										
Freshman Year				**Credit Hours**	**Sophomore Year**					**Credit Hours**
BIOL 1310-Concepts of Biology & Envirn				3	EDPY 2200-Educational Psychology					3
CHEM 1310-Concepts of Chemistry				3	ENGL 2130-Topics in American Literature					3
ENGL 1010-English Composition I				3	ENGL 2230-Topics in British Literature **OR**					
ENGL 1020-English Composition II				3	ENGL 2330-Topics in World Literature					3
FOED 2011-Intro to Teach. & Technology				2	SPCH 2410-Intro to Speech Comm. **OR**					
FOED 1820-Intro. Field Experience **OR**					PC 2500-Communicating in the Profession					3
FOED 1822-Intro. Field Experience & Orientation				1	GEOL 1310-Concepts of Geology					3
GEOG 1120-Human Geography				3	HEC 3500-Devel: Middle Childhood/Adolescence					3
HIST 2010-American History I				3	PHYS 1310- Concepts of Physics					3
HIST 2020-American History II				3	Humanities/Fine Arts Elective (Gen Ed)					3
MATH 1410-Number Concepts for Teachers				3	Social/Behavioral Sciences Elective (Gen Ed)					3
MATH 1420-Geometry Concepts for Teachers				3	MATH Elective					3
Total: 30					**Total: 30**					
Junior Year				**Credit Hours**	**Senior Year**					Credit Hours
~~ARED 3200-Art Applications~~				~~1~~	CUED 4800-Student Engagement					3
CUED 4700-Ed Data & Assessment				2	ELED 4871-Residency I					5
ECSP 4100-Developmentally App Practices: K-4				3	ELED 4872-Professional Seminar I					5
ELED 3140-Teaching of Social Studies				2	ELED 4881-Residency II					10
ELED 3152-Teaching of Mathematics				3	ELED 4882-Professional Seminar II					2
ELED 4142-Teaching of Science				3	**Total: 25**					
ESLP 4100(5100)-ESL M&M for PK-12				3						
FOED 3010-Integ. Inst. Tech. into Classrm.				3						
FOED 3800-Field Experiences in Education				2						
FOED 3810-Field Exp. in Education				2						
~~MUS 3540-Music Applications~~				~~1~~						
READ 3311-Literacy I				7						
SPED 3000-Teach Persons with Disabilities				3						
Elective				2						
Total: 35										
Note:										
~~Must provide evidence of first aid/safety/CPR training as prerequisite for student teaching.~~										

Tennessee Tech
UNIVERSITY

CURRICULUM & INSTRUCTION
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Department of Curriculum and Instruction
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MEMORANDUM

TO: University Curriculum Committee (UCC)

VIA: Teacher Education Committee (TEC)

VIA: College of Education Executive Leadership Council (ELC)

VIA: Dr. Julie Baker, Associate Dean, College of Education

FROM: Dr. Jeremy Wendt, Chair, Department of Curriculum and Instruction

DATE: November 15, 2016

SUBJECT: Multidisciplinary Studies, Elementary Education concentration name change to Elementary Education

The current Multidisciplinary Studies degree (with the Elementary Education concentration) is inconsistent with state license endorsement codes. The degree is also often confused with Interdisciplinary Studies, which is used at other universities for the elementary education concentration. Additionally, as the largest concentration at TTU, it is vital that prospective students easily identify the degree field. The department is proposing to change the concentration *Multidisciplinary Studies, Elementary Education Concentration, B.S.* to *Elementary Education, B.S.*

Financial Impact: None

Effective: Fall 2017

MEMORANDUM

TO: University Curriculum Committee

VIA: Arts and Sciences Curriculum Committee

FROM: Dr. Barry Stein
Chair, Department of Counseling and Psychology

DATE: November 1, 2016

I. COURSE ADDITIONS – NONE

II. COURSE DELETIONS – NONE

III. CHANGES IN COURSE NUMBER AND/OR NAME (Effective Fall, 2017)

From:	PSY 2010 General Psychology	Lec. 3. Cr. 3
To:	PSY 1030 Introduction to Psychology	Lec. 3. Cr. 3
From:	EDPY 2200 Educational Psychology	Lec. 3. Cr. 3
To:	EDPY 2210 Educational Psychology	Lec. 3. Cr. 3
From:	PSY 2050 Psychology of Adjustment	Lec. 3. Cr. 3
To:	PSY 2110 Psychology of Adjustment	Lec. 3. Cr. 3
From:	PSY 2130 Life Span Developmental Psychology	Lec. 3. Cr. 3
To:	PSY 2130 Life Span Developmnt Psychology	Lec. 3. Cr. 3

IV. **Justification**

These are changes resulting from TTP common course identifier initiative. There is no change to course description or content.

V. Financial Impact of Change

None

MEMORANDUM

TO: University Curriculum Committee

VIA: Arts and Sciences Curriculum Committee

FROM: Barry Stein, Chair, Department of Counseling & Psychology

DATE: January 12, 2017

SUBJECT: Course change

The Department of Counseling & Psychology proposes the following changes to the undergraduate psychology curriculum.

COURSE CHANGES

1. **ADDITIONS**

None.

2. **DELETIONS**

None

3. **MODIFICATIONS**

I. Change the name of PSY4940 from Practicum in Psychology to Field Experience in Psychology and course description to reflect the student responsibility for securing location and necessary supervision.

Justification:

The title of PSY 4940 Practicum in Psychology has created some confusion among students and others in the psychology/mental health community. Within the field of psychology the term "Practicum" has a connotation of being a graduate level experience with supervision being provided by a faculty supervisor. Similarly, alternate terminology such as "Internship" carries the same connotations. Further, this terminology often creates confusion with required graduate courses in counseling entitled "Practicum, in Counseling" and "Internship in School Counseling". Changing the course title and description would retain the nature of the course to promote opportunities to gain practical experience in the field of psychology without creating additional confusion with graduate level course work within and across mental health related disciplines..

Proposed Catalog Description Change:

From: **PSY 4940 – Practicum in Psychology**

Prerequisite: Junior standing and consent of instructor. Supervised application of psychology in educational, therapeutic, or commercial institutions. May be repeated up to 6 credit hours as long as each practicum assignment is substantially different.
1.000 TO 3.000 Credit hours

To: **PSY 4940 – Field Experience in Psychology**

Prerequisite: Junior standing and consent of instructor. Supervised application of psychology in educational, therapeutic, or commercial institutions. Student is required to identify the location, establish an agreement with an individual willing to supervise the experience from the location and complete all necessary documentation from faculty instructor of record. May be repeated up to 6 credit hours as long as each field experience assignment is substantially different.
1.000 TO 3.000 Credit hours

Financial Impact of Change

None

MEMORANDUM

TO: University Curriculum Committee

VIA: Arts and Sciences Curriculum Committee

FROM: Barry Stein, Chair, Department of Counseling & Psychology

DATE: November 14, 2016

SUBJECT: Course and curriculum changes

The Department of Counseling & Psychology proposes the following changes to the undergraduate psychology curriculum.

COURSE CHANGES

1. **ADDITIONS**

None.

2. **DELETIONS**

None

3. **MODIFICATIONS**

I. Add PSY 3020 as prerequisite or co-requisite to PSY 3010.

Justification:

PSY 3020 Information Literacy in Psychology was designed to better prepare students for the research sequence culminating in the senior thesis. Students have been informally advised to take this course with the first course in our research sequence, PSY 3010. We are formally making PSY 3020 a prerequisite or co-requisite for PSY 3010 to eliminate any confusion students may have about when to take PSY 3020.

Proposed Catalog Descriptions:

From: **PSY 3010 – Statistics and Experimental Design**

Lec. 2. Lab. 2. Credit 3.
Prerequisite: PSY 2010, 3 additional PSY credit hours; and MATH

1530 or MATH 1130. Fundamental statistics for the behavioral sciences, descriptive uses, probability, one-way, factorial designs, repeated measures and split-plot designs, bivariate correlation and regression, and non-parametrics.

To: **PSY 3010 – Statistics and Experimental Design**

Lec. 2. Lab. 2. Credit 3.
Prerequisite: PSY 2010, 3 additional PSY credit hours; MATH 1530 or MATH 1130; Prerequisite or Co-requisite PSY 3020. Fundamental statistics for the behavioral sciences, descriptive uses, probability, one-way, factorial designs, repeated measures and split-plot designs, bivariate correlation and regression, and non-parametrics.

Financial Impact of Change

None

School of Art, Craft & Design

TENNESSEE TECH

MEMORANDUM

TO: University Curriculum Committee

VIA: College of Education Executive Leadership Council

FROM: School of Art, Craft & Design

DATE: November 14, 2016

SUBJECT: Delete Art 2070 from course catalog

Art 2070: Digital Art Basics (2 credit hours) was replaced in fall 2013 with a new 3 credit hour course, Art 1250: Introduction to Digital Imaging. Art 2070 has has not been taught since spring 2013, thus we request to have Art 2070 deleted from the course catalog.

Financial Impact: NONE

Effective: Fall 2017

Curriculum

Freshman Year

- ENGL 1010 - Writing I Credit: 3.
- ENGL 1020 - Writing II Credit: 3.
- Any General Education Math Credit 3.
- Social/Behavioral Science and/or Humanities/Fine Arts Electives Credit 6.
- ART 1010 - Two-Dimensional Design Credit: 3.
- ART 2010 - Three-Dimensional Design Credit: 3.
- ART 2310 - Drawing I, Introduction Credit: 3.
- ART 2330 - Technical Drawing Credit: 3.
- ART 2910 - Introduction to Woodworking Credit: 3.
-
- ~~UNAR 1020 - First Year Art Connections (Art Majors only) Credit: 1. Or~~
- UNIV 1020 - First-Year Connections Credit: 1. or
- equivalent Credit 1. [1]

Total: 30

Sophomore Year

- ART 1250 - Introduction to Digital Imaging Credit: 3.
- ART 2099 - Professional Practices for the Artist Credit: 3.
- ART 2120 - Art History II Credit: 3.
- ART 3130 - Art Since 1900 Credit: 3.
- ART 3910 - Intermediate Wood Studio Credit: 3.

- ART 3911 - Intermediate Wood Studio Credit: 3.
- HIST 2010 - American History I Credit: 3.
- Natural Science Credit 8.

Select one:

- ART 2410 - Painting I, Introduction Credit: 3.
- ART 2510 - Introduction to Clay Credit: 3.
- ART 2610 - Introduction to Fibers Credit: 3.
- ART 2710 - Introduction to Glass Credit: 3.
- ART 2810 - Introduction to Metals Credit: 3.

Total: 32

Junior Year

- ENGL 2130 - American Literature Credit: 3. or
- ENGL 2230 - British Literature Credit: 3. or
- ENGL 2330 - World Literature Credit: 3.
-
- SPCH 2410 - Introduction to Speech Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.
-
- HIST 2020 - American History II Credit: 3.
- ART 3920 - Advanced Wood Studio Credit: 3.
- ART 3921 - Advanced Wood Studio Credit: 3.
- ART 3940 - Woodturning Credit: 3.
- ART Studio Electives Credit 2[3]
-

- ART 3930 - Independent Studies in Woodworking Credit: 1, 2, 3. or (Three credits required)
- ART 4940 - Special Problems in Wood Credit: 1, 2, 3. (Three credits required)

Select one:

- ART 2410 - Painting I, Introduction Credit: 3.
- ART 2510 - Introduction to Clay Credit: 3.
- ART 2610 - Introduction to Fibers Credit: 3.
- ART 2710 - Introduction to Glass Credit: 3.
- ART 2810 - Introduction to Metals Credit: 3.

Select two:

- ART 2110 - Art History I Credit: 3.
- ART 3150 - History of Crafts I Credit: 3.
- ART 3160 - History of Crafts II Credit: 3.
- ART 4040 - Seminar Credit: 3.
- ART 4100 - Art Tour Credit: 3.
- ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 32

Senior Year

- ART 4910 - Senior Thesis in Wood Credit: 1-6. Max. 18. (Twelve credit required)
- Art Studio and/or Guided Electives Credit 8.[3]

- Social/Behavioral Science or Humanities/Fine Arts Electives Credit 6.

Total: 26

Note:

---

[1] This course not included in 120-hour curriculum.

[2] Majors in BFA concentrations in clay, fibers, glass, metals, painting, and wood must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses, and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

[3] Art studio electives are defined as any art studio course not applied to other requirements. Allow up to 6 credits of guided electives including courses outside the Art curriculum, such as WEBD 1500, MKT 3400, MKT 3500.

MEMORANDUM

TO: Undergraduate Curriculum Committee
VIA: COE Undergraduate Curriculum Committee
FROM: Wayne Johnson, Chair, ECE Dept.
DATE: January 19, 2017
SUBJECT: ECE Course and Curriculum Changes

I. ADDITIONS

None

II. DELETIONS

None

III. CATALOG DESCRIPTION CHANGES:

1.

From:
ECE 2011 - Electrical Engineering Lab I
Lab. 3. Credit 1.
Prerequisite: ECE 2010 (ECE 2010 may be taken concurrently).
Introduction to electrical and ~~electric~~ components, circuits, test equipment, and measurement techniques.

To:
ECE 2011 - Electrical Engineering Lab I
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 2010 (ECE 2010 may be taken concurrently).
Introduction to electrical and electronic components, circuits, test equipment, and measurement techniques.

Justification: This course was overlooked when "C or better" prerequisite was added to other ECE courses. "electronic" is more appropriate than "electric"

Financial Impact: None

Effective: Fall 2017

2.

From:
ECE4140 - Embedded System Design
Lec. 2. Lab. 3. Credit 3.
Prerequisite: C or better in ECE 3130 and C or better in ECE 3160. Basic hardware and software concepts in the analysis and design of embedded systems, peripheral interfaces and performance analysis with hands-on design project.

To:
ECE4140 - Embedded System Design
Lec. 2. Lab. 3. Credit 3.
Prerequisite: C or better in ECE 3130 ~~and C or better in ECE 3160~~. Basic hardware and software concepts in the analysis and design of embedded systems, peripheral interfaces and performance analysis with hands-on design project.

Justification: Original intent of having the digital lab ECE3160 as a prerequisite was ensure that the students were adequately prepared for the integrated labs in ECE4140. Since ECE3130 (a prerequisite for ECE 4140) has more involved lab experiences with the same board, this prerequisite will be no longer needed.

Financial Impact: None

Effective: Fall 2017

3.

From:
ECE 2010 – Electric Circuits I
Lec. 3. Credit 3.
Prerequisites: C or better in MATH 1920, C or better in MATH 2010, and MATH 2120 (MATH 2120 may be taken concurrently). Introduction to electric circuit quantities and components, systematic application of Ohm's and Kirchhoff's laws, superposition, Thévenin and Norton theorems, operational amplifiers, RL and RC transients, and circuit simulation with SPICE.

To:
ECE 2010 – Electric Circuits I
Lec. 3. Credit 3.
Prerequisites: C or better in MATH 1920, C or better in MATH 2010, and MATH 2120 (MATH 2120 may be taken concurrently). Introduction to electric circuit quantities and components, systematic application of Ohm's and Kirchhoff's laws, superposition, Thévenin and Norton theorems, operational amplifiers, RL and RC transients, and circuit simulation with SPICE. Circuit applications of probability.

Justification: ABET, our accreditation organization, requires, "The curriculum must include probability and statistics, including applications appropriate to the program name" for ECE programs. Moreover, While the ABET mandate is important, the need for probability in undergraduate course work has been cited by numerous TTU engineering alum. Recently, in a presentation to TTU engineering students, a TTU alum stated, "I could not do my job if I couldn't understand and use probability in engineering problems." Heretofore, the only mention of probability outside of the required math course, MATH 3470, has been in junior and senior telecommunications courses. Those courses are not taken by all majors in ECE programs. Furthermore, by beginning the introduction of probability in the first electric circuits course, ECE 2010, the stage will be set to incorporate it in other courses throughout the curricula. Because of the ubiquity of electrical component tolerances, probability as applied to electric circuit quantities should be addressed in the curriculum as soon as possible after such components have been introduced.

Financial Impact: None

Effective: Fall 2017

4.

From:
Curriculum
Freshman Year
ENGL 1010 - English Composition I Credit: 3.
ENGL 1020 - English Composition II Credit: 3.
MATH 1910 - Calculus I Credit: 4.
MATH 1920 - Calculus II Credit: 4.
MATH 2010 - Introduction to Linear Algebra Credit: 3.
CHEM 1110 - General Chemistry I Credit: 4.
CSC 2100 - Introduction to Problem Solving and Computer Programming Credit: 3.
CSC 2101 - Problem Solving and Computer Programming Lab Credit: 1.
Social/Behavioral Sciences Elective[2] Credit: 3.
ECE 1020 - Connections to Electrical and Computer Engineering Credit: 1. [1]
Total: 28

Sophomore Year
ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2230 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

SPCH 2410 - Introduction to Speech Communication Credit: 3. or
PC 2500 - Communicating in the Professions Credit: 3.

Social/Behavioral Sciences Elective[2] Credit: 3.
ECE 2001 - Computer-Aided Engineering in ECE Credit: 1.
MATH 2110 - Calculus III Credit: 4.
MATH 2120 - Differential Equations Credit: 3.
PHYS 2110 - Calculus-based Physics I Credit: 4.
PHYS 2120 - Calculus-based Physics II Credit: 4.

ECE 2010 - Electric Circuits I Credit: 3.
ECE 2011 - Electrical Engineering Lab I Credit: 1.
ECE 2020 - Electric Circuits II Credit: 3.
ECE 2110 - Introduction to Digital Systems Credit: 3.
Total: 35

Junior Year
ECE 3010 - Signals and Systems Credit: 3.
ECE 3020 - Discrete-Time Signals and Systems Credit: 3.
ECE 3060 - Electrical Engineering Lab II Credit: 1.
ECE 3130 - Microcomputer Systems Credit: 4.
ECE 3300 - Electronics I Credit: 3.
ECE 3310 - Electronics II Credit: 3.
ECE 3510 - Electromagnetic Fields I Credit: 3.
ECE 3920 - Professional Issues in Electrical and Computer Engineering Credit: 1.
EE Breadth Electives[3] Credit: 9.
EE ~~Focus~~ Lab Elective[3] Credit: 1.
MATH 3470 - Introductory Probability and Statistics Credit: 3.
Total: 34

Senior Year
ECE 4961 - Capstone Design I Credit: 3.
ECE 4971 - Capstone Design II Credit: 3.
EE ~~Focus Senior~~ Electives[3] Credit: 6.
EE Breadth Elective[3] Credit: 3.
EE Senior Elective[3] Credit: 3
EE Lab Elective[3] Credit: 1.
Humanities/Fine Arts Electives[2] Credit: 6.
Career Electives[3] Credit: 6.
Total: 31

Note:
1 This course is not included in the 128-hour curriculum.

2 Select from University approved list.

3 Select from ECE Department approved list.

To:
Curriculum
Freshman Year
ENGL 1010 - English Composition I Credit: 3.
ENGL 1020 - English Composition II Credit: 3.
MATH 1910 - Calculus I Credit: 4.
MATH 1920 - Calculus II Credit: 4.
MATH 2010 - Introduction to Linear Algebra Credit: 3.

CHEM 1110 - General Chemistry I Credit: 4.
CSC 2100 - Introduction to Problem Solving and Computer Programming Credit: 3.
CSC 2101 - Problem Solving and Computer Programming Lab Credit: 1.
Social/Behavioral Sciences Elective[2] Credit: 3.
ECE 1020 - Connections to Electrical and Computer Engineering Credit: 1. [1]
Total: 28

Sophomore Year
ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2230 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

SPCH 2410 - Introduction to Speech Communication Credit: 3. or
PC 2500 - Communicating in the Professions Credit: 3.

Social/Behavioral Sciences Elective[2] Credit: 3.
ECE 2001 - Computer-Aided Engineering in ECE Credit: 1.
MATH 2110 - Calculus III Credit: 4.
MATH 2120 - Differential Equations Credit: 3.
PHYS 2110 - Calculus-based Physics I Credit: 4.
PHYS 2120 - Calculus-based Physics II Credit: 4.
ECE 2010 - Electric Circuits I Credit: 3.
ECE 2011 - Electrical Engineering Lab I Credit: 1.
ECE 2020 - Electric Circuits II Credit: 3.
ECE 2110 - Introduction to Digital Systems Credit: 3.
Total: 35

Junior Year
ECE 3010 - Signals and Systems Credit: 3.
ECE 3020 - Discrete-Time Signals and Systems Credit: 3.
ECE 3060 - Electrical Engineering Lab II Credit: 1.
ECE 3130 - Microcomputer Systems Credit: 4.
ECE 3300 - Electronics I Credit: 3.
ECE 3310 - Electronics II Credit: 3.
ECE 3510 - Electromagnetic Fields I Credit: 3.
ECE 3920 - Professional Issues in Electrical and Computer Engineering Credit: 1.
EE Breadth Electives[3] Credit: 9.
EE Lab Elective[3] Credit: 1.
MATH 3470 - Introductory Probability and Statistics Credit: 3.
Total: 34

Senior Year
ECE 4961 - Capstone Design I Credit: 3.
ECE 4971 - Capstone Design II Credit: 3.
EE Depth Electives[3] Credit: 6.
EE Breadth Elective[3] Credit: 3.
EE Senior Elective[3] Credit: 3
EE Lab Elective[3] Credit: 1.

Humanities/Fine Arts Electives[2] Credit: 6.
Career Electives[3] Credit: 6.
Total: 31

Note:
1 This course is not included in the 128-hour curriculum.

2 Select from University approved list.

3 Select from ECE Department approved list.

Justification: During the past few years, a few senior courses, notably in the Communications/Signal Processing and Devices/Electromagnetics areas, have not been offered either due to low enrollment or to lack of faculty to teach the courses. Recurring budget problems and changes to the budgeting process will likely preclude offering courses with low enrollment so this situation may become worse. If the current focus area structure is retained this may result in the loss of two focus areas which, while having low impact in terms of student numbers, could have a larger impact in recruiting because students expect these areas to exist at least at a minimal level. Additionally, there are employment opportunities in these areas and the shutdown of them could undermine employers' view of the program. Between the required courses and the breadth electives, all of the areas of ECE are covered in the required portion of the curriculum. Allowing students to freely choose EE Senior Depth courses will provide more flexibility to the students and will greatly reduce the need for exceptions (substitutions), or teaching courses with low enrollment in cases where a student needs a particular focus area course to graduate. It will also allow each senior-level elective course to be offered on its own merits, rather than being coupled to a particular area.

Financial Impact: None

Effective: Fall 2017 (Internally implement final approval of the minutes of the University Curriculum Committee.)

Memorandum

To: University Curriculum Committee

VIA: Engineering Curriculum Committee

From: Ahmed H. ElSawy, Professor and Chairperson, (approved by the MET faculty on 1/18/2017)
Department of Manufacturing and Engineering Technology

Date: Monday, January 23, 2017

Re: MET course and curriculum changes

The Department of Manufacturing and Engineering Technology Faculty request the approval of the following curriculum changes:

1. **Course Additions, Deletions and Changes**

   a. **Addition**

   Catalogue Description: MET 4250(5250) Applied Mechatronics Lec.1. Lab.3. Credit 3. Prerequisite: MET 3250 or consent or instructor. Introduction to mechatronic systems; modeling of mixed mechatronic systems; microcontroller programming and interfacing; theory, selection and implementation of sensors and actuators commonly used in mechatronic systems; control architectures and case studies in mechatronic systems. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

   b. **Deletion**

      i. MET 4010 - Technical Communications Lec. 3. Credit 3.
      Prerequisite: Senior Standing. The basic methods used in industrial communications as related to technology with an emphasis on oral and written communications.

      Rational: The MET Department does not have the qualified Faculty to teach this class

      ii. MET 4140 - Maintenance Technology II Lec. 2. Lab. 2. Credit 3. Prerequisite: MET 3130 or departmental approval. Applied maintenance techniques and procedures utilized to insure continued operation of production machines and auxiliary equipment.

      Rational: This class was replaced by MET 4550 (5550) - Maintenance, Replacement and Reliability Engineering

   c. **Changes**

From: **MET 2063 - Metal Manufacturing Technology Lec. 2. Lab. 2. Credit 3.**
Prerequisite: ENGR 1110**,** MET 1100 **and** MATH 1730**.** Machine tool functions, use of hand tools, precision measurement, welding and fabrication of metals.

To: **MET 2065 - Metal Manufacturing Technology Lec. 1. Lab. 3. Credit 2.**
Prerequisite: ENGR 1110, MET 1100 and MATH 1730. Machine tool functions, use of hand tools, precision measurement, welding and fabrication of metals.

From: **MET 2300 Applied Fluid Power Lec. 3. Credit. 3.**
Prerequisite: MATH 1730. This course covers the basics of pneumatic, electro-pneumatic and hydraulic control circuits in automated system.

To: **MET 2310 Applied Fluid Power Lec. 2. Credit. 2.**
Prerequisite: MATH 1730. This course covers the basics of pneumatic, electro-pneumatic and hydraulic control circuits in automated system.

From: **MET 3130 - Maintenance Technology I Lec. 3. Credit 3.**
Prerequisite: Junior Standing and MET 1100. Principles of organizing and controlling maintenance operations in industrial plants.

To: **MET 3150 - Maintenance Technology ~~I~~ Lec. 2. Credit 2.**
Prerequisite: Junior Standing and MET 1100. Principles of organizing and controlling maintenance operations in industrial plants.

From: **3250 - Industrial Electronics** Lec. 2. Lab. 2. Credit 3.
Prerequisite: MET 3200 or departmental approval. The fundamentals of process control, transducers, signal processing, feedback loops, activators, and analog and digital controllers.

To: **3260 - Industrial Electronics** Lec. 1. Lab. 2. Credit 2.
Prerequisite: MET 3200 or departmental approval. The fundamentals of process control, transducers, signal processing, feedback loops, activators, and analog and digital controllers.

From: **MET 3730 - Quality Assurance Lec. 2. Credit 2.**
Prerequisite: Junior Standing and MET 1100. Using 6-Sigma methods for controlling the quality of materials and products in production systems.

To: **MET 3740 – Six Sigma Tools** and Techniques Lec. 2. Credit 2.
Prerequisite: Junior Standing and MET 1100. Using 6-Sigma methods for controlling the quality of materials and products in production systems.

2. **Rational:**
The addition of the MET 2310 is required for the industrial automation/mechatronics courses, and also to streamline the transfer from CHEC, and other TN Community Colleges.
The changes in credit hours are required to accommodate the new required courses: MET 2310 and ECE 3260 in the MET curriculum.

Changing the MET 3730 to 3740 title reflects the current course contents taught for several years in the department.

Effective Date: *Fall 2017*

3. Curriculum Changes

1. **Add** MET 2310 - Applied Fluid Power Lec. 1 Lab. 2. Credit: 2 as a required course.
2. **Add** ECE 3260 - Programmable Logic Controller Lab. 3. Credit 1. As a required course.
3. **Add** MET 4250 (5250) – Applied Mechatronics Lec.1. Lab.3. Credit 2. as an elective in Area of Emphasis I.
4. **Add** BMGT 3600 to Area of Emphasis II electives.
5. Change the Title of the Area of Emphasis I from "Manufacturing Engineering Technology" to "**Concentration I - Manufacturing Systems Engineering Technology**".
6. Change the Title of the Area of Emphasis II from "Engineering Technology Management" to "**Concentration II - Engineering Technology Management**".

Justifications:

1. The changes in items 1 to 4 are required to the curriculum change of direction toward more of industrial automation/mechatronics and also to accommodate seamless transfer from the CHEC and other community colleges.
2. Changing the areas of emphases, I & II to Concentrations I & II are based on students' requests to appear on the students' transcripts so they can easily find jobs in their areas of competencies.

4. Financial Impact:

- No additional resources are needed

Engineering Technology, B.S.E.T.

Curriculum (Fall 2017)

Freshman Year

Fall - Semester 1 (15 cr. hr.)
CHEM 1010 - Introduction to Chemistry I Credit: 4. **OR**
CHEM 1110 - General Chemistry I Credit: 4.
ENGR 1020 - Connections to Engineering and Technology Credit: 1. [1]
ENGR 1110 - Engineering Graphics Credit: 2.
ENGL 1010 - English Composition I Credit: 3.
MATH 1730 - Pre-calculus Mathematics Credit: 5.

Spring – Semester 2 (16 cr.hr.)
Humanities/Fine Arts Electives Credit: 6.
ENGL 1020 - English Composition II Credit: 3.
MATH 1845 - Technical Calculus Credit: 3.
ENGR 1120 – (MATLAB) Programming for Engineers Credit: 2.
MET 1100 - Introduction to Manufacturing Engineering Technology Credit: 2.

Total: 31 cr. hr.

Sophomore Year

Fall - Semester 3 (15 cr.hr.)
ECON 2010 - Principles of Microeconomics Credit: 3. **OR**
ECON 2020 - Principles of Macroeconomics Credit: 3.
ENGL 2130 - Topics in American Literature Credit: 3. **OR**
ENGL 2230 - Topics in British Literature Credit: 3. **OR**
ENGL 2330 - Topics in World Literature Credit: 3.
HIST 2010 - American History I Credit: 3.
PHYS 2010 - Algebra-based Physics I Credit: 4. **OR**
PHYS 2110 - Calculus-based Physics I Credit: 4.
MET 2000 - Occupational Safety Credit: 2.

Spring - Semester 4 (17 cr.hr.)
HIST 2020 - American History II Credit: 3.
PHYS 2020 - Algebra-based Physics II Credit: 4. **OR**
PHYS 2120 - Calculus-based Physics II Credit: 4.
PC 2500 - Communicating in the Professions Credit: 3. **OR**
SPCH 2410 - Introduction to Speech Communication Credit: 3.
MET 2065 - Metal Manufacturing Technology Lec 1. Lab.2. Credit: ~~3~~ 2. (change from 3 cr.hr. to 2 cr.hr.)
MET 2310 - Applied Fluid Power Credit: Lec. 1 Lab. 2. Credit: 2 (Add as a required new course)
MET 2400 - Statics and Strength of Materials Credit: 3.

Total: 32

Junior Year

Fall – Semester 5 (16 cr. hr.)

BMGT 3510 - Management and Organization Behavior Credit: 3.
ECON 3610 - Business Statistics I Credit: 3.
MET 3100 - Applied Physical Metallurgy Credit: 3. **OR**
ME 3010 - Materials & Processes in Manufacturing Credit: 3. OR (Add)
ME 3110 - Physical Metallurgy and Heat Treatment Credit: 3.
MET 3200 - Applied Electricity and Electronics Credit: 3.
MET 3301 - CAD for Technology Credit: 2.
MET 3740 – ~~Quality Assurance~~ Six Sigma Quality Assurance Credit: 2. (change title to reflect what is currently taught)

Spring – Semester 6 (14 cr.hr.)

ACCT 3720 - Survey of Accounting Credit: 3.
MET 3000 - Principles of Metal Casting Credit: 2.
MET 3260 – Industrial Electronics Lec.1. Lab. 3. Credit 2. (Change from 3 cr.hr. to 2 cr.hr.)
MET 3403 - Applied Machine Elements Credit: 3.
MET 3710 - Methods Design and Work Measurement Credit: 2.
MET 3700 - Manufacturing Cost Estimating Credit: 2.

Total: 30

Senior Year

Fall - Semester 7 (13 cr. hr.)

Business Elective Credit: 3. [2]
ECE 3270 - Programmable Logic Controller Lab. 3. Credit 1. (add as a required course)
MET 3150 - Maintenance Technology Lec. 2. Credit: ~~3~~. 2. (change from 2 cr.hr. to 2 cr.hr.)
DS 3520 - Operations Management Credit: 3.
MET 4615 - Engineering Technology Ethics and Professionalism Credit: 1.
PSY 2010 - General Psychology Credit: 3.

Spring - Semester 8 (15 cr.hr.)

MET 4620 - Senior Projects Credit: 3.
MET 4310 (5310) - Plant Layout and Materials Handling Credit: 3.
MET 4220 (5220) – Industrial Automation and Robotics Credit: 3. (Add as a required course in Emphasis I)
~~Area of Emphasis~~ CONCENTRATION Credits: 6. [3]

Total: 28

Notes:

[1] This course not included in 128-hour curriculum.
[2] Business Electives: BMGT 3630, BMGT 4520 (5520), DS 3620, DS 3540, FIN 3210, LAW 3810 or MKT 3400.
[3] Select one of the following ~~emphases~~ **CONCENTRATIONS**:
~~Emphasis I~~ CONCENTRATION I - Manufacturing Systems Engineering Technology
MET 3060, MET 4700(5700) and select two (2) courses from: ~~MET 3010~~, MET 3080, MET 3460,

MET 4000, ~~MET 4010~~, MET 4060(5060), ~~MET 4140~~, MET 4210(5210), , MET 4250(5250), MET 4300(5300), MET 4400(5400), MET 4450(5450), MET 4500 (5500), MET 4550(5550), MET 4600(5600), MET 4650(5650), MET 4700, MET 4990(5990), ESS 3710.

~~**Emphasis II**~~ **CONCENTRATION II - Engineering Technology Management**
Select two courses from: BMGT 3600, BMGT 3630, BMGT 4520 (5520), DS 3620, DS 3540, FIN 3210, LAW 3810, MET 4010, MET 4430 (5430), MKT 3400, PSY 3400.

TENNESSEE TECHNOLOGICAL UNIVERSITY

Department of Manufacturing and Engineering Technology

MET 4250 (5250) – Applied Mechatronics

COURSE SYLLABUS

Catalogue Description: MET 4250(5250) Applied Mechatronics Lec.1. Lab.3. Credit 3.
Prerequisite: MET 3250 or consent or instructor. Introduction to mechatronic systems; modeling of mixed mechatronic systems; microcontroller programming and interfacing; theory, selection and implementation of sensors and actuators commonly used in mechatronic systems; control architectures and case studies in mechatronic systems.

Course Instructors: Dr. Ahmed Kamal and Dr. Duckbong Kim MET Department

Course Objectives: The main objective of this course is to introduce the rapidly developing, multidisciplinary field of Mechatronic Engineering, which deals with the development of "smart" electromechanical products, through an integrated design approach and a multidisciplinary point-of-view. This course particularly focuses on providing an overview of embedded controllers (microprocessors/microcontrollers) and sensor and actuator technologies that are key components of mechatronic systems.

Required Text: Musa Jouaneh, Fundamentals of Mechatronics, 1st Edition, 2013 Cengage Publisher, ISBN-10: 1111569010.
Musa Jouaneh, Laboratory Exercises in Mechtronics, 1st Edition, Cengage Learning, ISBN-10: 1111570256.

Other Reference Material:

David G. Alciatore and Michael B. Histand, Introduction to Mechatronics and Measurement Systems, McGraw-Hill.

Robert H. Bishop, *Mechatronics: An Introduction*, CRC Press, 2006.

Irene J. Busch-Vishniac, *Electromechanical Sensors and Actuators*, Springer, 1998.

P. Cross and F. Ebel, *Pneumatics: Basic Level,* 2001. o Clarence W. de Silva, *Mechatronics: An Integrated Approach*, CRC Press, 2005.

Dan Necsulescu, *Mechatronics*, Prentice Hall, 2001.

Andrzej. M. Pawlak, *Sensors and Actuators in Mechatronics*, CRC Press, 2007.

Student Learning Outcomes: Upon completion of this course, students will demonstrate the ability to:

1. Gain an in-depth understanding of fundamental concepts of Mechatronics.
2. Design mechatronic devices for industrial applications.
3. Implement software applications to control mechatronic devices.

Teaching Methods:

Lecture, hand-on projects, group discussion, and oral presentation.

CLASS ORGANIZATION

(a) Attendance: The attendance policy for this course is covered in the TTU catalogue. Be aware that excessive absenteeism may result in the lowering of the student's grade due to missed lectures, quizzes, lab experiences, or the failure to turn in required assignments on time. Therefore, attendance is expected at all classes. A record of attendance will be kept. When you miss a class or a lab period, it is your responsibility to obtain the missed information from another student.

(b) Lectures: Class lectures will focus on information relating to each chapter and other materials provided during class sessions. At times, short quizzes will be given during class periods.

(d) Assignments: Homework will be assigned, submission via dropbox **ONLY**, and *graded at the discretion of the instructor*. A semester project will be assigned. Students must turn in a written report via dropbox **ONLY** and give a brief oral presentation of their project in class. Late assignments are not permitted at all.

(e) Lab Activities: The lab activities will be done in small groups (3-4 students/group). The laboratory periods will be utilized to perform one or more the following activities:

- Completion of assigned readings, problems, exercises, and drawings
- Completion of a laboratory experiment

EXAMINATION

All students are required to complete quizzes and a final exam. All quizzes and final exam must be taken at the scheduled time. There will be no make-up exams for students absent during the pre-scheduled time.

Quizzes – *The quizzes will include material that has been covered from the text and/or lectures to that point in the course.*

Final Exam - *The final comprehensive exam will cover all the material covered during the semester.*

GRADING

Your final grade will be based upon your lab assignments, homework assignments, midterm exam, quizzes, and final exam. The percentage breakdown is as follows:

Midterm	25%
Final Exam	25%
Quizzes (4 ea.)	25%
Assignments	25%

Each assignment will be graded on a 10-points system. Letter grade equivalents are as follows:

A	=	10	points
B	=	9	points
C	=	8	points
D	=	7	points
F	=	0 to 6	points

Each assignment will be evaluated on the mathematical analysis and/or graphical solution. *ACCURACY and NEATNESS* are looked upon as being essential in each and every assignment.

Your final grade will be determined by the following letter grade equivalents:

A	=	90 - 100	points
B	=	80 - 89	points
C	=	70 - 79	points
D	=	60 - 69	points
F	=	0 - 59	points

ACADEMIC AND CLASSROOM CONDUCT

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct either directly or indirectly through participation or assistance are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions, which may be imposed through the regular institutional procedures as a result of academic misconduct and subsequent to the due process hearing, if requested by the student, the instructor has the authority to assign an F or a zero for the exercise or examination, or to assign an F in the course.

Disability Accommodation:

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119 (http://www.tntech.edu/disability/)

Tentative Course Outline

Week	Topics	
	Lecture/Seminar	**Hour**
1	Introduction to mechatronic (LT1) / Introduction to Arduino (LB1)	4
2	Electric circuits and components (LT2) / Arduino's basic digital I/O (LB2)	4
3	Serial communication (LB3) Analog I/O and PWM (LB4)	4
4	Semiconductor electronics (LT3) Power supply (LB5)	4
5	Using multipurpose PCB (LB6) Actuators and motors (LT4)	4
5	H-Bridge DC motor (LB7) PCB design using Eagle (LB8)	4
6	Midterm Exam/Sensors1 (LT5a)	4
7	Feedback control and LCD display (LB9) Demo Day 1	4
8	Sensors2 (LT5b) H-Bridge stepping motor (LB10)	4
9	Communication with PC using Processing (LB11) Network communication (LB12)	4
10	Analog signal conditioning with op-amp (LT6) Optical sensor (LB13)	4
11	Image processing with OpenCV (LB14) Industrial control components (LT7)	4
12	System integration (LT8) / Demo Day 2	4
13	Final Exam	4

Computer Science
TENNESSEE TECH

MEMORANDUM

TO:	University Curriculum Committee
VIA:	College of Engineering Curriculum Committee
VIA:	Dr. Gerald Gannod, Chair, Computer Science
FROM:	Computer Science Curriculum Committee
DATE:	January 25, 2017
SUBJECT:	Computer Science Curriculum Changes

Effective Date: Fall 2017

Course Additions: None.

Course Deletions:

1. Remove CSC 2550 from the course catalog.
   Justification: CSC 2550 was required in the CSIT concentration, which has been discontinued.

Course Changes:

1. Renumber CSC 1610 as CSC 2700 and remove all its prerequisites except for MATH 1910.

   Current description:
   CSC 1610 – Discrete Structures for Computer Science
   Lec. 3. Credit 3.
   Prerequisite: ACT Math score of 25 or above, MATH 1130, MATH 1710, MATH 1720, MATH 1730, MATH 1830, or MATH 1910. Applications of discrete mathematics to computer science, sets and boolean algebra, relations, and graphs, with applications to computer logic and data structures.

   Proposed description:
   CSC ~~1610~~ 2700- Discrete Structures for Computer Science
   Lec. 3. Credit 3.
   Prerequisite: ~~ACT Math score of 25 or above, MATH 1130, MATH 1710, MATH 1720, MATH 1730, MATH 1830, or~~ MATH 1910. Applications of discrete mathematics to computer science, sets and boolean algebra, relations, and graphs, with applications to computer logic and data structures.
   Justification: The course content is perceived as more difficult and more abstract than the typical freshman-level course. More mathematical maturity should help improve the DFW rate for the course.

2. Restructure the credit hours and renumber the courses in our introductory sequence of lecture and lab courses and adjust their prerequisites.
    a. Replace CSC 2100 (3 credit hours) and CSC 2101 (1 credit hour) with CSC 1300 (4 credit hours) and adjust prerequisites.

        Current descriptions:
        CSC 2100 – Introduction to Problem Solving and Computer Programming
        Lec. 3. Credit 3.
        Prerequisite: MATH 1910.
        Corequisite: CSC 2101. Digital computers; problem solving and algorithm development; programming is introduced using a procedural approach, but classes and object-orientation are introduced; design and testing are emphasized. MATH 1910 may be taken concurrently.

        CSC 2101 – Problem Solving and Computer Programming Lab
        Lab 1. Credit 1.
        Prerequisite: MATH 1910.
        Corequisite: CSC 2100. A series of weekly laboratory exercises for developing proficiency in problem solving and computer programming. MATH 1910 may be taken concurrently.

        Proposed description:
        CSC 1300 – Introduction to Problem Solving and Computer Programming
        Lec. 3. Lab. 2. Credit 4.
        Prerequisite: CSC 1200 or MATH 1910. MATH 1910 may be taken concurrently.
        Digital computers; problem solving and algorithm development; programming is introduced using a procedural approach, but classes and object-orientation are introduced; design and testing are emphasized. Students complete a series of weekly laboratory exercises for developing proficiency in problem solving and computer programming.

    b. Replace CSC 2110 (3 credit hours) and CSC 2111 (1 credit hour) with CSC 1310 (4 credit hours) and adjust prerequisites.

        Current descriptions:
        CSC 2110 – Data Structures and Algorithms
        Lec. 3. Credit 3.
        Prerequisite: C or better in CSC 2100, CSC 2101 and MATH 1910.
        Corequisite: CSC 2111. Abstract data types and fundamental data structures including stacks, queues, and trees; algorithms to search, sort, and manipulate data using such structures; and introduction to runtime analysis.

        (CISP 1020, TTP Course)

        CSC 2111 – Data Structures and Algorithms Lab
        Lab 1. Credit 1.
        Prerequisite: C or better in CSC 2100, CSC 2101 and MATH 1910.
        Corequisite: CSC 2110. A series of weekly laboratory exercises for developing proficiency in implementing and utilizing data structures.

        Proposed description:
        CSC 1310 – Data Structures and Algorithms

Lec. 3. Lab. 2. Credit 4.
Prerequisite: C or better in CSC 1300; or C or better in CSC 2100 and CSC 2101. Abstract data types and fundamental data structures including stacks, queues, and trees; algorithms to search, sort, and manipulate data using such structures; and introduction to runtime analysis. Students complete a series of weekly laboratory exercises for developing proficiency in implementing and utilizing data structures.

(CISP 1020, TTP Course)

c. Replace CSC 2120 (3 credit hours) and CSC 2121 (1 credit hour) with CSC 2300 (4 credit hours) and adjust prerequisites.

Current descriptions:
CSC 2120 – Object-Oriented Programming and Design
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 2110 and CSC 2111.
Corequisite: CSC 2121. Theory and practice of object-oriented programming and design. Encapsulation, inheritance, dynamic binding, and polymorphism; and introduction to UML and design patterns.

CSC 2121 – Object-Oriented Programming and Design Lab
Lab. 1. Credit 1.
Prerequisite: C or better in CSC 2110 and CSC 2111.
Corequisite: CSC 2120. A series of weekly laboratory exercises for developing proficiency in object-oriented programming and design.

Proposed description:
CSC 2300 – Object-Oriented Programming and Design
Lec. 3. Lab 2. Credit 4.
Prerequisite: C or better in CSC 1310; or C or better in CSC 2110 and CSC 2111. Theory and practice of object-oriented programming and design. Encapsulation, inheritance, dynamic binding, and polymorphism; and introduction to UML and design patterns. Students complete a series of weekly laboratory exercises for developing proficiency in object-oriented programming and design.

Justification: The addition of the CSC 1200 prerequisite choice for CSC 1300 and the removal of the MATH 1910 prerequisite for CSC 1310 will prevent potential bottlenecks for students who are a little behind in mathematics. MATH 1910 is becoming the prerequisite for CSC 2700, and CSC 2400 still requires MATH 1920, so students cannot delay their mathematics too much. The lab grades will count for at most 25% of the course grade. Currently many students earn a C or better in the lab, but not the lecture. The restructuring should improve student mastery of the course material and produce consistent enrollments for the lecture and lab sections, along with making these courses consistent with the credit hours for other lab science courses. The renumbering is to enable a seamless transition.

3. Modify prerequisites for courses affected by the renumbering of CSC 1610 and the restructuring and renumbering of the introductory sequence.

   a. CSC 2400

Current description:
CSC 2400 – Design of Algorithms
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1610, CSC 2110, CSC 2111; and MATH 1920. Advanced data structures and applications, problem solving strategies, heuristics, and complexity of algorithms. MATH 1920 may be taken concurrently.

Proposed description:
CSC 2400 – Design of Algorithms
Lec. 3. Credit 3.
Prerequisite: MATH 1920; and C or better in ~~CSC 1610,~~ CSC 1310 or both CSC 2110~~,~~ and CSC 2111~~; and MATH 1920~~. Advanced data structures and applications, problem solving strategies, heuristics, and complexity of algorithms. MATH 1920 may be taken concurrently.

b. CSC 2500

Current description:
CSC 2500 – Unix Lab
Lab. 2. Credit 1.
Prerequisite: C or better in CSC 2110 and CSC 2111. Introduction to UNIX operating systems, the facilities, tools, and development procedures in an environment designed for systems programming. Prerequisites may be taken concurrently.

Proposed description:
CSC 2500 – Unix Lab
Lab. 2. Credit 1.
Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111. Introduction to UNIX operating systems, the facilities, tools, and development procedures in an environment designed for systems programming. Prerequisites may be taken concurrently.

c. CSC 2710.
Current description:
CSC 2710 – Foundations of Computer Science
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1610, CSC 2110 and CSC 2111. Application of discrete structures to model computational processes; techniques for analysis of algorithms; and automata and concepts of language theory. CSC 2110 and 2111 may be taken concurrently.

Proposed description:
CSC 2710 – Foundations of Computer Science
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1610 or CSC 2700; and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Application of discrete structures to model computational processes; techniques for analysis of algorithms; and automata and concepts of language theory. CSC 1310 or both of CSC 2110 and 2111 may be taken concurrently.

d. CSC 3020

Current description:

CSC 3020 – Numerical Methods
Lec. 3. Credit 3.
Prerequisite: MATH 1920, and C or better in CSC 2100 or ENGR 1120. Linear and non-linear equations; convergence and error analysis; quadrature; interpolation; numerical differentiation and integration; first order differential equations; boundary value problems; and approximation of functions.

Proposed description:
CSC 3020 – Numerical Methods
Lec. 3. Credit 3.
Prerequisite: MATH 1920, and C or better in CSC 1310 or CSC 2100 or ENGR 1120. Linear and non-linear equations; convergence and error analysis; quadrature; interpolation; numerical differentiation and integration; first order differential equations; boundary value problems; and approximation of functions.

e. CSC 3030

Current description:
CSC 3030 – Practical and Professional Issues in Computer Science
Lec. 1. Lab. 1. Credit 1.
Prerequisite: Junior Standing, SPCH 2410 or PC 2500, and C or better in CSC 2110 and CSC 2111. Social, ethical, and career aspects of computing. Course includes written, oral, and audio-visual communication in computer science.
Proposed description:
CSC 3030 – Practical and Professional Issues in Computer Science
Lec. 1. Lab. 1. Credit 1.
Prerequisite: Junior Standing, SPCH 2410 or PC 2500, and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Social, ethical, and career aspects of computing. Course includes written, oral, and audio-visual communication in computer science.

f. CSC 3040

Current description:
CSC 3040 – Professionalism, Communication and Research in Computing
Lec. 3. Credit 3.
Prerequisite: Junior Standing, SPCH 2410 or PC 2500, and C or better in CSC 2110 and CSC 2111. Social, ethical, and career aspects of computing. Written, oral, and audio-visual communication in computer science; presentation techniques, report preparation, and technical correspondence. Introduction to research in computing.

Proposed description:
CSC 3040 – Professionalism, Communication and Research in Computing
Lec. 3. Credit 3.
Prerequisite: Junior Standing, SPCH 2410 or PC 2500, and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Social, ethical, and career aspects of computing. Written, oral, and audio-visual communication in computer science; presentation techniques, report preparation, and technical correspondence. Introduction to research in computing.

g. CSC 3100

Current description:
CSC 3100 – Web Programming
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 2110 and CSC 2111. Development of web applications with client and server-side technologies.

Proposed description:
CSC 3100 – Web Programming
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111. Development of web applications with client and server-side technologies.

h. CSC 3300

Current description:
CSC 3300 – Database Management Systems
Lec. 3. Credit 3.
Prerequisite: Junior Standing and C or better in CSC 1610, CSC 2110, and CSC 2111. Organization and management of large data files; data definition; database models; query languages; crash recovery; concurrency control; and case studies.

Proposed description:
CSC 3300 – Database Management Systems
Lec. 3. Credit 3.
Prerequisite: Junior Standing; and C or better in ~~CSC 1610,~~ CSC 1310 or both CSC 2110 and CSC 2111. Organization and management of large data files; data definition; database models; query languages; crash recovery; concurrency control; and case studies.

i. CSC 3340

Current description:
CSC 3340 – Deterministic Computer Models
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 2110, CSC 2111; and MATH 2010. Formulation and application of the models of linear, non-linear, integer, and dynamic programming including computer solutions of the algorithms.

Proposed description:
CSC 3340 – Deterministic Computer Models
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1310 or both CSC 2110~~,~~ and CSC 2111; and MATH 2010. Formulation and application of the models of linear, non-linear, integer, and dynamic programming including computer solutions of the algorithms.

j. CSC 3410

Current description:

CSC 3410 – Computer Organization and Assembly Language Programming
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 2110 and CSC 2111. Computer organization and architecture; machine language; and assembly language programming techniques.

Proposed description:
CSC 3410 – Computer Organization and Assembly Language Programming
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111. Computer organization and architecture; machine language; and assembly language programming techniques.

k. CSC 4100

Current description:
CSC 4100 (5100) – Operating Systems
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 2110, CSC 2111 and either C or better in CSC 3410 or ECE 3130. A historical perspective of operating systems; overview of modern systems; processor, storage, and process management; virtual memory; deadlocks; concurrent processing and programming; protection; and case studies.

Proposed description:
CSC 4100 (5100) – Operating Systems
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1310 or both CSC 2110~~,~~ and CSC 2111; and ~~either~~ C or better in CSC 3410 or ECE 3130. A historical perspective of operating systems; overview of modern systems; processor, storage, and process management; virtual memory; deadlocks; concurrent processing and programming; protection; and case studies.

l. CSC 4575

Current description:
CSC 4575 (5575) – Information Assurance and Cryptography
Lec. 3. Credit 3.
Prerequisite: Junior Standing and C or better in CSC 2110 and CSC 2111. Course introduces students to the fundamentals of information assurance and cryptographic techniques along with their application to the prevention, detection, and □itigation of cyber threats.

Proposed description:
CSC 4575 (5575) – Information Assurance and Cryptography
Lec. 3. Credit 3.
Prerequisite: Junior Standing and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Course introduces students to the fundamentals of information assurance and cryptographic techniques along with their application to the prevention, detection, and mitigation of cyber threats.

m. CSC 4710

Current description:

CSC 4710 (5710) – Design and Development of Human and Web Interfaces
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 2110, CSC 2111, and either CSC 3030 or CSC 3040. A course in human-computer interaction, design and use interface development. It will expose students to tools, techniques, and ideas for designing effective human computer interfaces and discuss practical and legal aspects of accessibility.

Proposed description:
CSC 4710 (5710) – Design and Development of Human and Web Interfaces
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1310 or both CSC 2110~~,~~ and CSC 2111~~,~~; and ~~either~~ C or better in CSC 3030 or CSC 3040. A course in human-computer interaction, design and use interface development. It will expose students to tools, techniques, and ideas for designing effective human computer interfaces and discuss practical and legal aspects of accessibility.

Justification: These changes reflect our renumbered courses and will eliminate permits for current students who have already successfully completed any courses that have been renumbered. Not all CSC majors are required to take MATH 3470, which requires a C or better in MATH 1920. CMPE majors were not required to take CSC 1610, and their performance has been similar to the performance of CSC majors in courses where CSC 1610 has been a prerequisite (CSC 2400 and CSC 3300). These changes will reduce the number of permits for CMPE majors as well.

4. Add a prerequisite and a prerequisite choice and modify a prerequisite for CSC 3220.

Current description:
CSC 3220 - Fundamentals of Data Science
Lec. 3. Credit 3.
Prerequisite: MATH 2010, MATH 3070 or MATH 3470, and C or better in CSC 2400. Introduction to the tools and techniques for developing data science applications and to the basics of Data Science including programming for data management, data manipulation, data analytics, and data visualization. Students will be introduced to various machine learning algorithms, and learn to formulate context-relevant questions and hypothesis to drive scientific research and understand statistical inference. Students will be introduced to Python and R, and will be expected to create tools using these programming languages. The foundation is laid for big data applications ranging from fraud detection to healthcare informatics.

Proposed description:
CSC 3220 - Fundamentals of Data Science
Lec. 3. Credit 3.
Prerequisite: MATH 2010, MATH 3070 or MATH 3470 or MATH 4470, CSC 3300, and C or better in ~~CSC 2400~~CSC 1310 or both of CSC 2110 and CSC 2111. Introduction to the tools and techniques for developing data science applications and to the basics of Data Science including programming for data management, data manipulation, data analytics, and data visualization. Students will be introduced to various machine learning algorithms, and learn to formulate context-relevant questions and hypothesis to drive scientific research and understand statistical inference. Students will be introduced to Python and R, and will be expected to create tools using these programming languages. The foundation is laid for big data applications ranging from fraud detection to healthcare informatics. CSC 3300 may be taken concurrently.

Justification: Knowledge of database concepts helps students in collecting data to analyze. Mathematics majors pursuing a track requiring a statistics sequence may be interested in pursuing a computer science minor with a data science focus. The subject matter material in CSC 2400 was not deemed relevant for this course. A student does, however, need a programming background with advanced data structures (i.e., the new CSC 1310 or both of CSC 2110 and CSC 2111).

5. Remove one prerequisite for CSC 4240.

   Current description:
   CSC 4240 (5240) – Artificial Intelligence
   Lec. 3. Credit 3.
   Prerequisite: C or better in CSC 2400 and CSC 2710. A unified survey of AI methods and applications; search and problem solving; knowledge representation; methods of reasoning, planning and uncertainty; learning, perception and communication; and rational agents.

   Proposed description:
   CSC 4240 (5240) – Artificial Intelligence
   Lec. 3. Credit 3.
   Prerequisite: C or better in CSC 2400 ~~and CSC 2710~~. A unified survey of AI methods and applications; search and problem solving; knowledge representation; methods of reasoning, planning and uncertainty; learning, perception and communication; and rational agents.

   Justification:
   CMPE majors, who regularly elect to take CSC 4240, are not required to take CSC 2710. Their performance is similar to the performance of CSC majors.

6. Modify prerequisite for CSC 4320.

   Current description:
   CSC 4320 (5320) – Computer Architecture
   Lec. 3. Credit 3.
   Prerequisite: C or better in CSC 3410 or equivalent. Computer Systems, the CPU, the control unit, microprogramming, parallel organization, and RISC architectures.

   Proposed description:
   CSC 4320 (5320) – Computer Architecture
   Lec. 3. Credit 3.
   Prerequisite: ~~C or better in~~ CSC 3410 or equivalent. Computer Systems, the CPU, the control unit, microprogramming, parallel organization, and RISC architectures.

   Justification: This change can help prevent potential graduation delays. Programming is not a major part of CSC 4320.

7. Modify prerequisites for CSC 4610.

   Current description:
   CSC 4610 – Software Engineering I
   Lec. 2. Lab. 2. Credit 3.

Prerequisite: C or better in CSC 2120, CSC 2400, CSC 3030 or CSC 3040, and CSC 3300, and Senior Standing. Course covers process models, agile methods, requirement analysis, design, testing, usability, configuration management and project management.

Proposed description:
CSC 4610 – Software Engineering I
Lec. 2. Lab. 2. Credit 3.
Prerequisite: ~~C or better in~~ CSC 2120 or CSC 2300, CSC 2400, CSC 3030 or CSC 3040, and CSC 3300, and Senior Standing. Course covers process models, agile methods, requirement analysis, design, testing, usability, configuration management and project management.

Justification: This change can help prevent potential graduation delays, due to the fall only offering for CSC 4610. Students work together on open-ended projects, so passing grades for the prerequisites should be sufficient. This change also reflects our renumbered course.

8. Changes to pre-requisites for **CSC 4220**

   CSC 4220 - Data Mining and Machine Learning Credits: 3.
   Add the requirement of 'C' or better in CSC 2400.

   Justification: A solid understanding of algorithms (i.e., CSC 2400) is needed to understand the machine learning algorithms that will be presented.

Curriculum Changes:

1. Replace "CSC 1200" requirement with "CSC Elective Credit".

   Justification: CMPE majors are not required to take CSC 1200, and their performance in CSC courses is similar to the performance of CSC majors. CSC 1200 and CSC 2100/2101 have been redundant for CSC majors when they have been taken concurrently, because CSC 1200 was not a prerequisite for CSC 2100/2111.

2. Move CSC 2700 from the freshman year to the sophomore year.

   Justification: The justification is the same as that provided for course change #1.

3. Restructure the placement of CSC courses in the recommended curriculum for each concentration.

   Justification: The changes lighten the load for freshmen getting acclimated to university coursework and for seniors looking for jobs. Restructuring the placement of general education courses and mathematics courses was also necessary.

4. Allow either MATH 3070 or MATH 3470 to satisfy the statistics requirement for all four concentrations.

   Justification: This change allows students to switch between concentrations easily without losing exposure to critical topics.

5. Modify the requirements for the Computer Science Minor.

Current description:
A computer science minor should have completed CSC 2110/CSC 2111, plus 6 hours of upper division computer science courses for a total of at least 15 hours in computer science (not to include CSC 1100 or CSC 1070).

Proposed description:
A computer science minor should have completed CSC 1310 or both CSC 2110~~/~~ and CSC 2111, plus 6 hours of upper division computer science courses for a total of at least 15 hours in computer science ~~(not to include CSC 1100 or CSC 1070)~~.

Justification: CSC 2110 and CSC 2111 are being combined and renumbered as CSC 1310. CSC 1070 and CSC 1100 are no longer in the catalog.

Curriculum for Software and Scientific Applications Concentration

Freshman Year

- **ENGR 1020 - Connections to Engineering and Technology** Credit: 1. [1]
- **CSC 1300 – Introduction to Problem Solving and Computer Programming** Credit: 4.
- **CSC 1310 – Data Structures and Algorithms** Credit: 4.
- ~~**CSC 1200 - Principles of Computing** Credit: 3.~~
- ~~**CSC 1610 - Discrete Structures for Computer Science** Credit: 3.~~
- ~~**CSC 2100 - Introduction to Problem Solving and Computer Programming** Credit: 3.~~
- ~~**CSC 2101 - Problem Solving and Computer Programming Lab** Credit: 1.~~
- ~~**CSC 2110 - Data Structures and Algorithms** Credit: 3.~~
- ~~**CSC 2111 - Data Structures and Algorithms Lab** Credit: 1.~~
- **MATH 1910 - Calculus I** Credit: 4.
- **MATH 1920 - Calculus II** Credit: 4.
- ~~**Humanities/Fine Arts Elective**~~ **Social/Behavioral Sciences Elective** Credit 3. [2]
- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.

Total: ~~31~~32

Sophomore Year

- **CSC 2300 – Object Oriented Programming and Design** Credit: 4.
- ~~**CSC 2120 - Object-Oriented Programming and Design** Credit: 3.~~
- ~~**CSC 2121 - Object-Oriented Programming and Design Lab** Credit: 1.~~
- **CSC 2400 - Design of Algorithms** Credit: 3.
- **CSC 2500 - Unix Lab** Credit: 1.
- **CSC 2700 – Discrete Structures for Computer Science** Credit: 3.
- **CSC 2710 - Foundations of Computer Science** Credit: 3.

- **SPCH 2410 - Introduction to Speech Communication** Credit: 3. or
- **PC 2500 - Communicating in the Professions** Credit: 3.

- **ENGL 2130 - Topics in American Literature** Credit: 3. or
  ENGL 2230 - Topics in British Literature Credit: 3. or
  ENGL 2330 - Topics in World Literature Credit: 3.

- **MATH 2010 - Introduction to Linear Algebra** Credit: 3.
- First Science Sequence Credit 8. [3]
- ~~**Social/Behavioral Sciences Elective** [2] Credit: 3.~~

Total: 31

Junior Year

- **CSC 3040 - Professionalism, Communication and Research in Computing** Credit: 3.
- **CSC 3300 - Database Management Systems** Credit: 3.

- **CSC 3410 - Computer Organization and Assembly Language Programming** Credit: 3.
- CSC Upper-Division Elective[4] Credit 3.
- CSC Elective Credit[5] 3.
- **CSC 4320 (5320) - Computer Architecture** Credit: 3.
- ~~**HIST 2010 - American History I** Credit: 3.~~
- ~~**HIST 2020 - American History II** Credit: 3.~~
- **Humanities/Fine Arts Elective** Credit ~~3~~6. [2]
- Second Science Sequence Credit: 4. [3]
- ~~Electives Credit 3.[5]~~

- **MATH 3070 - Statistical Methods I** Credit: 3. or
  MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: ~~32~~31

Senior Year

- **CSC 4100 (5100) - Operating Systems** Credit: 3.
- **CSC 4200 (5200) - Computer Networks** Credit: 3.
- ~~**CSC 4320 (5320) - Computer Architecture** Credit: 3.~~
- **CSC 4610 - Software Engineering I** Credit: 3.
- **CSC 4620 - Software Engineering II** Credit: 3.
- 4000-level CSC Elective Credit: 3.
- Electives[5] Credit ~~6~~9.
- **Social/Behavioral Sciences Elective**[2] Credit: 3.

Total: ~~26~~27

Note:
[1] Not required for transfer students with more than 12 hours.

[2] See TBR General Education Core Requirements.

[3] Take at least one science sequence from BIOL 1105 -BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120 , GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The two sequences must be in different disciplines.

[4] Take any additional 3000- or 4000-level CSC course except CSC 4990.

[5] At least three elective hours need to be upper division.

Curriculum for Cyber-Security Concentration

Freshman Year

- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- ~~**Humanities/Fine Arts Elective**~~ **Social/Behavioral Sciences Elective** Credit 3. [2]
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- **MATH 1910 - Calculus I** Credit: 4.
- **MATH 1920 - Calculus II** Credit: 4.
- **CSC 1300 – Introduction to Problem Solving and Computer Programming** Credit: 4.
- **CSC 1310 – Data Structures and Algorithms** Credit: 4.
- ~~**CSC 1200 - Principles of Computing** Credit: 3.~~
- ~~**CSC 1610 - Discrete Structures for Computer Science** Credit: 3.~~
- ~~**CSC 2100 - Introduction to Problem Solving and Computer Programming** Credit: 3.~~
- ~~**CSC 2101 - Problem Solving and Computer Programming Lab** Credit: 1.~~
- ~~**CSC 2110 - Data Structures and Algorithms** Credit: 3.~~
- ~~**CSC 2111 - Data Structures and Algorithms Lab** Credit: 1.~~
- **ENGR 1020 - Connections to Engineering and Technology** Credit: 1. [1]

Total: ~~31~~32

Sophomore Year

- **ENGL 2130 - Topics in American Literature** Credit: 3. or
  ENGL 2230 - Topics in British Literature Credit: 3. or
  ENGL 2330 - Topics in World Literature Credit: 3.

- **SPCH 2410 - Introduction to Speech Communication** Credit: 3. or
- **PC 2500 - Communicating in the Professions** Credit: 3.

- First Science Sequence Credit 8. [3]
- **CSC 2300 – Object Oriented Programming and Design** Credit: 4.
- ~~**CSC 2120 - Object-Oriented Programming and Design** Credit: 3.~~
- ~~**CSC 2121 - Object-Oriented Programming and Design Lab** Credit: 1.~~
- **CSC 2400 - Design of Algorithms** Credit: 3.
- **CSC 2500 - Unix Lab** Credit: 1.
- **CSC 2560 - Networks for Information Technologists** Credit: 3.
- **CSC 2700 – Discrete Structures for Computer Science** Credit: 3.
- **CSC 2710 - Foundations of Computer Science** Credit: 3.
- **MATH 2010 - Introduction to Linear Algebra** Credit: 3.

Total: ~~31~~34

Junior Year

- ~~**HIST 2010 - American History I** Credit: 3.~~

- ~~**HIST 2020 - American History II** Credit: 3.~~
- **Humanities/Fine Arts Elective** Credit ~~3~~6. [2]
- ~~**Social/Behavioral Sciences Elective**[2] Credit: 3.~~
- **CSC 3040 - Professionalism, Communication and Research in Computing** Credit: 3.
- **CSC 3300 - Database Management Systems** Credit: 3.
- **CSC 3410 - Computer Organization and Assembly Language Programming** Credit: 3.
- **CSC 3550 - Systems Programming** Credit: 3.
- **CSC 4320 (5320) - Computer Architecture** Credit: 3.
- **CSC 4575 (5575) - Information Assurance and Cryptography** Credit: 3.
- Lab Science[4] Credit 4.
- **MATH 3070 - Statistical Methods I** Credit: 3. or
  MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: 31

Senior Year

- **Social/Behavioral Sciences Elective** Credit: 3.[2]
- **CSC 4100 (5100) - Operating Systems** Credit: 3.
- **CSC 4200 (5200) - Computer Networks** Credit: 3.
- ~~**CSC 4320 (5320) - Computer Architecture** Credit: 3.~~
- **CSC 4570 - IT Security** Credit: 3.
- ~~**CSC 4575 (5575) - Information Assurance and Cryptography** Credit: 3.~~
- **CSC 4610 - Software Engineering I** Credit: 3.
- **CSC 4620 - Software Engineering II** Credit: 3.
- CSC Elective Credit: 3.
- Electives Credit: 3.

Total: ~~27~~24

Note:
[1] Not required for transfer students with more than 12 hours.

[2] See TBR General Education Core Requirements.

[3] Take at least one science sequence from BIOL 1105 -BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120 , GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The two sequences must be in different disciplines.

[4] Must be a different discipline than the required science sequence.

Curriculum for Data Science Concentration

Freshman Year

- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- **MATH 1910 - Calculus I** Credit: 4.
- **MATH 1920 - Calculus II** Credit: 4.
- Social/Behavioral Sciences Elective Credit: 3.[2] (ECON 2010 or ECON 2020 recommended)
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- **CSC 1300 – Introduction to Problem Solving and Computer Programming** Credit: 4.
- **CSC 1310 – Data Structures and Algorithms** Credit: 4.
- ~~**CSC 1200 - Principles of Computing** Credit: 3.~~
- ~~**CSC 1610 - Discrete Structures for Computer Science** Credit: 3.~~
- ~~**CSC 2100 - Introduction to Problem Solving and Computer Programming** Credit: 3.~~
- ~~**CSC 2101 - Problem Solving and Computer Programming Lab** Credit: 1.~~
- ~~**CSC 2110 - Data Structures and Algorithms** Credit: 3.~~
- ~~**CSC 2111 - Data Structures and Algorithms Lab** Credit: 1.~~
- **ENGR 1020 - Connections to Engineering and Technology** Credit: 1.[1]

Total: 32

Sophomore Year

- **SPCH 2410 - Introduction to Speech Communication** Credit: 3. or
- **PC 2500 - Communicating in the Professions** Credit: 3.
- Science Sequence Credit: 8.[3]

- **ENGL 2130 - Topics in American Literature Credit: 3. or**
  ENGL 2230 - Topics in British Literature Credit: 3. or
  ENGL 2330 - Topics in World Literature Credit: 3.

- ~~Social/Behavioral Sciences Elective Credit: 3.~~[2] ~~(ECON 2010 or ECON 2020 recommended)~~
- **CSC 2300 – Object Oriented Programming and Design** Credit: 4.
- ~~**CSC 2120 - Object-Oriented Programming and Design** Credit: 3.~~
- ~~**CSC 2121 - Object-Oriented Programming and Design Lab** Credit: 1.~~
- **CSC 2400 - Design of Algorithms** Credit: 3.
- **CSC 2500 - Unix Lab** Credit: 1.
- **CSC 2700 – Discrete Structures for Computer Science** Credit: 3.
- **CSC 2710 - Foundations of Computer Science** Credit: 3.
- **MATH 2010 - Introduction to Linear Algebra** Credit: 3.
- ~~**MATH 3070 - Statistical Methods I** Credit: 3.~~

Total: 31

Junior Year

- ~~**ENGL 2130 - Topics in American Literature** Credit: 3. or~~

- ~~**ENGL 2230 - Topics in British Literature** Credit: 3. or~~
- ~~**ENGL 2330 - Topics in World Literature** Credit: 3.~~
- ~~**HIST 2010 - American History I** Credit: 3.~~
- ~~**HIST 2020 - American History II** Credit: 3.~~
- Humanities/Fine Arts Elective Credit: 3.[2]
- Lab Science Credit: 4.
- **MATH 3070 - Statistical Methods I** Credit: 3. or
  MATH 3470 - Introductory Probability and Statistics Credit: 3.
- **CSC 3040 - Professionalism, Communication and Research in Computing** Credit: 3.
- **CSC 3220 - Fundamentals of Data Science** Credit: 3.
- **CSC 3300 - Database Management Systems** Credit: 3.
- **CSC 3410 - Computer Organization and Assembly Language Programming** Credit: 3.
- **CSC 4320 (5320) - Computer Architecture** Credit: 3.
- CSC Elective Credit 3.
- Data Science Application Elective Credit: 3.[4]

Total: 31

Senior Year

- Humanities/Fine Arts Elective Credit: 3.[2]
- Social/Behavioral Sciences Elective Credit: 3.[2] **(ECON 2010 or ECON 2020 recommended)**
- **CSC 4100 (5100) - Operating Systems** Credit: 3.
- **CSC 4200 (5200) - Computer Networks** Credit: 3.
- **CSC 4220 - Data Mining and Machine Learning** Credit: 3.
- ~~**CSC 4320 (5320) - Computer Architecture** Credit: 3.~~
- **CSC 4610 - Software Engineering I** Credit: 3.
- **CSC 4620 - Software Engineering II** Credit: 3.
- Data Science Technical Elective Credit: 3.[5]
- **CSC 4040 - Undergraduate Computing Research Experience** Credit: 3. or
- **CSC 4990 - Computer Science Internship** Credit: 3 or 6. (Data Science only) Credit 3.

Total: 27

Note:

[1] Not required for transfer students with more than 12 hours.

[2] See TBR General Education Core Requirements.

[3] The sequence must be one of the following: BIOL 1105-BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other lab science must be from a different discipline than the sequence.
[4] Select from one of the following: CSC 3230, CSC 4575, GEOG 4510 (5510), MET 4650 (5650), MKT 3400 or BIOL 3810.
[5] Select from one of the following: CSC 4240 (5240) or CSC 4760 (5760).

Curriculum for Parallel, Distributed and High-Performance Computing Concentration

Freshman Year

- **ENGR 1020 - Connections to Engineering and Technology** Credit: 1. [1]
- **CSC 1300 – Introduction to Problem Solving and Computer Programming** Credit: 4.
- **CSC 1310 – Data Structures and Algorithms** Credit: 4.
- ~~**CSC 1200 - Principles of Computing** Credit: 3.~~
- ~~**CSC 1610 - Discrete Structures for Computer Science** Credit: 3.~~
- ~~**CSC 2100 - Introduction to Problem Solving and Computer Programming** Credit: 3.~~
- ~~**CSC 2101 - Problem Solving and Computer Programming Lab** Credit: 1.~~
- ~~**CSC 2110 - Data Structures and Algorithms** Credit: 3.~~
- ~~**CSC 2111 - Data Structures and Algorithms Lab** Credit: 1.~~
- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- ~~**Humanities/Fine Arts Elective**~~ **Social/Behavioral Sciences Elective** Credit 3. [2]
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- **MATH 1910 - Calculus I** Credit: 4.
- **MATH 1920 - Calculus II** Credit: 4.

Total: 32

Sophomore Year

- **CSC 2300 – Object Oriented Programming and Design** Credit: 4.
- ~~**CSC 2120 - Object-Oriented Programming and Design** Credit: 3.~~
- ~~**CSC 2121 - Object-Oriented Programming and Design Lab** Credit: 1.~~
- **CSC 2400 - Design of Algorithms** Credit: 3.
- **CSC 2500 - Unix Lab** Credit: 1.
- **CSC 2700 – Discrete Structures for Computer Science** Credit: 3.
- **CSC 2710 - Foundations of Computer Science** Credit: 3.

- **ENGL 2130 - Topics in American Literature** Credit: 3. or
  ENGL 2230 - Topics in British Literature Credit: 3. or
  ENGL 2330 - Topics in World Literature Credit: 3.

- **MATH 2010 - Introduction to Linear Algebra** Credit: 3.
- Science Sequence Credit 8. [3]
- ~~**Social/Behavioral Sciences Elective** [2] Credit: 3.~~

- **SPCH 2410 - Introduction to Speech Communication** Credit: 3. or
- **PC 2500 - Communicating in the Professions** Credit: 3.

Total: 31

Junior Year

- **CSC 3040 - Professionalism, Communication and Research in Computing** Credit: 3.

- **CSC 3220 - Fundamentals of Data Science** Credit: 3.
- **CSC 3300 - Database Management Systems** Credit: 3.
- **CSC 3410 - Computer Organization and Assembly Language Programming** Credit: 3.
- **CSC 4200 (5200) - Computer Networks** Credit: 3.
- **CSC 4320 (5320) - Computer Architecture** Credit: 3.
- CSC Elective Credit: 3.
- ~~**HIST 2010 - American History I** Credit: 3.~~
- ~~**HIST 2020 - American History II** Credit: 3.~~
- **MATH 3070 - Statistical Methods I** Credit: 3. or
  MATH 3470 - Introductory Probability and Statistics Credit: 3.
- ~~PDH Technical Elective Credit 3.~~[4]
- ~~**Humanities/Fine Arts Elective**~~ **Social/Behavioral Sciences Elective** Credit 3.[2]
- Lab Science Credit 4.

Total: 31

Senior Year

- **CSC 4100 (5100) - Operating Systems** Credit: 3.
- ~~**CSC 4200 (5200) - Computer Networks** Credit: 3.~~
- ~~**CSC 4320 (5320) - Computer Architecture** Credit: 3.~~
- **CSC 4610 - Software Engineering I** Credit: 3.
- **CSC 4620 - Software Engineering II** Credit: 3.
- **CSC 4760 (5760) - Parallel Programming** Credit: 3.
- **CSC 4770 - Distributed and Cloud Computing** Credit: 3.
- PDH Technical Elective Credit 3.[4]
- Electives Credit 3.
- ~~**Social/Behavioral Science Elective**~~ **Humanities/Fine Arts Elective** Credit ~~36~~.[3]

~~**Core**~~**Total: 27**

Note:
[1] Not required for transfer students with more than 12 hours and not included in the 120-hour degree requirement.
[2] See TBR General Education Core Requirements.
[3] The sequence must be one of the following: BIOL 1105-BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other lab science must be from a different discipline than the sequence.
[4] Select from one of the following: CSC 4010, CSC 4420, and CSC 4400.

TENNESSEE TECH UNIVERSITY

Department of Chemistry
P.O. Box 5055 • Cookeville, TN 38505-0001 • (931) 372-3421• Fax (931) 372-3434

To: University Curriculum Committee
VIA: College of Arts & Sciences Curriculum Committee
From: Dr. Jeffrey Boles, Chair,
Department of Chemistry

Date: September 29, 2016

Re: TBR-mandated Change in Course Names and Numbers

I. The following change in course number is proposed. All other information in the catalog remains unchanged.

FROM:
CHEM 1310 - Concepts of Chemistry

TO:
CHEM 1050 – Concepts of Chemistry

II. The following changes in course names are proposed. The course numbers remain unchanged. All other information in the catalog remains unchanged.

FROM:
CHEM 1000 – Foundations of Chemistry
CHEM 1010 – General Chemistry I
CHEM 1020 – General Chemistry II

TO:
CHEM 1000 – Chemistry Problem Solving
CHEM 1010 – Introductory Chemistry I
CHEM 1020 – Introductory Chemistry II

Justification

These changes bring our catalog into alignment with recent TBR changes in order to comply with state-level standards and course equivalencies.

Financial Impact

No additional resources are needed for this request.

Effective Date

Fall 2017

TENNESSEE TECH UNIVERSITY

Department of Chemistry
P.O. Box 5055 • Cookeville, TN 38505-0001 • (931) 372-3421• Fax (931) 372-3434

To: University Curriculum Committee
VIA: College of Arts & Sciences Curriculum Committee
From: Dr. Jeffrey Boles, Chair,
Department of Chemistry

Date: September 29, 2016

Re: New course CHEM 4950

I. Course Addition

CHEM 4950 Internship in Chemistry – Credit 6
Prerequisites: 18 hrs of chemistry, Junior-Senior standing and consent of the chair. Supervised chemical work experience in a private or public agency that is related to the student's career goals. A minimum equivalent to ten weeks of half-time employment is required. Cannot be used to replace core or required elective CHEM courses within the major requirements.

Justification

Although chemistry students have long engaged in off-campus work experience, the Department has not had a mechanism for awarding academic credit for this. As the program options have expanded, an increased need has developed for this provision. In particular, students from our Forensic Chemistry option have participated in unpaid internships in the TBI Crime Lab. Last year a student used internship courses in Criminal Justice to obtain credit for this activity. With increasing enrollment and plans to seek accreditation from the American Academy of Forensic Science, along with students working at EPA, CDC, DOE, NASA and other sites, the Department has the need for a permanent system for allocation of this credit

Financial Impact

No additional resources are needed for this request.

Effective Date

Fall 2017

Tennessee Technological University
Chemistry Department

CHEM 4950 Internship in Chemistry

Prerequisites: 18 hours of chemistry, Junior-Senior standing and consent of the chair.

Texts and References: None

Course Description: Supervised chemical work experience in a private or public agency that is related to the student's career goals. A minimum equivalent to ten weeks of half-time employment is required. Cannot be used to replace core or required elective CHEM courses within the major requirements.

Course Objectives: Chemistry majors often participate in academic term or summer activities working in laboratories and other settings, to obtain practical exposure. This course provides a mechanism for a student to obtain academic credit for off-campus work experience in a variety of chemical environments. Internship opportunities are generally available from Federal agencies such as the Department of Energy, National Aeronautics and Space Administration, Environmental Protection Agency and many others. In other areas, State agencies such as the Tennessee Bureau of Investigation and Tennessee Department of Health also provide similar opportunities. In addition, private sector entities such as Tennessee Eastman and Aegis Sciences can provide experience opportunities.

Grading and Evaluation Procedures:

During the internship period, the student will maintain a journal of their activities in the work site, including a critique of their activities and experiences. This journal will be submitted to the Department for evaluation.
The on-site supervisor will also submit an evaluation of the student's performance.

Academic Misconduct:
Cheating, plagiarism and other forms of academic misconduct will absolutely not be tolerated in CHEM 4210/5210 or any other TTU course. Please consult the Student Handbook to learn the University policy on misconduct and what options are available to the instructor.
https://tntech.policytech.com/dotNet/documents/?docid=701&mode=view

Attendance Policy: Attendance is expected at all lecture periods.

Disability Accommodation: Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. **(**Disability

Accommodation Policy and Procedures - Tennessee Tech University Faculty Handbook and Student Handbook https://www.tntech.edu/studentaffairs/disability/)

MEMORANDUM

TO: University Curriculum Committee

VIA: Arts and Sciences Curriculum Committee

FROM: Steve Robinson, Chair, Department of Physics

DATE: February 1, 2017

SUBJECT: Course and curriculum changes

The Department of Physics proposes the following changes to its curriculum.

COURSE CHANGES

None

CURRICULUM CHANGES:

In both the Option I and Option II curricula, replace CSC 2100-2101 with CSC 1300. In the Option I curriculum, replace CSC 2110-2111 with CSC 1310

Justification: These courses have been renumbered.

Effective Date: Fall 2017

FINANCIAL IMPACT: None

PHYSICS
Proposed Option I curriculum

Freshman Year	Sem. hrs.
ENGL 1010	3
ENGL 1020	3
CHEM 1110	4
CHEM 1120	4
MATH 1910	4
MATH 1920	4
PHYS 1020 or MSCI 1020	1
PHYS 2110	3
PHYS 2111	1
Humanities/Fine Arts Elective	3
Total	30

Sophomore Year	Sem. hrs.
ENG 2130, 2230 or 2330	3
~~CSC 2100 and 2101~~ CSC 1300	4
~~CSC 2110 and 2111~~ CSC 1310	4
MATH 2110	4
MATH 2120	3
PHYS 2120	3
PHYS 2121	1
PHYS 2420	3
PHYS 2920	3
PC 2500	3
Total	31

Junior Year	Sem. hrs.
PHYS 3120[1] or 3610[1]	3
PHYS 3810	3
PHYS 4610	3
PHYS 4620	3
PHYS 4710	4
MATH 3470	3
MATH 3810	3
MATH 4510	3
Humanities/Fine Arts Elective	3
Social/Behav. Sciences Elective	3
Total	31

Senior Year	Sem. hrs.
PHYS 3610[1] or 3120[1]	3
PHYS 3820	3
PHYS 4130	3
PHYS 4730	1
PHYS 4740	2
HIST 2010	3
HIST 2020	3
Social/Behav. Sciences Elective	3
Electives	7
Total	28

[1]Both PHYS 3120 and 3610 are required and will be offered in alternate years.

PHYSICS
Proposed Option II curriculum

Freshman Year	Sem. hrs.
ENGL 1010	3
ENGL 1020	3
CHEM 1110	4
CHEM 1120	4
MATH 1910	4
MATH 1920	4
PHYS 1020 or MSCI 1020	1
PHYS 2110	3
PHYS 2111	1
Humanities/Fine Arts Elective	3
Total	30

Sophomore Year	Sem. hrs.
ENG 2130, 2230 or 2330	3
~~CSC 2100 and 2101~~ CSC 1300	4
Science/Engineering[1]	4
MATH 2110	4
MATH 2120	3
PHYS 2120	3
PHYS 2121	1
PHYS 2420	3
PHYS 2920	3
PC 2500	3
Total	31

Junior Year	Sem. hrs.
PHYS 3120 or 3610[2]	3
PHYS 3810	3
PHYS 4610	3
PHYS 4620	3
PHYS 4711	2
MATH 3470	3
MATH 4510	3
Science/Engineering[1]	3
Humanities/Fine Arts Elective	3
Social/Behav. Sciences Elective	3
Total	29

Senior Year	Sem. hrs.
PHYS 3610 or 3120[2]	3
PHYS 3820	3
PHYS 4730	1
PHYS 4740	2
HIST 2010	3
HIST 2020	3
Science/Engineering[1]	7
Social/Behav. Sciences Elective	3
Electives	5
Total	30

[1]Students in Option II will select an approved program of at least 14 semester hours in other areas of science or engineering. At least 8 of these 14 hours must be in upper division courses.
[2]Both PHYS 3120 and 3610 are required and will be offered in alternate years.

MEMORANDUM

TO: University Curriculum Committee and Graduate School Executive Committee

VIA: Arts and Sciences Curriculum Committee

FROM: Rob Kissell, Chair, Department of Biology

DATE: January 19, 2017

RE: Course additions, course changes, and program changes

I. Course additions –

BIOL 4140 (5140) – Pathogenic Bacteriology
Lec. 3. Credit 3.

Prerequisite: BIOL 3200 or BIOL 3230. Common bacterial pathogens will be reviewed, including: 1. How they cause disease; 2. Virulence factors and how they are identified and studied; and 3. Prevention of disease transmission.

Justification: Microbiology and Health Sciences Biology are two of the largest options / concentrations offered in our department. This course will provide an additional area of advanced study for students in these two programs. The course was previously taught as a special topics course, and it was very well received.

BIOL 4170 (5170) – Population and Conservation Genetics
Lec. 3. Credit 3.

Prerequisite: BIOL 1114 and BIOL 3810. Introduction to empirical and theoretical conservation genetics.

Justification: Genetics has become very critical in the understanding of population demographics and is often considered when developing management strategies for

wildlife populations, especially for endangered species. This course is intended to serve as a bridge between the Biology degree and the Wildlife and Fisheries Science degree and should be of interest to both majors. The course was previously taught as a special topics course, and it was very well received.

BIOL 4340 (5340) – Plant-Animal Interactions
Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 2110 and junior standing. Interactions of plants and animals in aquatic, terrestrial, and atmospheric environments at various ecological scales.

Justification: A vast quantity of data has emerged on this subject during the last two decades, illustrating the connection between plants and animals. The Department of Biology has a strong field component, with a greater emphasis on animals than on plants. This course will help reinforce the connection between these two life forms and will hopefully provide a greater appreciation of plant life among our majors. The course was previously taught as a special topics course, and it was very well received.

WFS 4800 – Conservation Techniques
Summer. Lec. 1. Lab. 6. Credit 3.

Prerequisite: BIOL/WFS 3120 or BIOL/WFS 3130. Field-based techniques used by conservation biologists to study and manage fish and wildlife populations.

Justification: WFS 4790 (Wildlife Techniques) is a required summer class in the Wildlife and Fisheries Science Wildlife (WFSW) Concentration, and it provides hands-on and in-depth instruction concerning many techniques used by wildlife professionals. The course has become one of the more popular courses in the WFSW curriculum, and several students from other curricula have asked to enroll in the class in the past. Although we have been able to accommodate most of them in the past, recent increases in enrollment no longer provide sufficient space for anyone but WFSW majors. WFS 4800 was conceptualized to provide an alternative for students from other curricula wishing to take a summer techniques course, especially for students in the Conservation Biology (WFSC) Concentration of the WFS degree. Unlike WFS 4790, this course will not be required, and it will be taught during the spring / summer intersession term, hence the reason that it provides only half the credit of the original course. It was taught last summer as a special topics course, and it was very well received.

BIOL 6810 – Ecological Ordination
Lec. 2. Lab. 3. Credit 3.

Application of multivariate statistics in the study of ecology.

Justification: Quantifying patterns of species occurrences and abundances along ecological gradients is central to the study of ecology in both aquatic and terrestrial ecosystems. This course will provide quantitative tools used by many of our graduate students with ecological research projects. The course was previously taught as a graduate-level special topics course, and it was very well received.

II. Course deletions - none

III. Course changes –

A. Change the number of lab hours for BIOL 2110 (General Botany) from 2 to 3, with no change in credit hours or course description.

FROM:
BIOL 2110 – General Botany
Lec. 3. Lab. 2. Credit 4.

TO:
BIOL 2110 – General Botany
Lec. 3. Lab. 3. Credit 4.

Justification: General botany labs have been revised during the last few years, and two hours are insufficient to complete many of the new labs. Also, botany labs require extra set-up time that will become available by increasing the labs from 2 to 3 hours.

B. Change the allocation of lecture and lab hours for WFS 4870 (5870) (GIS for Wildlife and Fisheries), with no change in credit hours or course description.

FROM:
WFS 4870 (5870) – GIS for Wildlife and Fisheries
Lec. 3. Credit 3.

TO:
WFS 4870 (5870) – GIS for Wildlife and Fisheries
Lec. 2. Lab. 3. Credit 3.

Justification: This format will better meet the needs of the objectives of this course.

C. Add a prerequisite for BIOL / WFS 4220 (Biostatistics).

FROM:
BIOL 4220 (5220) – Biostatistics
Cross-listing: (WFS 4220 (5220))
Lec. 3. Credit 3.
Probability and frequency distribution; statistical populations and samples; and tests of hypotheses used in biological research.

TO:
BIOL 4220 (5220) – Biostatistics
Cross-listing: (WFS 4220 (5220))
Lec. 3. Credit 3.
Prerequisite: MATH 1530 or MATH 1830. Probability and frequency distribution; statistical populations and samples; and tests of hypotheses used in biological research.

Justification: We now recognize that many of our students are not prepared to take BIOL 4220 without some additional math coursework after completing MATH 1130, and MATH 1530 or MATH 1830 should be sufficient. Also, this requirement is consistent with our proposed change to the math requirements, as discussed below.

IV. Program Changes –

A. Change the math requirements for all BIOL and WFS majors which are currently listed as a footnote at the bottom of the curriculum listings in the catalog.

FROM:
Required courses are MATH 1130, MATH 3070, and a choice of either MATH 1830 or MATH 3080.

TO:
Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL/WFS 4220.

Justification: Recent changes in faculty in the Department of Biology have enabled us to resume teaching BIOL/WFS 4220 (Biostatistics) which was discontinued several years ago when the faculty member who taught the course retired. This course is specifically designed to meet the needs of our majors, and has been well received as a substitution for MATH 3070 by students who have taken the course during the previous three semesters. Consequently, we wish to add it as an alternative to MATH 3070. In addition, we now recognize that many of our students are not prepared to take BIOL 4220 or MATH 3070 without some additional math coursework, hence the reason for adding MATH 1530 to our list of requirements.

B. Add BIOL 4140 (Pathogenic Bacteriology) to the list of directed electives for the Microbiology Option in the Biology Concentration listed as option 3 (listed twice) in footnote 3 in the curriculum listing in the catalog.

FROM:
Choose two courses from: BIOL 4000 (5000), BIOL 4040 (5040), BIOL 4120 (5120), BIOL 4160 (5160), BIOL 4780 (5870) or BIOL 4850 (5850).

TO:
Choose two courses from: BIOL 4000 (5000), BIOL 4040 (5040), BIOL 4120 (5120), BIOL 4140 (5140), BIOL 4160 (5160), BIOL 4780 (5870) or BIOL 4850 (5850).

Justification: This additional course will provide students in the Microbiology option more flexibility in selecting courses that best meet their career goals.

C. Add BIOL 4140 (Pathogenic Bacteriology) to the list of directed electives for the Biology Health Sciences Concentration listed as footnote 2 in the curriculum listing in the catalog.

FROM:
Choose two courses from: BIOL 3040, BIOL 3060, BIOL 4000 (5000), BIOL 4040 (5040), BIOL 4060 (5060), BIOL 4750 (5750).

TO:
Choose two courses from: BIOL 3040, BIOL 3060, BIOL 4000 (5000), BIOL 4040 (5040), BIOL 4060 (5060), BIOL 4140 (5140), BIOL 4750 (5750).

Justification: This additional course will provide students in the Biology, Health Sciences concentration more flexibility in selecting courses that best meet their career goals.

D. Add WFS 4800 (Conservation Techniques) to the list of directed electives for the Wildlife and Fisheries Science, Conservation Biology Concentration listed as footnote 2 in the curriculum listing in the catalog.

FROM:
Choose two courses from AGHT 3450, AGRN 2300 plus AGRN 2310 (both must be taken concurrently and count as a single course for this requirement), BIOL 3530, BIOL 4320 (5320), BIOL 4840 (5840), WFS 4770 (5770), and GEOG 4410 (5410) or GEOG 4510 (5510) or WFS 4870 (5870) (only one of these final three courses will count toward this requirement.).

TO:
Choose two courses from AGHT 3450, AGRN 2300 plus AGRN 2310 (both must be taken concurrently and count as a single course for this requirement), BIOL 3530, BIOL 4320 (5320), BIOL 4840 (5840) , WFS 4770 (5770) , WFS 4800 (5800), and GEOG 4410 (5410) or GEOG 4510 (5510) or WFS 4870 (5870) (only one of these final three courses will count toward this requirement.).

Justification: This additional course will provide students in the Conservation Biology concentration more flexibility in selecting courses that best meet their career goals and enables them to receive credit for a summer techniques course.

E. Add BIOL 3330 (Entomology) as an alternative course to WFS 4610 (Invertebrate Zoology) in the Zoology option of the Biology Concentration, currently listed as footnote 1 under Zoology Option in the curriculum listing in the catalog.

FROM:
1. BIOL 3040, BIOL 3530, BIOL 4610 (5160); and
2. Choose two courses from: BIOL 3060 , BIOL 3330 , BIOL 4000 (5000) , BIOL 4230 (5230) , BIOL 4630 (5630) , BIOL 4810 (5810) , BIOL 4820 (5820) or BIOL 4830 (5830) .

TO:
1. BIOL 3040, BIOL 3530, and a choice of either BIOL 3330 or BIOL 4610 (5160); and
2. Choose two courses from: BIOL 3060 , BIOL 3330 , BIOL 4000 (5000) , BIOL 4230 (5230) , BIOL 4630 (5630) , BIOL 4810 (5810) , BIOL 4820 (5820) or BIOL 4830 (5830) .

Justification: Enrollment growth is making it increasingly difficult to meet the demands of all students required to take BIOL 4610. BIOL 3330 currently has space for additional students, and the content of these two courses overlap sufficiently that either should serve the needs of the students in this option.

F. Add BIOL 3330 (Entomology) as an alternative course to WFS 4610 (Invertebrate Zoology) in the Wildlife and Fisheries Science, Conservation Biology Concentration, currently listed as bullet 5 under the Junior Year in the curriculum listing in the catalog.

FROM:
Junior Year

- BIOL 3240 - Field Botany Credit: 3.
- BIOL 3810 - General Genetics Credit: 4.
- BIOL 3920 - Biological Communication Skills Credit: 3.
- BIOL 4330 (5330) - Plant Ecology Credit: 3.
- BIOL 4610 (5610) - Invertebrate Zoology Credit: 3.
- WFS 3130 - General Ecology Credit: 4.
- WFS 4500 (5500) - National Wildlife Policy Credit: 3.
- WFS 4740 (5740) - Wildlife Principles Credit: 2.
- Science Directed Electives Credit: 6-10. [2]

TO:
Junior Year

- BIOL 3240 - Field Botany Credit: 3.
- BIOL 3810 - General Genetics Credit: 4.
- BIOL 3920 - Biological Communication Skills Credit: 3.
- BIOL 4330 (5330) - Plant Ecology Credit: 3.
- BIOL 3330 – Entomology or BIOL 4610 (5610) - Invertebrate Zoology Credit: 3.
- WFS 3130 - General Ecology Credit: 4.
- WFS 4500 (5500) - National Wildlife Policy Credit: 3.
- WFS 4740 (5740) - Wildlife Principles Credit: 2.
- Science Directed Electives Credit: 6-10. [2]

Justification: Enrollment growth is making it increasingly difficult to meet the demands of all students required to take BIOL 4610. BIOL 3330 currently has space for additional students, and the content of these two courses overlap sufficiently that either should serve the needs of the students in this concentration.

Cost – No costs are associated with any of these changes because most of them are associated with changes in personnel that have occurred with recent replacements of faculty who have retired. Several courses that were previously taught were deleted from the catalog last year, and new courses have been developed and previously taught as special topics courses to determine their suitability as permanent courses. All courses in this memo fit within the teaching rotation of faculty in the Department of Biology.

Effective Date: Fall Semester 2017

Date: January 19, 2017

Change [ ] Addition [✓] Deletion [ ]

For Office Use Only
Approved _____ Denied _____

COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 9, 2017

Course Subject: BIOL

Course Number: 4140 (5140)

Course Title: Pathogenic Bacteriology

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 3 LAB Hrs _____ IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 3

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: BIOL 3200 or BIOL 3230

Coreqs: None

Attributes: None

Restrictions: None
(Class, major, college, etc.)

Course Description

Common bacterial pathogens will be reviewed, including: 1. How they cause disease; 2. Virulence factors and how they are identified and studied; and 3. Prevention of disease transmission.

Pathogenic Bacteriology

Tennessee Tech University
Department of Biology

BIOL 4140 (5140) Pathogenic Bacteriology

BIOL 4140-001, MWF, 8:00-8:55 am, PENN 211, 4 credit hours, Spring - 2018

Instructor:
David L. Beck, BS, AM, Ph. D.
Pennebaker 415/417
931-372-3375, dbeck@tntech.edu
Office hours: MWF 11:30-1:15

Prerequisite: BIOL 3200 or 3230.

Texts and References:
Online Reading Assignments

Course Description: Common bacterial pathogens will be reviewed, including: 1. How they cause disease; 2. Virulence factors and how they are identified and studied; and 3. Prevention of disease transmission.

Pathogenic Bacteriology Lecture Learning Outcomes (Course Objectives):
Host-Pathogen Interface:
1. Students will demonstrate an understanding of the host pathogen interface.
2. Students will be able to discuss the main mechanisms of innate host defenses, adaptive immunity and clearance of bacterial pathogens.
3. Students will be able to distinguish and discuss the two immune systems – Mucosal (MALT) and Systemic.
Interventions by man with the natural consequences and adaptations of the bacteria:
4. Students will be able to discuss the basic principles of vaccines and disease prevention.
5. Students will be able to describe and explain antimicrobial compounds and basic resistance mechanisms.
Mechanisms of bacterial pathogenesis (survival, growth and transmission):
6. Students will demonstrate a knowledge of the approaches to discovering and characterizing a bacterial pathogen and its virulence factors.
7. Students will be able to describe and explain the common mechanisms used by bacteria to ensure transmission to a new host.
8. Students will be able to distinguish and classify the virulence factors of the bacterial cell.
9. Students will be able to describe and explain the common features of exotoxins, and mechanism of action of diphtheria, botulinum, tetanus, toxic shock syndrome toxins and alpha-toxin.
10. Students will be able to discuss the main mechanisms of pathogenesis **AND** disease prevention of a variety of model bacteria, including (but not limited to):
Bacillus anthracis, Bordatella pertusis, Borrelia burgdoferi, Chlamydiae pneumonia, Chlamydia

trachomatis, Clostridium difficile, Escherichia coli, Group A Strep, *Helicobacter pylori, Legionella pneumophila, Listeria monocytogenes, Mycobacterium tuberculosis, Mycoplasma pneumoniae, Neisseria* species, *Pseudomonas aeruginosa, Salmonella, Staphylococcus, Streptococcus pneumoniae, Treponema pallidum, Vibrio cholerae, Yersinia pestis*

Communicating science:

11. Students will be able to write about and apply basic bacterial pathogenesis/disease prevention concepts to current scientific issues.

Disease Prevention:

12. Antimicrobial resistance is an exploding problem, with the discussion of each pathogen will be discussed methods of disease prevention.

Course Content: The course will serve as an introduction to the broad field of Bacterial Pathogenesis **and** Disease Prevention
20% of the course is to disease prevention (antimicrobials, vaccines, disease prevention).
40% of the course is to understand the host-pathogen interface.
40% of the course is to explore bacterial pathogenesis in human diseases.

My Objective: My objective is to introduce the student to the body and its infections. To the host-pathogen interface – essentially a war zone that allows for the survival/destruction of the bacteria and its host. It is about the life and death of you or them – sooner or later.

This leads to the five main questions that one needs to answer:

1. What is the environment in which the bacterial pathogens are trying to live?
2. How does man try to modify that environment to his advantage? to prevent disease?
3. Survival, Growth and Transmission – **it is life or death** – How do the bacteria survive in this environment? How do they thrive and increase their numbers? Finally how do they escape and move to the next host? Fail at any step and it is over.

Antibiotic resistance is the reality not the exception. This brings us to the forth topic of this course:
4. Prevention of Disease. Understanding of disease is only useful if we can cure disease or stop disease from occurring in the first place. With antibiotic resistance exploding – prevention is **absolutely critical**. Save a life, it will be your own.

Finally the science of bacterial pathogenesis:
5. How we study it, diagnose it, and come to understand it will be touched on throughout the course.

Major Teaching Methods: Lecture

Special Instructional Platform/Materials: iLearn is used in this course.

Topics to be covered:
This course is broken into two parts
1. Monday/Wednesday – General overviews, mechanisms, etc.
2. Pathogen Fridays – Specific examples of pathogens

Lecture topic order (Monday and Wednesdays):

The Environment Known as the Host (Home Sweet Home or is it?)
0. The Real First Line of Defense: Prevention
1. Overview of Bacterial Pathogenesis and some Bacterial Physiology, Animal Physiology
2. The Second Line of Defense : Innate Immunity & Normal Flora
3. The Third Line of Defense: Adaptive Immunity
4. Stepping on a nail – what happens, an introduction to the host.
5. The Fourth Line of Defense: Antimicrobials
6. Mimicking the Infection: Vaccines

Survival, Growth and Transmission
7. Koch's Postulates
8. Genetic Exchange
9. Molecular Approaches to Diagnosis and Study of Pathogens
10. Overview of Survival, Growth and Transmission
11. Survival: Bacterial Strategies for Evading/Resisting the Host Immunity
12. Growth: Bacterial Strategies for Getting Dinner (and Toxins in General)
13. Growth: Protein Secretion & Virulence Regulation
14. Transmission: Bacterial Strategies for Getting a New Meal Ticket

Bioterrorism
Discussed using specific pathogen examples.

Pathogen Fridays
Initially everything will be "new". At times we will discuss topics that have not yet been discussed in the course. For instance the first pathogen is *Vibrio cholera*. It main virulence factor is Cholera Toxin. We learn about Toxins in Unit 12 of the course.
1. *Vibrio cholera*
2. *Clostridium tetani & Clostridium botulinum*
3. *Yersinia pestis*
4. *Salmonella*
5. *Legionella pneumophila*
6. *Staphylococcus*
7. *Listeria monocyogenes*
8. *Clostridium difficile*
9. *Clostridium perfringens*
10. *Helicobacter pylori*
11. *Escherichia coli*
12. *Rickettsia*
13. *Neisseria*
14. *Mycobacteria tuberculosis*

15. *Mycobacteria leprae*
16. *Mycoplasma*
17. Spirocheates - *Treponema pallidum pallidum* and *Borrelia burgdorferi*
18. *Chlamydia*
19. *Bordatella*
20. *Bacillus anthracis*
21. *Streptococcus*
22. Unusual - *Coxiella, Bartonella*
23. Nosocomial - *Pseudomonas, Klebsiella*
24. *Campylobacter*
25. *Brucella*

Important Dates

Fridays – 1-2 page quiz

Exams:

Exam 1	Feb 17
Exam 2	Mar 30
Final	Thurs, May 5 8:00-10:00

This schedule **may be modified** as necessary during the semester.

Undergraduates may prepare a presentation if they like. If you would like to present to the class please see the instructor.

NOTE: Students will be tested on all lecture material and student presentations.

Course Requirements:
1. Each student must attend class. Each lecture will cover a lot of material. Attendance will be taken.
2. You are required to take all lecture exams.
3. The lowest quiz grade will be dropped

Criteria for Grading and Evaluation

Exam 1	150 points
Exam 2	150 points
Final Exam	200 points
Reports/Quizzes	400 points
Essays	100 points

Assignments:
1. Online course notes: Online notes are provided. Each online note section includes a brief lecture outline and exam review.

2. Weekly Quiz: Each Friday there is a quiz or exam that will cover lecture material since the last quiz or exam.

3. Homework: There will be regular homework assignments. All assignments are due within **three** class days of the assignment. Each assignment is worth 6-40 points. Any report that is late will be docked points, the later it is the more points lost.

4. Essay Report: Each student will write two essays discussing/summarizing optional online readings.

5. Disease Prevention Report: Each student will write a 5 page report or prepare a youtube style video on disease prevention of a bacterial pathogen(s).

Graduate Level Credit:
Students registered for 5140 (i.e., for 5000-level credit) are required to complete an additional written assignment. Please see the instructor early in the semester for additional information.

Attendance policy: Attendance is expected.

Missed assignments: You are responsible for completing assignments on time. If you miss an assignment due to an excused absence you may submit that assignment at the next lecture period. Assignments submitted late will be accepted for partial credit only. NO assignments will be accepted after **May 4, 2015** for any reason.

Missed Quizzes Policy: No missed quizzes can be made up. One quiz grade will be dropped.

Missed exams:
If you miss an exam **you must take the exam within 7 days of missing the exam.** If there is an unusual reason that you can not complete the exam within 7 days you must notify the instructor within the 7 days of the exam date – you will be given an alternative exam. Any extension beyond this seven day period is solely at the discretion of the instructor.
ANY student missing two or more lecture exams will receive an "F" for the course.

University Plagiarism Policy (Tennessee Tech University Student Handbook – Plagiarism (Academic Regulations)): When you use (for example, quote or even summarize or paraphrase) someone else's media, words, data, ideas, or other works, you must cite your source. You should be especially careful to avoid plagiarizing Internet sources (for example, e-mail, chat rooms, Web sites, or discussion groups). It does not matter whether you borrow material from print sources, from the Internet, from on-line data bases, or from interviews. Failure to cite your source is plagiarism. Students who plagiarize may receive an "F" or a "0" for the assignment, or an "F" for the course. http://www.tntech.edu/ttustudenthandbook/academic-regulations/

Disability Accommodation: Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. (Disability Accommodation Policy and Procedures - Tennessee Tech University Faculty Handbook and Student Handbook http://www.tntech.edu/facultyhandbook/diabilityaccom/)

Date: January 19, 2017

Change [ ] Addition [✓] Deletion [ ]

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COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 9, 2017

Course Subject: BIOL

Course Number: 4170 (5170)

Course Title: Population and Conservation Genetics

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 3 LAB Hrs _____ IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 3

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: BIOL 1114 and BIOL 3810

Coreqs: None

Attributes: None

Restrictions: None
(Class, major, college, etc.)

Course Description

Introduction to empirical and theoretical conservation genetics.

Tennessee Tech University
Department of Biology

BIOL 4170 (5170) Population and Conservation Genetics

Aug 24– Dec 3, 3 credits

Dr. Carla Hurt, Penn 412, 931-372-3143, churt@tntech.edu

Office hours: Walk-in or by appointment

Prerequisites : Biol 1114 - General Zoology, Biol 3810 – General Genetics

Texts Required: *Conservation and the Genetics of Populations,* by Fred W. Allendorf, Gordon Luikart and Sally N. Aitken

Course Description / Objectives: This seminar style course is intended as a general introduction to empirical and theoretical conservation genetics. Topics covered will include the following: measures of genetic variation, selection, inbreeding, mutation, drift, recombination, and gene flow and the application of these concepts to the management of endangered species. Class will meet on Tuesday and Thursday. Tuesdays will be primarily dedicated to lecture on new material. On Thursdays there may be some lecture, however, the majority of this time will be used for problem solving and class discussion of selected peer reviewed journal articles.

Class Discussions: Each week a primary journal article will be selected for our journal group. One person will present the article and everyone will be expected to participate in this discussion. Participation in group discussion will be a significant portion of your grade so please come prepared with your questions, comments, and insights regarding the problem sets and assigned readings. Journal articles will be made available to the class via email or ilearn. Readings and homework problems should be completed prior to coming to class. Please bring a calculator to class as there will be many opportunities for in-class problem solving.

Major Teaching Methods: Lecture / Discussion

Special Instructional Platform/Materials: None

Topics to Be Covered: See course schedule

Grading and Evaluation Procedures: Grading will be based on student performance on exams and quizzes, participation in group discussions and problem solving, and on a final presentation. The breakdown of the grades will be as follows:

Exams 50% - There will be three exams.

Group Discussion 25% - There will be weekly discussions on selected journal articles and problem sets. Please come prepared with questions, comments, and points of discussion.

Research Proposal and Oral Presentation 25% - Students will choose a species of conservation concern, preferably within the state of Tennessee, whose recovery and/or management would benefit from the application of genetic tools. Students will then write a research proposal (5-7 pages, single spaced) with the following components:

1. Background information describing the species and its threats
2. How the recovery and management of this species could benefit from genetic information and hypotheses to be tested.
3. Methods including molecular markers and analytical methods to be performed.
4. Significance and potential impact of this study.

Research proposals will also be presented orally to the class (25% of project grade). Presentations will be 15 minutes in length with an additional 5 minutes for questions from the audience.

Brief summaries of research proposals (i.e., topics, outlines, and citations; a single page) have to be submitted to me by October 1. Final drafts will be due the last day of class, December 3.

Grading Scale

A	90%-100%
B	80%-89%
C	70%-79%
D	60%-69%
F	59% and below

Graduate Level Credit: Students registered for 5170 (i.e., for 5000-level credit) are required to complete an additional written assignment. Please see the instructor early in the semester for additional information.

Class Participation: Scientific papers will be assigned every week for in-class discussions. One student will be assigned to lead the classroom discussion for each paper however the entire class will be expected to participate. In addition, there will be homework problems assigned for each chapter. Answers to homework problems will be discussed in-class.

University Plagiarism Policy (Tennessee Tech University Student Handbook – Plagiarism (Academic Regulations))**:** When you use (for example, quote or even summarize or paraphrase) someone else's media, words, data, ideas, or other works, you must cite your source. You should be especially careful to avoid plagiarizing Internet sources (for example, e-mail, chat rooms, Web sites, or discussion groups). It does not matter whether you borrow material from print sources, from the Internet, from on-line data bases, or from interviews. Failure to cite your

source is plagiarism. Students who plagiarize may receive an "F" or a "0" for the assignment, or an "F" for the course. http://www.tntech.edu/ttustudenthandbook/academic-regulations/

Attendance Policy: Attendance will not be taken however failure to attend class will undoubtedly have a negative effect on the student's performance and grade.

Disability Accommodation: Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. (Disability Accommodation Policy and Procedures - Tennessee Tech University Faculty Handbook and Student Handbook http://www.tntech.edu/facultyhandbook/diabilityaccom/)

*Exam Dates and Topics may be subject to change

	Topic	Textbook Readings
Week 1	Introduction	Chapters 1-2
(Aug 25, Aug 27)	Phenotypic variation in natural populations	Allendorf 3-33
Week 2	Genetic Variation	Chapters 3
(Sep 1, Sep 3)	Chromosomes and	Allendorf 34-52
Week 3	Genetic Variation - DNA	Chapter 4
(Sep 8, Sep 10)		Allendorf 56-74
Week 4	Hardy Weinberg Equilibrium	Chapter 5
(Sep 15, Sep 17)		Allendorf 79-93
Week 5	Hardy Weinberg Cont	
(Sep 22, Sep 24)		**Exam 1**
Week 6	Small populations and Genetic	Chapter 6
(Sep 29, Oct 1)	Drift	Allendorf 97-115
		Oct 1 outline Due!
Week 7	Small populations and Genetic	
(Oct 6, Oct 8)	Drift cont	
Week 8	Natural Selection	Chapter 8
(Oct 15)		Allendorf 136-154
Week 9	Natural Selection	
(Oct 20, Oct 22)		
Week 10	Population Subdivision	**Exam 2**
(Oct 27, Oct 29)		
Week 11	Population Subdivision	Chapter 9
(Nov 3, Nov 5)		Allendorf 156-185
Week 12	Units of Conservation	Chapter 16
(Nov 10, Nov 12)		Allendorf 318-350
Week 13	Hybridization	Chapter 17
(Nov 17, Nov 19)		Allendorf 353-375
Week 14		**Exam 3**
(Nov 23)		
Week 15	Class Presentations	
(Dec 1, Dec 3)		

Date: January 19, 2017

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COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 9, 2017

Course Subject: BIOL

Course Number: 4340 (5340)

Course Title: Plant-Animal Interactions

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 2 LAB Hrs 3 IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 3

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: BIOL 2110

Coreqs: None

Attributes: None

Restrictions: Junior standing
(Class, major, college, etc.)

Course Description

Interactions of plants and animals in aquatic, terrestrial, and atmospheric environments at various ecological scales.

Tennessee Tech University
Department of Biology
BIOL 4340 (5340) - Plant-Animal Interactions Lecture and Laboratory

BIOL 4330-001, 5330-001 Lecture: T/R, 9:30-10:25 am, 201 Pennebaker, 3 credit hours, Fall 2016
BIOL 4330-101, 5330-101 Laboratory: Tues., 12:00-2:50 pm, 202 Pennebaker; outdoors

Instructor: Dr. Shawn Krosnick, **Office:** 419 Pennebaker, **Telephone:** (931) 372-6194, **email:** skrosnick@tntech.edu.

Office Hours: Office hours: Wednesday 10:00-12:00, and by appointment (please visit https://sekrosnick.youcanbook.me/ to book a time that works for you).

Prerequisites: BIOL 2110 and junior standing.

Lecture Texts and References:

Required: Herrera and Pellmyr, 2002. Plant-Animal Interactions: An Evolutionary Approach. Wiley-Blackwell, 1st edition. ISBN: 978-0632052677

References: relevant journal articles will be provided as needed during lecture.

Laboratory Texts and References:

Required: None.

References: None.

Course Description: Interactions between plants and animals are diverse and complex, spanning terrestrial, atmospheric, and aquatic environments. The last two decades have seen the emergence of a vast quantity of data on the subject. This course will look at these interactions from multiple perspectives, and synthesize the information to provide new insights into how animals and plants are connected.

Course Objectives: The learning objectives for this course include the following:

1. Explain major concepts relevant to the field of plant-animal interactions
2. Demonstrate the ability to read and synthesize information from primary ecological literature
3. Apply ecological concepts to design of field experiments
4. Demonstrate competency in collecting and analyzing data from field experiments
5. Prepare a collaborative scientific manuscript suitable for publication

Major Teaching Methods: Lecture, lab, discussion of primary scientific literature, preparation of manuscript.

Special Instructional Platform/Methods: TTU's online instructional technology platform iLearn is used extensively and essential for successful completion of the course. In addition, www.turnitin.com will be required for submission of laboratory reports.

Topics to be covered:

- The evolution of biodiversity
- Species and speciation
- Historical associations between plants and animals
- Plant-insect interactions
- Mammalian herbivory
- Granivory
- Pollination by animals
- Seed dispersal by vertebrates
- Ant-plant interactions
- Experimental design
- Sampling techniques
- Data analysis

Grading and Evaluation Procedures:

Undergraduates:	**Points:**
Lecture exams (2 @ 100 pts)	200 pts
Collaborative lab report	100 pts
Term paper	100 pts
Research presentation	100 pts

Graduate students:	**Points:**
Lecture exams	200 pts
Collaborative lab report	100 pts
Term paper	100 pts
Research presentation	100 pts
Guest lecture on assigned topic	100 pts

Grading Scale:
90 - 100% A
80 - 89% B
70 – 79% C
60 – 69% D
≤59 % F

The final course grade will be determined by your total point values (**500 undergrad, 600 graduate student**) from the lecture exams, lab report, presentations, and term paper. This is not a guarantee of the total number of points, but an estimate. Minor changes to assignments may occur throughout the semester due to time constraints, course schedule changes, weather cancellations, etc.

University Plagiarism Policy (Tennessee Tech University Student Handbook – Plagiarism (Academic Regulations)): When you use (for example, quote or even summarize or paraphrase) someone else's media, words, data, ideas, or other works, you must cite your source. You should be especially careful to avoid plagiarizing Internet sources (for example, e-mail, chat rooms, Web sites, or discussion groups). It does not matter whether you borrow material from print sources, from the Internet, from on-line data bases, or from interviews. Failure to cite your source is plagiarism. Students who plagiarize may receive an "F" or a "0" for the assignment, or an "F" for the course. http://www.tntech.edu/ttustudenthandbook/academic-regulations/

Exams: Exams will be comprised mostly of essay questions covering concepts discussed in class. Questions will be derived from lecture notes, textbook, or relevant journal articles. Any one missing an exam will receive a zero unless circumstances of the absence are found to be acceptable by your instructor. In the event of an excused absence, please contact me within 48 hours of the test to plan for a makeup. Makeup exams must be completed within five days of the original exam.

Graduate Presentations: Each graduate student will be required to present a guest lecture on an assigned topic that is mutually agreed upon. The lecture should be PowerPoint based, include references to the text book and relevant journal articles, and an outline should be provided to the students.

Collaborative manuscript preparation: The laboratory experiment will run semester-long. Students will work together to prepare a collaborative manuscript suitable for publication in the journal *Castanea.* Each student will be graded on participation in both the field component as well as the write-up of the manuscript.

Turnitin.com:
To turn in an assignment, go to www.turnitin.com and register as a student user (or log in to your account if you already have one). You will need the following information to log in:

Class name: Plant-Animal Interactions; **Class ID: 13123937; Password: plantsrock**

Attendance Policy:
Attendance is mandatory for lectures and laboratories. While attendance is not figured into the final grade, any student will find it extremely difficult to maintain a passing grade without regular attendance to lectures and labs. Labs cannot be made-up since they are conducted in the field and cannot be reproduced. *Please try to schedule all appointments around the class.*

Class Etiquette:
Students talking or creating other disturbances during lecture will be excused from class. **Please turn off/silence cell phones before the start of class.**

Disability Accommodation: Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. (Disability Accommodation Policy and Procedures - Tennessee Tech University Faculty Handbook and Student Handbook http://www.tntech.edu/facultyhandbook/diabilityaccom/)

Tentative Course Schedule:

Date	**Lecture Topic**
Aug. 23, 25, 30	Species interactions and biodiversity
Sept. 1, 5, 8	Historical perspectives on plant/animal associations
Sept. 13, 15, 20	Plant-insect interactions
Sept. 22, 27, 29	Mammalian herbivory
Oct. 4, 6, 13	Granivory
Oct. 18, 20, 25	Pollination
Oct. 27, Nov. 1, 3	Seed dispersal
Nov. 8, 10, 15	Ant-plant interactions
Nov. 17, 22, 29, Dec. 1	Student presentations

Exams will be take-home. Midterm exam will be provided in lecture on October 13, and will be due Sunday October 16 by 9 PM. Final exam will be given on Dec. 1, and will be due Sunday Dec. 4 by 9 PM. Submission of exams will be via www.turnitin.com

Date: January 19, 2017

Change [ ] Addition [✓] Deletion [ ]

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COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 9, 2017

Course Subject: WFS

Course Number: 4800

Course Title: Conservation Techniques

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 1 LAB Hrs 6 IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 3

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: BIOL/WFS 3120 or BIOL/WFS 3130

Coreqs: None

Attributes: Summer class

Restrictions: _____
(Class, major, college, etc.)

Course Description

Field-based techniques used by conservation biologists to study and manage fish and wildlife populations.

TENNESSEE TECH UNIVERSITY

DEPARTMENT OF BIOLOGY

WFS 4800-001 – CONSERVATION TECHNIQUES

M-F, 8AM-5PM, PENNEBAKER HALL 107, 3 CREDIT HOURS, SUMMER 2017

Course Offered During Intersession (May 8-19)

INSTRUCTOR INFORMATION

Instructor's Name: Dr. Keith Gibbs
Office: Pennebaker Hall 105
Telephone Number: 931-372-3133
Email: kgibbs@tntech.edu, I will respond as soon as possible during normal business hours.

OFFICE HOURS

ANYTIME AVAILABLE (APPOINTMENTS PREFERRED)

COURSE INFORMATION

PREREQUISITES

BIOL 3120/3130 - General Ecology or Instructor Permission.

TEXTS AND REFERENCES

Handouts and materials will be provided for techniques being covered.

COURSE DESCRIPTION

This course is designed to provide students with practical knowledge and training of techniques commonly used by conservation professionals to conduct monitoring surveys and research. This is a field and laboratory-oriented class to provide hands-on experience with a variety of aquatic and terrestrial conservation techniques.

COURSE OBJECTIVES/STUDENT LEARNING OUTCOMES

After completion of this course, students should be knowledgeable and skilled in field sampling and laboratory techniques necessary for a career in conservation. Many of the techniques will be discussed and implemented with various agencies and institutions to provide students exposure to current conservation methods and access to professionals.

MAJOR TEACHING METHODS

Lectures, Discussions, Laboratory and Field Exercises

Special Instructional Platform/Materials

Computers with MS Office, Google Earth, and Internet capabilities will be used. Specific field and laboratory equipment will also be used.

Topics to Be Covered

- Fundamentals of Experimental Design
- Basics of Conducting Field Studies
- Quality Assurance/Quality Control Methods
- Desktop Reconnaissance
- Orienteering and Navigation
- Equipment Inventory and Maintenance
- Aquatic Habitat Measurements, Observational Studies, and Captive Breeding
- Terrestrial Habitat Measurements, Observational Studies, and Captive Breeding

Grading and Evaluation Procedures

Grade Item	Grade Percentage
In-class Participation	70%
Field/Laboratory Notebook	15%
Final Practical	15%
Total	**100 %**

Grading Scale

Letter Grade	Grade Range
A	90-100
B	80-89
C	70-79
D	60-69
F	59 and below

Course Policies

Student Academic Misconduct Policy

Maintaining high standards of academic integrity in every class at Tennessee Tech is critical to the reputation of Tennessee Tech, its students, alumni, and the employers of Tennessee Tech graduates. The Student Academic Misconduct Policy describes the definitions of academic misconduct and policies and procedures for addressing Academic Misconduct at Tennessee Tech. For details, view the Tennessee Tech's Policy 217 – Student Academic Misconduct at Policy Central.

Attendance Policy

Attendance is mandatory. Due to the field and laboratory nature of the course, no missed material will be able to made up. Multiple absences will result in failure.

Class Participation

In-class participation is the primary grade component (70%) for this course. Engagement in field and laboratory activities as well as involvement in class discussions are expected.

Assignments and Related Policies

Field/Laboratory Notebook: A notebook containing daily discussion material and field/laboratory observations and data will be submitted at the end of the course and will constitute 15% of your overall grade. Notebooks should be well organized, legible, and complete.

Final Practical: A final practical (15% of overall grade) will be given on the last day of intersession to test your proficiency using field and laboratory equipment as well as your competency of conservation techniques covered during the course.

Classroom Etiquette: Please silence or turn off any electronic devices. Any disruptive behavior will not be tolerated and you will be asked to leave class.

Disability Accommodation

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view the Tennessee Tech's Policy 340 – Services for Students with Disabilities at Policy Central.

Date: January 19, 2017

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COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 7, 2017

Course Subject: BIOL

Course Number: 6810

Course Title: Ecological Ordination

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 2 LAB Hrs 3 IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 3

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: None

Coreqs: None

Attributes: None

Restrictions: Graduate students only
(Class, major, college, etc.)

Course Description

Application of multivariate statistics in the study of ecology.

Tennessee Tech University
Department of Biology
BIOL 6810 – Ecological Ordination
Syllabus for Spring Semester 2018

Instructor: Dr. J.S. Perkin, Assistant Professor: *Office* PENN 122; *Phone* 372-6242; *Email* jperkin@tntech.edu

Office hours: By appointment in PENN 122 (set up in person, by phone or email)

Prerequisite: Graduate standing

Credit: 3 credit hours

Lecture: **Section 001:** Tues. & Thur. 8:00 to 8:55 a.m. (PENN 107)

Laboratory: **Section 101:** Wed. 1:25 to 4:15 p.m. (PENN 107)

Text: Borcard, Gillet, and Legendre. 2011. *Numerical Ecology with R.*

Course Description: Provides students with hands-on training with statistical program R, overview of multivariate and ordination statistical approaches, and guidance on data analysis.

Course Objectives: Quantifying patterns of species occurrences and abundances along ecological gradients is central to the study of ecology in both aquatic and terrestrial ecosystems. Because communities can have many species and species responses to environmental gradients are often complex, characterizing these patterns can be challenging for ecologists. Multivariate analyses address these complexities and facilitate the interpretation of ecological data. The goal of this course is to introduce students to a variety of statistical approaches for analyzing complex data. This course will include lectures, paper discussions, and computer laboratories designed to familiarize students with (1) the application of multivariate statistics, (2) how to interpret analyses presented in the literature, and (3) operation of software (primarily R statistical package) to analyze their own data or data provided as a portion of the class.

Grading: There will be 10 assignments related to work covered during laboratory sections (80%), each student will be required to lead a class discussion on a peer-reviewed paper (10%), and students will be required to keep a notebook containing all class materials (10%). Grade scale: >90%=A; >80%=B; >70%=C; >60%=D; and <60%=F.

Attendance Policy: Attendance is required, unless the student is sick, running a fever, or makes other arrangements with the instructor (when possible). Other situations will be evaluated on a case-by-case basis.

University Plagiarism Policy (Tennessee Tech University Student Handbook – Plagiarism (Academic Regulations)): When you use (for example, quote or even summarize or paraphrase) someone else's media, words, data, ideas, or other works, you must cite your source. You should be especially careful to avoid plagiarizing Internet sources (for example, e-mail, chat rooms, Web sites, or discussion groups). It does not matter whether you borrow material from print sources, from the Internet, from on-line data bases, or from interviews. Failure to cite your source is plagiarism. Students who plagiarize may receive an "F" or a "0" for the assignment, or an "F" for the course. See: http://www.tntech.edu/ttustudenthandbook/academic-regulations/

Disability Accommodation: Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. Disability Accommodation Policy and Procedures - Tennessee Tech University Faculty Handbook and Student Handbook.
See: http://www.tntech.edu/facultyhandbook/diabilityaccom/

TENTATIVE SCHEDULE -- Spring 2015

TUE	20 January	Introduction to class, syllabus, book	
WED	21 January	Loading R, R Studio Introduction	Chapter 1
THU	22 January	Chapter 1 discussion	
TUE	27 January	Student interests in ordination	**Assignment 1**
WED	28 January	Data exploration, basics	Chapter 2
THU	29 January	Chapter 2 discussion	
TUE	03 February	Matrix introduction	**Assignment 2**
WED	04 February	Measures and Matrices	Chapter 3
THU	05 February	Paper discussion (**student lead**)	Jackson et al. 1989
TUE	10 February	Cluster introduction	**Assignment 3**
WED	11 February	Cluster Analysis	Chapter 4.1 - 4.10
THU	12 February	Paper discussion (**student lead**)	Cao et al. 2002
TUE	17 February	Regression trees introduction	**Assignment 4**
WED	18 February	Constrained Cluster Analysis	Chapter 4.11 - 4.13
THU	19 February	Paper discussion (**student lead**)	De'ath and Fabricius 2001
TUE	24 February	Unconstrained ordination	**Assignment 5**
WED	25 February	Principal Component Analysis	Chapter 5.1 – 5.3
THU	26 February	Paper discussion (**student lead**)	Jackson 1993
TUE	03 March	Unconstrained ordination cont.	
WED	04 March	Correspondence Analysis and DCA	Chapter 5.4
THU	05 March	Paper discussion (**student lead**)	Jackson and Somers 1991

TUE	10 March	SPRING BREAK	
WED	11 March	SPRING BREAK	
THU	12 March	SPRING BREAK	
TUE	17 March	Unconstrained ordination cont.	**Assignment 6**
WED	18 March	Principle Coordinates Analysis	Chapter 5.5
THU	19 March	Paper discussion (**student lead**)	Anderson and Willis 2003
TUE	24 March	Unconstrained ordination cont.	**Assignment 7**
WED	25 March	Non-Metric Multi-Dimensional Scaling	Chapter 5.6
THU	26 March	Paper discussion (**student lead**)	Clarke 1993
TUE	31 March	Constrained ordination	**Assignment 8**
WED	01 April	Redundancy Analysis	Chapter 6.0 – 6.2
THU	02 April	Paper discussion (**student lead**)	Martin et al. 2013
TUE	07 April	Constrained ordination cont.	
WED	08 April	Variation Partitioning	Chapter 6.3
THU	09 April	Paper discussion (**student lead**)	Peres-Neto et al. 2006
TUE	14 April	Constrained ordination cont.	**Assignment 9**
WED	15 April	Canonical Correspondence Analysis	Chapter 6.4
THU	16 April	Paper discussion (**student lead**)	Palmer 1993
TUE	21 April	Constrained ordination cont.	**Assignment 10**
WED	22 April	Factor Analysis	Chapter 6.10 – 6.11
THU	23 April	Paper discussion (**student lead**)	Beamud et al. 2010
TUE	28 April	Open Week	
WED	29 April	Open Week	
THU	30 April	Open Week	
TUE	05 May	Final Exams Week	
WED	06 May	Final Exams Week	
THU	07 May	Final Exams Week	

Date: January 19, 2017

Change [✓] Addition [ ] Deletion [ ]

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Approved _____ Denied _____

COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 9, 2017

Course Subject: BIOL

Course Number: 2110

Course Title: General Botany

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 3 LAB Hrs 3 IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 4

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: It is highly recommended that students wait until their Sophomore year to take this course.

Coreqs: None

Attributes: None

Restrictions: None
(Class, major, college, etc.)

Course Description

This course addresses the life cycles, morphology, and pylogeny of major clades of organisms, with an emphasis on fungi, protists, and plants.

Date: January 19, 2017

Change [✓] Addition [ ] Deletion [ ]

For Office Use Only
Approved _____ Denied _____

COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 9, 2017

Course Subject: WFS

Course Number: 4870 (5870)

Course Title: GIS for Wildlife and Fisheries

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 2 LAB Hrs 3 IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 3

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: None

Coreqs: None

Attributes: None

Restrictions: Junior standing
(Class, major, college, etc.)

Course Description

Introduction to Geographic Information Systems (GIS) using both raster and vector spatial data models, with hands on experience utilizing computers to aid problem solving in Wildlife and Fisheries Science

Date: January 19, 2017

Change [✓] Addition [ ] Deletion [ ]

For Office Use Only
Approved _____ Denied _____

COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: February 9, 2017

Course Subject: BIOL / WFS

Course Number: 4220 (5220)

Course Title: Biostatistics

Please enter the number of contact hours in the space provided, **as well as** the Credit Hrs.

Type and **Contact** Hours: LEC Hrs 3 LAB Hrs _____ IND Hrs _____ Other Hrs _____

Total **Credit** Hrs 3

Effective Year: 2017-2018 Spring [ ] Summer [ ] Fall [✓]

Department: Biology

Repeat for Credit: Y [ ] N [✓] If yes, number of times or credit hours the course can be repeated _____

Grade Mode: Standard [✓] Pass/Fail [ ] Satisfactory/Unsatisfactory [ ]

Prereqs: MATH 1530 or MATH 1830

Coreqs: None

Attributes: None

Restrictions: None
(Class, major, college, etc.)

Course Description

Probability and frequency distribution; statistical populations and samples; and tests of hypotheses used in biological research.

Curriculum Change A (All Biology and WFS Programs)

Freshman Year

- **BIOL 1000 - Introduction to Biological Methods** Credit: 1.
- **BIOL 1105 - Foundations of Biology** Credit: 4.
- **BIOL 1114 - General Zoology** Credit: 4.
- **BIOL 2110 - General Botany** Credit: 4.
- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- **CHEM 1110 - General Chemistry I** Credit: 4.
- **CHEM 1120 - General Chemistry II** Credit: 4.
- MATH Credit: 6. [1]

Total: 33

Sophomore Year

- **GEOL 1040 - The Dynamic Earth** Credit: 4. and
- **GEOL 1045 - Earth Environment, Resources and Society** Credit: 4.
- Or
- **GEOL 1040 - The Dynamic Earth**

  Credit 4. and

- **GEOL 2000 - Earth Evolution and Life History** Credit: 3.
- Or
- **PHYS 2010 - Algebra-based Physics I** Credit: 4. and

- **PHYS 2020 - Algebra-based Physics II** Credit: 4.
-
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- **Humanities/Fine Arts Electives** Credit: 6.
-
- **ENGL 2130 - Topics in American Literature** Credit: 3. or
- **ENGL 2230 - Topics in British Literature** Credit: 3. or
- **ENGL 2330 - Topics in World Literature** Credit: 3.
- MATH Credit: 3. [1]
-
- **PC 2500 - Communicating in the Professions** Credit: 3. or
- **SPCH 2410 - Introduction to Speech Communication** Credit: 3.

Total: 28-29

Junior Year

- **BIOL 3120 - General Ecology** Credit: 3. [2] or
- **BIOL 3130 - General Ecology** Credit: 4.
-
- **BIOL 3140 - Cellular Biology** Credit: 4.
- **BIOL 3200 - General Microbiology** Credit: 4.
- **BIOL 3810 - General Genetics** Credit: 4.
- **BIOL 3920 - Biological Communication Skills** Credit: 3.
- **CHEM 3005 - Elementary Organic Chemistry** Credit: 4.
- **Social/Behavioral Sciences Electives** Credit: 6.

Total: 28-29

Senior Year

- Approved Biology and Chemistry Courses Credit: 13-24. [3]
- Electives Credit: 5-18.

Total: 29-30

Note:

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[1] ~~Required courses are **MATH 1130** , **MATH 3070** , and a choice of either **MATH 1830** or **MATH 3080** .~~
Three math/statistics courses are required, one each from the following pairs of courses: either **MATH 1130** or **MATH 1710**; either **MATH 1530** or **MATH 1830**; either **MATH 3070** or **BIOL/WFS 4220.**

[2] Students following the Microbiology option may choose between **BIOL 3120** or **BIOL 3130** .

[3] Students will take approved Biology and Chemistry courses from one of the following four options, each with unique requirements:

Botany Option: (18 hours)

1. **BIOL 3240** , **BIOL 4150 (5150)** , **BIOL 4320 (5320)** , **BIOL 4330 (5330)** ; and
2. Choose two of the three: **BIOL 4300 (5300)** , **BIOL 4310 (5310)** , **BIOL 4780 (5780)** .

Marine Biology Option: (13-17 hours)

1. **BIOL 4650 (5650)** ; and

2. Choose one of the four: **BIOL 4610 (5610)** , **BIOL 4780 (5780)** , **BIOL 4810 (5810)** , **BIOL 4840 (5840)** ; and
3. Two courses from the GCRL offerings (requires one summer at the Gulf Coast Research Laboratory; coursework from other marine stations may be substituted with the approval of the advisor.)

Microbiology Option: (18-24 hours)

1. **BIOL 4130 (5130)** , **BIOL 4150 (5150)** , **BIOL 4750 (5750)** ;and
2. **CHEM 4610 (5610)** , **CHEM 4620 (5620)** ; and
3. Choose two courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .

or

1. **BIOL 4130 (5130)** , **BIOL 4150 (5150)** , **BIOL 4750 (5750)** ; and
2. **CHEM 4500** ; and
3. Choose two courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .

Zoology Option: (16-28 hours)

1. **BIOL 3040** , **BIOL 3530** , **BIOL 4610 (5610)** ; and
2. Choose two courses from: **BIOL 3060** , **BIOL 3330** , **BIOL 4000 (5000)** , **BIOL 4230 (5230)** , **BIOL 4630 (5630)** , **BIOL 4810 (5810)** , **BIOL 4820 (5820)** or **BIOL 4830 (5830)** .

Curriculum Change B (Microbiology Option Only)

Freshman Year

- **BIOL 1000 - Introduction to Biological Methods** Credit: 1.
- **BIOL 1105 - Foundations of Biology** Credit: 4.
- **BIOL 1114 - General Zoology** Credit: 4.
- **BIOL 2110 - General Botany** Credit: 4.
- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- **CHEM 1110 - General Chemistry I** Credit: 4.
- **CHEM 1120 - General Chemistry II** Credit: 4.
- MATH Credit: 6. [1]

Total: 33

Sophomore Year

- **GEOL 1040 - The Dynamic Earth** Credit: 4. and
- **GEOL 1045 - Earth Environment, Resources and Society** Credit: 4.
- Or
- **GEOL 1040 - The Dynamic Earth**

  Credit 4. and

- **GEOL 2000 - Earth Evolution and Life History** Credit: 3.
- Or
- **PHYS 2010 - Algebra-based Physics I** Credit: 4. and

- **PHYS 2020 - Algebra-based Physics II** Credit: 4.
-
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- **Humanities/Fine Arts Electives** Credit: 6.
-
- **ENGL 2130 - Topics in American Literature** Credit: 3. or
- **ENGL 2230 - Topics in British Literature** Credit: 3. or
- **ENGL 2330 - Topics in World Literature** Credit: 3.
- MATH Credit: 3. [1]
-
- **PC 2500 - Communicating in the Professions** Credit: 3. or
- **SPCH 2410 - Introduction to Speech Communication** Credit: 3.

Total: 28-29

Junior Year

- **BIOL 3120 - General Ecology** Credit: 3. [2] or
- **BIOL 3130 - General Ecology** Credit: 4.
-
- **BIOL 3140 - Cellular Biology** Credit: 4.
- **BIOL 3200 - General Microbiology** Credit: 4.
- **BIOL 3810 - General Genetics** Credit: 4.
- **BIOL 3920 - Biological Communication Skills** Credit: 3.
- **CHEM 3005 - Elementary Organic Chemistry** Credit: 4.
- **Social/Behavioral Sciences Electives** Credit: 6.

Total: 28-29

Senior Year

- Approved Biology and Chemistry Courses Credit: 13-24. [3]
- Electives Credit: 5-18.

Total: 29-30

Note:

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[1] Three math/statistics courses are required, one each from the following pairs of courses: either **MATH 1130** or **MATH 1710**; either **MATH 1530** or **MATH 1830**; either **MATH 3070** or **BIOL/WFS 4220.**

[2] Students following the Microbiology option may choose between **BIOL 3120** or **BIOL 3130** .

[3] Students will take approved Biology and Chemistry courses from one of the following four options, each with unique requirements:

Botany Option: (18 hours)

1. **BIOL 3240** , **BIOL 4150 (5150)** , **BIOL 4320 (5320)** , **BIOL 4330 (5330)** ; and
2. Choose two of the three: **BIOL 4300 (5300)** , **BIOL 4310 (5310)** , **BIOL 4780 (5780)** .

Marine Biology Option: (13-17 hours)

1. **BIOL 4650 (5650)** ; and
2. Choose one of the four: **BIOL 4610 (5610)** , **BIOL 4780 (5780)** , **BIOL 4810 (5810)** , **BIOL 4840 (5840)** ; and

3. Two courses from the GCRL offerings (requires one summer at the Gulf Coast Research Laboratory; coursework from other marine stations may be substituted with the approval of the advisor.)

Microbiology Option: (18-24 hours)

1. **BIOL 4130 (5130)** , **BIOL 4150 (5150)** , **BIOL 4750 (5750)** ;and
2. **CHEM 4610 (5610)** , **CHEM 4620 (5620)** ; and
3. ~~Choose two courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .~~ Choose two courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4140 (5140)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .

or

1. **BIOL 4130 (5130)** , **BIOL 4150 (5150)** , **BIOL 4750 (5750)** ; and
2. **CHEM 4500** ; and
3. ~~Choose ntwo courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .~~ Choose two courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4140 (5140)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .

Zoology Option: (16-28 hours)

1. **BIOL 3040** , **BIOL 3530** , **BIOL 4610 (5610)** ; and
2. Choose two courses from: **BIOL 3060** , **BIOL 3330** , **BIOL 4000 (5000)** , **BIOL 4230 (5230)** , **BIOL 4630 (5630)** , **BIOL 4810 (5810)** , **BIOL 4820 (5820)** or **BIOL 4830 (5830)** .

Biology Curriculum Health Sciences Concentration

Freshman Year

- **BIOL 1000 - Introduction to Biological Methods** Credit: 1.
- **BIOL 1105 - Foundations of Biology** Credit: 4.
- **BIOL 1114 - General Zoology** Credit: 4.
- **BIOL 2110 - General Botany** Credit: 4.
- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- **CHEM 1110 - General Chemistry I** Credit: 4.
- **CHEM 1120 - General Chemistry II** Credit: 4.
- MATH Credit: 6. [1]

Total: 33

Sophomore Year

- **BIOL 2010 - Human Anatomy and Physiology I** Credit: 4.
- **BIOL 2020 - Human Anatomy and Physiology II** Credit: 4.
-
- **ENGL 2130 - Topics in American Literature** Credit: 3. or
- **ENGL 2230 - Topics in British Literature** Credit: 3. or
- **ENGL 2330 - Topics in World Literature** Credit: 3.
-
- **PHYS 2010 - Algebra-based Physics I** Credit: 4.
- **PHYS 2020 - Algebra-based Physics II** Credit: 4.

- **Humanities/Fine Arts Electives**

  Credit: 6.

- MATH Credit: 3. [1]

Total: 28

Junior Year

- **BIOL 3120 - General Ecology** Credit: 3. or
- **BIOL 3130 - General Ecology** Credit: 4.
-
- **BIOL 3140 - Cellular Biology** Credit: 4.
- **BIOL 3230 - Health Science Microbiology** Credit: 4.
- **BIOL 3810 - General Genetics** Credit: 4.
- **BIOL 3920 - Biological Communication Skills** Credit: 3.
- **CHEM 3010 - Organic Chemistry I** Credit: 4.
- **CHEM 3020 - Organic Chemistry II** Credit: 4.
-
- **PC 2500 - Communicating in the Professions** Credit: 3. or
- **SPCH 2410 - Introduction to Speech Communication** Credit: 3.

Total: 29-30

Senior Year

- **BIOL 4150 (5150) - Molecular Genetics** Credit: 3.

- Biology Directed Electives Credit: 6-8. [2]
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- **PSY 2010 - General Psychology** Credit: 3.
- **Social/Behavioral Sciences Elective** Credit: 3.
- Electives Credit: 7-9.

Total: 29-30

Note:

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[1] Three math/statistics courses are required, one each from the following pairs of courses: either **MATH 1130** or **MATH 1710**; either **MATH 1530** or **MATH 1830**; either **MATH 3070** or **BIOL/WFS 4220.**

[2] ~~Choose two courses from: **BIOL 3040 , BIOL 3060 , BIOL 4000 (5000) , BIOL 4040 (5040) , BIOL 4060 (5060) , BIOL 4750 (5750) .**~~
Choose two courses from: **BIOL 3040 , BIOL 3060 , BIOL 4000 (5000) , BIOL 4040 (5040) , BIOL 4060 (5060) , BIOL 4140 (5140) , BIOL 4750 (5750) .**

Curriculum – Wildlife and Fisheries Science, Conservation Biology Concentration

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Freshman Year

- **BIOL 1000 - Introduction to Biological Methods** Credit: 1.
- **BIOL 1105 - Foundations of Biology** Credit: 4.
- **BIOL 1114 - General Zoology** Credit: 4.
- **BIOL 2110 - General Botany** Credit: 4.
- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
-
- **CHEM 1010 - Introduction to Chemistry I** Credit: 4. and
- **CHEM 1020 - Introduction to Chemistry II** Credit: 4.
- Or
- **CHEM 1110 - General Chemistry I** Credit: 4. and
- **CHEM 1120 - General Chemistry II** Credit: 4.
-
- MATH Credit: 6. [1]

Total: 33

Sophomore Year

- **ENGL 2130 - Topics in American Literature** Credit: 3. or
- **ENGL 2230 - Topics in British Literature** Credit: 3. or
- **ENGL 2330 - Topics in World Literature** Credit: 3.

-
- **GEOL 1040 - The Dynamic Earth** Credit: 4.
- **GEOL 2000 - Earth Evolution and Life History** Credit: 3.
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- MATH Credit: 3. [1]
- **Humanities/Fine Arts Electives** Credit: 6.
-
- **PC 2500 - Communicating in the Professions** Credit: 3. or
- **SPCH 2410 - Introduction to Speech Communication** Credit: 3.

Total: 28

Junior Year

- **BIOL 3240 - Field Botany** Credit: 3.
- **BIOL 3810 - General Genetics** Credit: 4.
- **BIOL 3920 - Biological Communication Skills** Credit: 3.
- **BIOL 4330 (5330) - Plant Ecology** Credit: 3.
- **BIOL 4610 (5610) - Invertebrate Zoology** Credit: 3.
- **WFS 3130 - General Ecology** Credit: 4.
- **WFS 4500 (5500) - National Wildlife Policy** Credit: 3.
- **WFS 4740 (5740) - Wildlife Principles** Credit: 2.
- Science Directed Electives Credit: 6-10. [2]

Total: 31-35

Senior Year

- **WFS 4700 (5700) - Habitat Management** Credit: 3.
- **WFS 4711 (5711) - Fisheries Management** Credit: 3.
- **WFS 4730 (5730) - Conservation Biology** Credit: 3.
-
- **WFS 4630 (5630) - Ornithology** Credit: 3. or
- **WFS 4820 (5820) - Mammalogy** Credit: 3.
-
- **WFS 4810 (5810) - Ichthyology** Credit: 3. or
- **WFS 4830 (5830) - Herpetology** Credit: 3.
-
- **Social/Behavioral Sciences Electives** Credit: 6.
- Electives Credit: 3-7.

Total: 24-28

Note:

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[1] Three math/statistics courses are required, one each from the following pairs of courses: either **MATH 1130** or **MATH 1710**; either **MATH 1530** or **MATH 1830**; either **MATH 3070** or **BIOL/WFS 4220.**

[2] ~~Choose two courses from **AGHT 3450** , **AGRN 2300** plus **AGRN 2310** (both must be taken concurrently and count as a single course for this requirement), **BIOL 3530** , **BIOL 4320 (5320)** , **BIOL 4840 (5840)** , **WFS 4770 (5770)** , and **GEOG 4410 (5410)** or **GEOG 4510 (5510)** or **WFS 4870 (5870)** (only one of these final three courses will count toward this requirement.)~~
Choose two courses from **AGHT 3450** , **AGRN 2300** plus **AGRN 2310** (both must be taken concurrently and count as a single course for this requirement), **BIOL 3530** , **BIOL 4320 (5320)** , **BIOL 4840 (5840)** , **WFS 4770 (5770)** , **WFS 4800** , and **GEOG**

4410 (5410) or **GEOG 4510 (5510)** or **WFS 4870 (5870)** (only one of these final three courses will count toward this requirement.)

Curriculum Change E (Zoology Option Only)

Freshman Year

- **BIOL 1000 - Introduction to Biological Methods** Credit: 1.
- **BIOL 1105 - Foundations of Biology** Credit: 4.
- **BIOL 1114 - General Zoology** Credit: 4.
- **BIOL 2110 - General Botany** Credit: 4.
- **ENGL 1010 - English Composition I** Credit: 3.
- **ENGL 1020 - English Composition II** Credit: 3.
- **CHEM 1110 - General Chemistry I** Credit: 4.
- **CHEM 1120 - General Chemistry II** Credit: 4.
- MATH Credit: 6. [1]

Total: 33

Sophomore Year

- **GEOL 1040 - The Dynamic Earth** Credit: 4. and
- **GEOL 1045 - Earth Environment, Resources and Society** Credit: 4.
- Or
- **GEOL 1040 - The Dynamic Earth**

  Credit 4. and

- **GEOL 2000 - Earth Evolution and Life History** Credit: 3.
- Or

- **PHYS 2010 - Algebra-based Physics I** Credit: 4. and
- **PHYS 2020 - Algebra-based Physics II** Credit: 4.
-
- **HIST 2010 - American History I** Credit: 3.
- **HIST 2020 - American History II** Credit: 3.
- **Humanities/Fine Arts Electives** Credit: 6.
-
- **ENGL 2130 - Topics in American Literature** Credit: 3. or
- **ENGL 2230 - Topics in British Literature** Credit: 3. or
- **ENGL 2330 - Topics in World Literature** Credit: 3.
- MATH Credit: 3. [1]
-
- **PC 2500 - Communicating in the Professions** Credit: 3. or
- **SPCH 2410 - Introduction to Speech Communication** Credit: 3.

Total: 28-29

Junior Year

- **BIOL 3120 - General Ecology** Credit: 3. [2] or
- **BIOL 3130 - General Ecology** Credit: 4.
-
- **BIOL 3140 - Cellular Biology** Credit: 4.
- **BIOL 3200 - General Microbiology** Credit: 4.
- **BIOL 3810 - General Genetics** Credit: 4.
- **BIOL 3920 - Biological Communication Skills** Credit: 3.
- **CHEM 3005 - Elementary Organic Chemistry** Credit: 4.
- **Social/Behavioral Sciences Electives** Credit: 6.

Total: 28-29

Senior Year

- Approved Biology and Chemistry Courses Credit: 13-24. [3]
- Electives Credit: 5-18.

Total: 29-30

Note:

[1] Three math/statistics courses are required, one each from the following pairs of courses: either **MATH 1130** or **MATH 1710**; either **MATH 1530** or **MATH 1830**; either **MATH 3070** or **BIOL/WFS 4220.**

[2] Students following the Microbiology option may choose between **BIOL 3120** or **BIOL 3130** .

[3] Students will take approved Biology and Chemistry courses from one of the following four options, each with unique requirements:

Botany Option: (18 hours)

1. **BIOL 3240** , **BIOL 4150 (5150)** , **BIOL 4320 (5320)** , **BIOL 4330 (5330)** ; and
2. Choose two of the three: **BIOL 4300 (5300)** , **BIOL 4310 (5310)** , **BIOL 4780 (5780)** .

Marine Biology Option: (13-17 hours)

1. **BIOL 4650 (5650)** ; and

2. Choose one of the four: **BIOL 4610 (5610)** , **BIOL 4780 (5780)** , **BIOL 4810 (5810)** , **BIOL 4840 (5840)** ; and
3. Two courses from the GCRL offerings (requires one summer at the Gulf Coast Research Laboratory; coursework from other marine stations may be substituted with the approval of the advisor.)

Microbiology Option: (18-24 hours)

1. **BIOL 4130 (5130)** , **BIOL 4150 (5150)** , **BIOL 4750 (5750)** ;and
2. **CHEM 4610 (5610)** , **CHEM 4620 (5620)** ; and
3. Choose two courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .

or

1. **BIOL 4130 (5130)** , **BIOL 4150 (5150)** , **BIOL 4750 (5750)** ; and
2. **CHEM 4500** ; and
3. Choose two courses from: **BIOL 4000 (5000)** , **BIOL 4040 (5040)** , **BIOL 4120 (5120)** , **BIOL 4160 (5160)** , **BIOL 4780 (5780)** or **BIOL 4850 (5850)** .

Zoology Option: (16-28 hours)

1. ~~**BIOL 3040, BIOL 3530 , BIOL 4610 (5610)** ; and~~
   BIOL 3040 , **BIOL 3530** , and a choice of either **BIOL 3330 or BIOL 4610 (5610)** ; and

2. Choose two courses from: **BIOL 3060** , ~~**BIOL 3330 ,**~~ **BIOL 4000 (5000)** , **BIOL 4230 (5230)** , **BIOL 4630 (5630)** , **BIOL 4810 (5810)** , **BIOL 4820 (5820)** or **BIOL 4830 (5830)** .

MEMORANDUM

TO: The University Curriculum Committee

VIA: The Arts and Sciences Curriculum Committee

VIA: The Department of English

FROM: Ted Pelton, Chair Department of English

DATE: November 8, 2016

SUJBECT: Course changes, new course proposals, renaming a concentration, creation of options

These proposals are to become effective Fall 2017. None of these proposed changes will result in additional cost.

I. Course Changes

A. Change the course number, course description, and title of THEA 2200 Stagecraft and add a prerequisite.

From: **THEA 2200 - Stagecraft**. Lec. 3. Credit 3. Lecture-laboratory covering basic elements of scenery construction, painting, lighting, stage-properties, and costuming.

To**: THEA 2025 - Stagecraft II**. Prerequisite: THEA 1025. Spring. Lec. 3. Credit 3. Advanced stagecraft continues with scenic techniques including renderings and scale models, stage lighting theory and practice, sound design, and projections. Advanced students will serve as assistants to the technical director and as crew heads for TTU theatre productions.

JUSTIFICATION: For several years, Stagecraft 2200 served as the sole Stagecraft class; however, the addition of a more advanced course in this topic will allow the potential technical theatre student to learn more about the process of working in technical theatre. The number change will also align the course with the Tennessee Transfer Pathway courses and thereby ease (and perhaps encourage) students' choice of Theatre as a concentration.

The course fulfills the following English Department goals:

1. Requires students to write and speak clearly, read perceptively, and think critically;
2. Enriches students' cultural experience through better understanding of how and why theatre happens;
3. Prepares students for all professions requiring a high level of expression, imagination, and intellectual activity.

B. Change the course number, course description, prerequisites, and title of THEA 2100 Acting.

From: **THEA 2100 - Acting**. Fall (O). Readings, improvisations, scene study; voice and movement for the stage; and basic rehearsal techniques.

To: **THEA 2015 - Acting II**. Spring. Lec. 3. Credit 3. Prerequisite: THEA 1015 and THEA 2155 or permission of the instructor. Continuation of the principles explored in THEA 1015 with a greater emphasis on scene work, text analysis, and character development.

JUSTIFICATION: The number change conforms to the Acting II course in the Tennessee Transfer Pathways. Because the class is now intended for more advanced students, the course description should reflect the creation of THEA 1015 Acting I. The prerequisites will help to assure that students are properly prepared for the course.

The course fulfills the following English Department goals:

1. Requires students to write and speak clearly, read perceptively, and think critically;
2. Enriches students' cultural experience through better understanding of how and why theatre happens;
3. Prepares students for all professions requiring a high level of expression, imagination, and intellectual activity.

II. New Course Proposals

A. **THEA 1025. Stagecraft I**. Fall. Lec. 3. Credit 3. An introduction to theatre technology including construction techniques, shop safety, types of scenery, scale drawing, common materials, and scene painting. Students will gain practical experience working on TTU theatre productions.

JUSTIFICATION: Stagecraft I will serve as an introductory technical course for students who may have little or no experience in technical theatre but have an interest in learning about technical theatre.

The primary objectives of this course:

- Students will learn basic tool safety and techniques of stage scenery construction and handling.
- Students will learn fundamentals of technical drawing and technical theatre procedures and organization.
- Students will learn basic stage painting techniques.
- Students will research a play and develop a property notebook with breakdown and plot.
- Students will develop a portfolio of material pertinent to the art of stagecraft.
- Students will work with the designer and technical director to construct scenery and properties for the TTU Theatre productions.

The course fulfills the following English Department goals:

1. Requires students to write and speak clearly, read perceptively, and think critically;
2. Enriches students' cultural experience through better understanding of how and why theatre happens;
3. Prepares students for all professions requiring a high level of expression, imagination, and intellectual activity.

See attached syllabus.

B. **THEA 1015 - Acting I**. Fall. Lec. 3. Credit 3. Fundamentals of the acting process examined through improvisation, characterization, text analysis, and basic acting technique.

Course Objectives: THEA 1015 is designed for students as an introductory acting class. The overall goal of the class will be for students to show gradual improvement as performers and to lay the groundwork for further study.

JUSTIFICATION: The change brings Acting I in line with course numbers included in the Tennessee Transfer Pathways.

See attached syllabus

C. **THEA 4200 - Theatre Design Practicum**. Prerequisite: THEA 1025, THEA 2025, THEA 3200. Lec. 3. Credit 3. Students are assigned as scenic, lighting, sound, or costume designers for a TTU theatre production.

Course objectives: THEA 4200 is designed for students to gain the experience of creating a deeper understanding and appreciation for theatrical design. The overall goal of the class will be for students to successfully apply a concept to all elements of theatrical design.

JUSTIFICATION: As we have recently hired a new lecturer in technical theatre and as our Theatre Concentration continues to grow, we are getting more students expressing interest in technical theatre and this course will allow interested students to use the knowledge they gained in THEA 3200-Theatrical Design by having the experience of designing a set that will actually be built and utilized for a production as well as receiving course credit for the experience.

See attached syllabus.

III. Curriculum Changes

A. Rename the Dramatic Arts Concentration

From: **Dramatic Arts**
To: **Theatre**

JUSTIFICATION: The term "dramatic arts" implies more than the focus of this concentration, which is various aspects of theatre and theatrical production. The new designation will more accurately reflect the program and also be more recognizable to students than the broader term, "dramatic arts."

B. Create two options within the Theatre Concentration

1. Technical Option

THEA 1025 Stagecraft I
THEA 2025 Stagecraft II
THEA 3200 Theatrical Design
THEA 4200 Theatre Design Practicum

2. Performance Option

THEA 1015 Acting I
THEA 2155 Voice and Diction
THEA 2015 Acting II
THEA 4300 Directing

JUSTIFICATION: This sequence of theatre courses provides a though line which prepares the technical theatre student or the acting theatre student for professional work or graduate school.

See attached 4-year plans for how courses would fit in sequence. Students would generally choose one or the other option, though by using electives judiciously a student could pick up both options.

"It is absurd to believe you can do well in a course if you are <u>not</u> there."

Tennessee Tech University Department of English
THEA 1015-001: Acting I
Autumn 2015, MW 1:30-2:50 Foundation Hall, room 238

Prof. Mark H. Creter
Office: Foundation Hall, Room 132, Phone: 372-3478
Email: mcreter@tntech.edu

Textbooks:
1. ***Acting Essentials or Just Say your Lines Like You Mean Them and Don't Bump into the Scenery*** by Alex Golson.

2. ***Spoon River Anthology*** by Edgar Lee Masters

****The most important objective in this class is <u>gradual</u> improvement. ****

WEEK ONE: Aug. 24, 26	**Introduction/What is Acting?** Simple warm-up exercises Assignment-Read ***Acting Essentials*** Chapter 1, and ***The Spoon River Anthology***.
WEEK TWO: Aug. 31, Sept. 2	Sensory, Physical and Vocal Awareness. Let's get physical, let's get vocal. Discussion and Exercises
WEEK THREE: Sept. 7, 9	Waking up your Imagination, Memory, and Five Senses. Discussion and exercises **Assign a reading from Spoon River Anthology for student to memorize.** Assignment-Read ***Essentials*** Chapter 2.
WEEK FOUR: Sept. 14, 16	Actor Ethics, Etiquette and Traditions. Discussion and exercises.
WEEK FIVE: Sept. 21, 23	Acting Tools: Things you can do to be a better actor Discussion and exercises Play Review #1 Due Thursday Assignment-Read ***Essentials*** Chapter 3.
WEEK SIX: Sept. 28, 30	Getting yourself going and your creative juices flowing. Improvisation, rules of engagement. **Perform Spoon River piece, memorized.** Assignment-Read ***Essentials*** Chapter 4.

WEEK SEVEN: Oct. 5, 7	Preparing a Role, Rehearsing Exploring the Script and Scene. Goals, Images, Physical and Environmental Influences. **Choose 5-8 minute two-person scene.**
WEEK EIGHT: Oct. 12, 14	**Fall Break-No Class Monday.** Discuss Relationships. Discussion and exercises. Assignment-Read ***Essentials*** Chapter 5.
WEEK NINE: Oct. 19, 21	Character, Emotion, and the Rehearsal Process Discussion and exercises **Use class time for scene work.**
WEEK TEN: Oct. 26, 28	Continue the rehearsal process. Discussion and exercises Use class time for scene work Assignment-Read ***Essentials*** Chapter 6 and 7.
WEEK ELEVEN: Nov. 2, 4	Now add the audience. Tips, Advice, Secrets… Discussion and exercises. Play Review #2 Due Thursday ***Never the Sinner*** **opens Thursday at 8:00 p.m**.
WEEK TWELVE: Nov. 9, 11	**Perform Two-Person scene in Playhouse.** **Written analysis is due on the day of your performance.**
WEEK THIRTEEN: Nov. 16, 18	Review and discuss performances Creating an Audition Package. Play Review #3 due Monday.
WEEK FOURTEEN: Nov. 23, 25	Discussion and exercises. Choose a 1 minute Monologue No class Wednesday. **Happy Thanksgiving!**
WEEK FIFTEEN: Nov. 30, Dec. 2	Monday, Comprehensive Written Final. Use class time to work on monologues. Final discussion.

Monologues to be performed in class on Monday, December 7 at 1:00 p.m.
Play Review #4 due at this time.

THE FOLLOWING ARE REQUIREMENTS TO RECEIVE A PASSING GRADE IN THEATRE 1015:

A. CLASS ATTENDANCE: TWO UNEXCUSED ABSENCES ARE ALLOWED. ANY ABSENCES ABOVE TWO MUST BE MADE UP BY VIEWING A PLAY AND WRITING A REACTION PAPER FOR EACH ABSENCE. ANY ABSENCES OVER SIX WILL RESULT IN A FAILING GRADE.

B. COMPLETION OF DAILY ASSIGNMENTS AND READINGS AND PARTICIPATION IN CLASS DISCUSSIONS.

C. SATISFACTORY MEMORIZATION AND PERFORMANCE OF A 1 MINUTE MONOLOGUE FROM *SPOON RIVER*.

D. WORK ON AND FAMILIARIZE YOURSELF WITH AN ASSIGNED READING. THIS READING WILL BE PERFORMED IN CLASS.

E. SATISFACTORY MEMORIZATION AND PERFORMANCE OF A 5-8 MINUTE TWO-PERSON SCENE.

F. VIEWING FOUR PLAYS AND WRITING A 1-2 PAGE REACTION PAPER FOR EACH PLAY.

G. A WRITTEN FINAL COVERING ALL THE MATERIAL DISCUSSED THIS SEMESTER.

H. SATISFACTORY MEMORIZATION AND PERFORMANCE OF AN AUDITION PACKAGE CONSISTING OF TWO CONTRASTING 1 MINUTE MONOLOGUES.

REQUIREMENTS FOR PERFORMANCES

In performance of the monologue and the 2-person scene I am looking for the following from you as an actor in this class:

1. That you memorize both.
2. That you are focused and concentrating in performance.
3. That you can be heard and understood.
4. That you have attempted to portray the character to the best of your emotional, intellectual and creative abilities.
5. That you write a complete role analysis, the specifics to be given to you later.
6. That you have fun!

REQUIREMENTS FOR WRITTEN WORK
Reviews should:
1. Be turned in on time.
2. Be approximately 500-750 words.
3. Follow the guidelines for play reviews.
4. Be posted on iLearn in the appropriate dropbox.

PROJECT DESCRIPTIONS:

MONOLOGUE #1 – SPOON RIVER ANTHOLOGY
The students are expected to read, re-read and generally familiarize themselves with a reading assigned by the teacher. Next you will memorize the piece.
The student is expected to study the piece for meaning and rehearse it for a crisp, clear delivery. On a chosen day the student will read the piece for the class and two weeks later perform it as a memorized monologue.

MONOLOGUE #2 – STUDENT'S CHOICE-AUDITION MONOLOGUE
The student is expected to choose, memorize, and perform two contrasting one to two minute monologues. These monologues can be contemporary in nature although the student has the option of choosing one contemporary monologue and one monologue although they should still be contrasting. The student is expected to do a written analysis of the characters he/she portrays.

5 - 8 MINUTE TWO PERSON CONTEMPORARY SCENE
The student is expected to perform in a two-person scene. I will help you to choose a scene. In addition to choosing, cutting, memorizing and performing the scene, the student is expected to do a written analysis of the character he/she portrays. (See acting handout for specifics of the analysis.)

A COMPREHENSIVE FINAL
The final will be given on the last day of class and will cover material we have discussed concerning the art of acting over the entire semester.
PLAY REVIEWS See Play Review Handout for specifics.

GRADE BREAKDOWN

MONOLOGUE #1 and CHARACTER ANALYSIS	***10 PTS.***
MONOLOGUE #2 and CHARACTER ANALYSIS	***20 PTS.***
TWO PERSON SCENE and CHARACTER ANALYSIS	***20 PTS.***
CLASS PARTICIPATION	***10 PTS.***
COMPREHENSIVE FINAL	***20 PTS.***
4 PLAY REVIEWS	***20 PTS./5 PTS. EACH***
TOTAL	***100 PTS.***

PLAY REVIEW ASSIGNMENT

All Play Reviews should be posted on iLearn. There is a drop box for each review.
The idea of a play review, as opposed to a critique, is mainly that it is your personal response to a particular production. However this response should be from an informed basis. In other words, you should have at least a passing familiarity with what passes for good acting, effective directing, and good scenic practice. Merely to say "I liked this or " I didn't like that" without an informed basis for your opinion is not helpful. Tell what you thought but include the why also.

The review should include:

The details of the show, i.e. – name of show, producing organization, and location. Hint-save your program, as you will find this information there.

An overall impression – how did the entire evening strike you? Did production leave you in a particular mood or with a strong impression?

Did the show have a definite sense of style? Was that style consistent in the acting, costumes, and scenery?

Did you believe the action happening on stage? Were you carried into the life of the play or were you always aware of being in theatre-watching actors?

Some comments on individual actors that stood out (good or bad) for you.

Some comments/insights on the play itself.

A conclusion of some sort. **Would you recommend this production?**

This assignment should show your deepening understanding of the dramatic process. Be thoughtful and understanding of the amount of effort involved in theatre work.

DETAILS
The assignment should be approximately 500-750 words. I strongly urge good proofreading. Keep the program; it will serve as a reminder of who's who and aid in the spelling of character/actor names.

COOKEVILLE THEATRE SEASON
Autumn 2015

Backstage at the Cookeville Performing Arts Center present
Escanaba in Da Moonlight by Jeff Daniels
Directed by David Johnson
August 21, 22, 23, 27, 28, 29, 2015 at 7:30 p.m.
Tickets are $10 general admission, $5 students.
For further information call the Performing Arts Center
Box office at 528-1313 or visit their homepage, www.cookeville-tn.org/cpac/.

Cookeville Performing Arts Center present
Comedy of Errors by William Shakespeare at the Dogwood Performance Pavilion in Dogwood Park
Directed by Kim Frick-Welker
Oct. 2, 3, 4, 5, 6, 8, 9, 10, 2015 at 7:00 p.m.
Free to All.
For further information call the Performing Arts Center box office at 528-1313
or visit their homepage, www.cookeville-tn.org/cpac/.

Cookeville Children's Theatre at the Cookeville Performing Arts Center
The Wizard of Oz by Frank L. Baum
Adapted by John Kane with music and lyrics by Harold Arlen and E.Y. Harburg
Directed and Choreographed by Jennifer Welch
November 6-21, 2015
For reservations and ticket prices contact CPAC box office at 931-528-1313
or go online to www.cookevillechildrenstheatre.com.

The TTU Department of English in cooperation with the Centerstage Series and the Tech Players present
Never the Sinner
By John Logan
Directed by Mark Harry Creter
November 5, 6, 7, 9, 10, 12, 13, 14, 2015 at 8:00 p.m.
Late Show: November 12, 2015 at 10:00 p.m.
Tickets are $12 general admission, $10 senior citizens and $5 for non-Tech students.
Tech students are FREE with their ID.
For further information contact the Backdoor Playhouse box office
at 372-6595 or go online to www.tntech.edu/bdph.

Disability Services:
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University Plagiarism Policy (Tennessee Tech University Student Handbook – Plagiarism (Academic Regulations))**:** When you use (for example, quote or even summarize or paraphrase) someone else's media, words, data, ideas, or other works, you must cite your source. You should be especially careful to avoid plagiarizing Internet sources (for example, e-mail, chat rooms, Web sites, or discussion groups). It does not matter whether you borrow material from print sources, from the Internet, from on-line data bases, or from interviews. Failure to cite your source is plagiarism. Students who plagiarize may receive an "F" or a "0" for the assignment, or an "F" for the course. http://www.tntech.edu/ttustudenthandbook/academic-regulations/

Tennessee Tech University

Dept. of English

THEA 1025 ***Stagecraft 1***

Instructor: Jeff Kean

Spring 2017 Tues/Thurs Section

Office: Foundation Hall Rm 132

Foundation Hall 168 and Talon Theatre

email: jckean@att.net 372-3660

Texts: *The Stagecraft Handbook Daniel Ionazzi*

Materials: Scale ruler, mechanical pencils, drafting paper, eraser shield, eye and ear protection.

Note: This class involves construction and shop work. Wear clothing appropriate for that including safe shoes (no open toes or sandals) and tuckable shirts.

Student Learning Outcomes:

- Students will learn basic tool safety and techniques of stage scenery construction and handling.
- Students will learn fundamentals of technical drawing and technical theatre procedures and organization.
- Students will learn basic stage painting techniques.
- Students will research a play and develop a property notebook with breakdown and plot.
- Students will develop a portfolio of material pertinent to the art of stagecraft.
- Students will work with the designer and technical director to construct scenery and properties for the TTU Theatre productions.

Week	Topics	Assignment

1. Introduction, syllabus, Shop safety and tool check out.
2. Tool checkout continued, beginning construction techniques
3. Platform and flat construction project
4. Scale drawing
5. Scale drawing project
6. Script analysis Prop List Project
7. Common materials used in stagecraft

8. Set construction for Spring Show

9. Set Construction continued

10. Scene Painting (Paint scenery for Spring Show)

11. Scene Painting Project

12. Stage Lighting fundamentals

13. Load in Spring Show

14. Technical rehearsals explained

15.

Grading

Class grades are assigned on a point basis. Each assignment is worth a set number of points. Totals for final grade are:

A = 90-100 B = 80-89 C = 70-79 D = 60-69 F = 0-59

Project Assignments	Points Available
Scene Construction	20
Scale Drawing	20
Props List	20
Scene Painting	20
Work on Spring Show	20
	100

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http://www.tntech.edu/ttustudenthandbook/academic-regulations/

Disability Accommodation
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Tennessee Tech University **Department of English** **Theatre Concentration**
THEA 2015-001 **Acting II** **3.0 Credits**
Spring Semester 2018

Days: Monday/Wednesday
Meets: FH 225/Talon Theatre
Time: 1:30 - 2:50
E-Mail mcreter@tntech.edu

Instructor: Mark H. Creter
Office: FH 132
Phone# 372-3478

Texts: *Actors at Work* by Rosemary Tichler and Barry J. Kaplan
Faber and Faber. (paperback). ISBN 978-0-86547-955-5.

The Great Acting Teachers and Their Methods by Richard Brestoff,
ISBN 1-891661-18-3, A Smith and Kraus Book, (paperback).

Prerequisite: **THEA 1015, THEA 2155**

Course Description: Advanced voice and movement study for the stage with an emphasis on period acting styles; in-depth script and character analysis; and advanced scene study.

Course Objectives: The student actor should continue to show growth and understanding in their performance work. Gradual growth is to be expected but there does need to be improvement.

WEEK ONE: Aug.22, 24	Introduction and overview Discussion/Begin Classical Monologue. Rd. *Great Acting Teachers*, Chapter 1, 2.
WEEK TWO: Aug. 29, 31	No Class Monday, Labor Day Begin Monologue choice on Wednesday. Discussion of approaches to audition monologues. Post Reading Response #1 (Chapters 1, 2)
WEEK THREE: Sept.5, 17	Work on performance of monologues Rd. *Great Acting Teachers*, Chapter 3, 4.
WEEK FOUR: Sept.12, 14	Memorized monologues on Wednesday. Critique to follow performance. How can you improve them? **Play Review #1 due** Post Reading Response #2 (Chapters 3, 4)
WEEK FIVE: Sept.19, 21	Monologue performance on Monday. Begin contemporary monologue choice on Wednesday. Rd. *Great Acting Teachers*, Chapter 5, 6.
WEEK SIX: Sept. 26, 28	Discuss Classical scene exercise. Choose scene for project. *Julius Caesar* Opens at Dogwood Pavilion at 7pm. Post Reading Response #3 (Chapters 5, 6)

WEEK SEVEN: Oct.3, 5 Work on scenes in class.
Rd. *Great Acting Teachers*, Chapter 7, 8.

WEEK EIGHT:Oct.10, 12 **Monday-No Class-Fall Break**
TTA Convention-Thursday-Sunday.
Discuss *The Great Acting Teachers*.
Work on scenes in class.
Play Review #2 due
Post Reading Response #4 (Chapters 7, 8.)

WEEK NINE:Oct.17, 19 Discuss *The Great Acting Teachers*.
Perform Classical Monologue for the class.
Critique to take place after performance
Rd. *Great Acting Teachers*, Chapter 9, 10.

WEEK TEN: Oct.24, 26 **Classical scene 1 due in class Wednesday**
Post Reading Response #5 (Chapters 9, 10)

WEEK ELEVEN: Oct. 31, Nov. 2 Discuss and choose Final scenes.
Read all of *Actors at Work.*

WEEK TWELVE: Nov.7, 9 Work on Final scenes in class.
Autumn Production *Complete Works* opens Thursday in Talon.

WEEK THIRTEEN: Nov.14, 16 Work on Final Scene in class.
Study/Performance.
Play Review #3 due

WEEK FOURTEEN: Nov. 21, 23 Monday-rehearse Final Scene in class
Discuss *Actors at Work* in class.
No class Wednesday, **Happy Thanksgiving!**

WEEK FIFTEEN: Nov.28, 30 Monday-**Perform both monologues** in class.
Wednesday-Last Class, Scene Partners will present their character analysis, and scene analysis.
Play Review #4 due.

Final scene performance will take place on the Finals Day on Thursday, December 8 from 1-3.

PROJECT DESCRIPTIONS:

PROJECT ONE: AUDITION MONOLOGUES

The student is expected to choose, memorize, and perform one 2-minute classical monologue and one 2-minute contemporary monologue. The first monologue should be from a classical play, either Greek, Roman, or Medieval. These can be either dramatic or comedic. I will choose those for you. The second monologue should be contemporary and may be as long as three minutes and is your choice although it should contrast your first piece as either dramatic or comic. **Both monologues will be performed separately during the semester and together on the final day of class.**

PROJECT TWO: 5 - 8 MINUTE TWO-PERSON SCENE.

The student is expected to perform in a two-person classical scene. I will help you to choose a scene. In addition to choosing, cutting, memorizing and performing the scene, the student is expected to do a written analysis of the character he/she portrays.
(See Acting handout for specifics of the analysis.)

PROJECT THREE: 8 - 10 MINUTE TWO-THREE PERSON FINAL SCENES.

The student is expected to perform in a two-person final scene.
This must be either a classical scene or a contemporary scene. The student is required to write the same type of analysis for the final scene although the student is also expected to do an oral presentation of the analysis on the last week of classes. (See Acting Handout for specifics of the analysis.)

PROJECT FOUR: RESUME, HEADSHOT.

Create an actual acting resume. Take and choose headshots.

READING: Students are expected to read all of the assigned materials and to participate in the class discussions.

WRITING:

1. Reading Responses:

Students are expected to post five reading responses for the *Great Acting Teachers*. Each post must be approximately 500 words each on five chapters from the book. The student will discuss how the Acting teacher explained acting, what methods they used and how you felt this could help improve your acting.

2. Play Reviews: Students will review four productions this semester.
See Play Review Handout for specifics.

ATTENTION ACTORS: Memorization is an essential part of each of these projects. You cannot truly act if you are not off-book! You will only receive partial credit for un-memorized work.

GRADE BREAKDOWN		**GRADING SCALE**
PROJECT ONE	10 pts.	A=90-100
PROJECT TWO	20 pts.	B=80-89
PROJECT THREE	30 pts.	C=70-79
Resume/Headshot	10 pts.	D=60-69
4 PLAY REVIEWS	20 pts./5 pts. each	F=0-59
5 READING RESPONSES	10 pts./2 pts. each	
TOTAL	100 PTS.	

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http://www.tntech.edu/ttustudenthandbook/academic-regulations/

Disability Accommodation

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Tennessee Tech University

Dept. of English

THEA 2025 ***Stagecraft 2*** Instructor: Jeff Kean

Spring 2018 Tues/Thurs Office: Foundation Hall Rm 132

Backdoor Playhouse and scene shop email: jckean@att.net 372-3660

Texts: *TBA*

Materials: Scale ruler, mechanical pencils, drafting paper, eraser shield, eye and ear protection. Heavy gloves for lighting work

Note: This class involves construction and shop work. Wear clothing appropriate for that including safe shoes (no open toes or sandals) and tuckable shirts.

Student Learning Outcomes:

- Students will learn advanced techniques of stage scenery construction and handling.
- Students will Theatre Forms and Styles.
- Students will learn advanced painting techniques.
- Students will research a play and develop a to scale scenic floor plan
- Students will learn fundamentals of stage lighting design.
- Students will work with the designer and technical director to construct scenery and properties and participate in lighting hang and focus for TTU Theatre productions.

Week	Topics	Assignment

1. Introduction, syllabus, Theatre forms and styles
2. Scenic options- Flys, wagons, turntables, rakes, cutaways, suggestives, softgoods
3. Script analysis, Floor plans (Project)
4. Fundamentals of lighting design
5. Lighting design continued
6. Advanced Painting techniques (Project)
7. Painting Continued
8. Set construction for Spring Show
9. Set Construction continued

10. Scene Painting (Paint scenery for Spring Show)
11. Finishing the set, trim, molding, doors
12. Load in Spring Show
13. Safety and sightlines backstage
14. Stage Rigging, flys
15. Work on final project

Grading

Class grades are assigned on a point basis. Each assignment is worth a set number of points. Totals for final grade are:

A = 90-100 B = 80-89 C = 70-79 D = 60-69 F = 0-59

Project Assignments	Points Available
Floor plan	20
Construction project	20
Work on Spring Show	20
Scene Painting	20
Final Project	20
	100

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http://www.tntech.edu/ttustudenthandbook/academic-regulations/

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Tennessee Tech University

Dept. of English

THEA 4200 **Theatre *Design Practicum*** Instructor: Jeff Kean

Pre-Req. THEA 3200 Office: Foundation Hall Rm 132

Backdoor Playhouse and scene shop email: jckean@att.net 372-3660

Texts: *TBA*

Student Learning Outcomes:

- Student will apply THEA 1200, 2200, and 3200 techniques in designing Scenery, Lighting, or Costumes for a TTU Theatre Production..
- Students will create full color renderings or 3D models for their design.
- Scene Design Students will provide to scale working drawings to the Technical Director for construction.
- Lighting Design Students provide a complete light plot with circuit designations and color and a script with complete light cues and notes to the Stage Manager.
- Costume Design Students will provide color rendering for all characters with material swatches.
- Students will participate in the construction or light hang and focus of their show and attend all technical rehearsals and production meetings for their show.
- Students will write a final paper detailing their experience, research, and final outcome for their design.

MEMORANDUM

TO: The University Curriculum Committee

VIA: The Graduate School Executive Committee

VIA: The Arts and Sciences Curriculum Committee

VIA: The Department of English Graduate Studies Committee

FROM: Dr. Ted Pelton, Chair, Department of English

DATE: November 3rd, 2016

SUBJECT: Graduate-Level Internship Credit-Hour Change

Catalog Description Change Regarding Credit Hours
Change the catalog wording for PC 4850/5850

FROM:
PC 4850 (5850)—Internship.
Cr. 3, 6, 9, 12.
Part-time or full-time employment in a business, industrial, or institutional communications setting, related to student academic or career goals. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

TO:
PC 4850 (5850)—Internship.
Credit 3, 6, 9.
Pre-requisite: PC 4940/5940 or 4970/5970.
Part-time or full-time employment in a business, industrial, or institutional communications setting related to student academic and career goals. Includes a reflective component in the form of a paper or journal that connects the student's work with research covered in pre-requisite courses. Course may be repeated for up to a total of nine credit hours. Undergraduate students may not take more than nine credit hours of PC 4850 during their degree programs. Graduate students may take no more than six credit hours of PC 5850 during their degree programs.

Justification
These changes add prerequisite courses, as well as a repeatable option for the internship to introduce flexibility, based on students' needs.

These changes would not result in any added cost, and they are in keeping with departmental goals.

Effective Date
Fall 2017

MEMORANDUM

TO: The Arts and Sciences Curriculum Committee

VIA: The English Department Curriculum Committee

FROM: Dr. Ted Pelton, Chair, Department of English

DATE: November 3rd, 2016

RE: Course Title Change, Prerequisite Change, and Program Name Change

Please consider the following changes impacting the Professional Communication Program:

I. Change the course title and prerequisite of PC 4990

FROM: PC 4990 Seminar in Professional Communication. Prerequisite: PC 4970 (5970)

TO:PC 4990 Business and Grant Proposal Writing. Prerequisite: ENGL/PC 3250

Justification: This course has focused only on business and grant proposal writing, as is stated in the current course description. Not only is "Seminar in Professional Communication" too general, but the word "seminar" implies the type of study conducted at the 6000 level.

Due to curriculum changes effective Fall 2016, students no longer need to take all of the PC courses offered; they can choose from a range of courses. Therefore, some students may not take PC 4970 at all. ENGL/PC 3250 is now the prerequisite for all of the other 4000-level PC courses, excluding the internship. ENGL/PC 3250 is an effective and sufficient prerequisite for PC 4990.

II. Change the program name of Professional Communication:

FROM: Professional Communication

TO: Professional and Technical Communication

Justification: This expansion of the program's name reflects more accurately the content of the concentration, and it also will parallel a proposed concentration at the graduate level by the same name. Current courses in the Professional Communication Program, such as PC 3250 (Professional Communication I), PC 3700 (Information Design in the Professions), PC 4940 (Technical Editing), PC 4970 (Professional Communication II), and PC 4990 (Seminar in Professional Communication), for example, incorporate forms of communication related to both Professional and Technical Communication.

Effective Date: Fall 2017

TO: University Curriculum Committee

VIA: Dr. Liz Mullens, Dean, College of Agriculture and Human Ecology-LM

VIA: College of Agriculture and Human Ecology Curriculum Committee-MS

FROM: Dr. Andrew Courtner, Director, Student Success Center-AC

DATE: September 26, 2016

RE: AGHE Prefix Creation

It is requested for the creation and approval of the prefix AGHE. This prefix would be used to offer courses through the College of Agriculture & Human Ecology that would enroll students from the School of Agriculture and the School of Human Ecology.

TO: University Curriculum Committee

VIA: Dr. Liz Mullens, Dean, College of Agriculture and Human Ecology-LM . 1

VIA: College of Agriculture and Human Ecology Curriculum Committee-MS

FROM: Dr. Andrew Courtner, Director, Student Success Center-AC

DATE: September 26, 2016

RE: Course Addition, AGHE 1020

Course Additions:

1. AGHE Connections in Agriculture & Human Ecology Lec.2. Credit 1.

Prerequisite: Freshman classification.

Justification: The College of Agriculture and Human Ecology has identified the need to provide integration opportunities of students in the School of Agriculture and School of Human Ecology to have a cohesive College environment. The new AGHE 1020 Connections to Agriculture & Human Ecology allows students from both Schools to collaborate together during their first year while also providing meaningful academic and non-academic activities to become oriented to Tennessee Tech and the College. Course syllabus attached.

Financial Impact: None

Effective Date: Fall 2017

Course Deletions:

None

Course Changes:

None

TENNESSEE TECH UNIVERSITY

COLLEGE OF AGRICULTURE & HUMAN ECOLOGY

AGHE 1020 CONNECTIONS TO AGRICULTURE & HUMAN ECOLOGY

DATES, TIME, CLASSROOM, NUMBER OF CREDIT HOURS, SEMESTER

INSTRUCTOR INFORMATION

Instructor's Name: Dr. Andrew Courtner
Office: OKLY 116
Telephone Number: 931-372-6850
Email: acourtner@tntech.edu

OFFICE HOURS

COURSE INFORMATION

PREREQUISITES (IF APPLICABLE)

TEXTS AND REFERENCES

Required:

References (if applicable):

COURSE DESCRIPTION

Connects students to the university and College of Agriculture & Human Ecology through meaningful academic and non-academic, out-of-classroom activities. Emphasizes critical thinking in the formation of academic and social groups, group participation, and in self-management and study skills.

AGHE 1020 is the freshman orientation course for students in the College of Agriculture & Human Ecology. Every freshman that attends TIU is required to take a freshman orientation course. Students may not drop AGHE 1020 or other courses serving the function of AGHE 1020. However, exceptions may be made for extenuating circumstances.

COURSE OBJECTIVES/STUDENT LEARNING OUTCOMES

Upon completion of this course, students will be able to:

1. Connect with other students, faculty, and staff in the College of Agriculture & Human Ecology, encouraging both personal and academic networks.

2. Connect with the University and its vast resources to provide academic, social, and personal growth.

3. Connect students' college experience with their future plans and ambitions.

Connect students with potential professions through departmental, university and community functions

MAJOR TEACHING METHODS

Lectures, Guest Speakers, Demonstrations, and Discussion will be the primary teaching methods used in this class.

SPECIAL INSTRUCTIONAL PLATFORM/MATERIALS

(eg. iLearn, laptop, etc.}

TOPICS TO BE COVERED

- Week 1 - Vision of College
- Week 2 - Meet all club representatives
- Week 3 - Meet all CAHE faculty and staff
- Week 4 - Career Services
- Week 5 - Complete resume
- Week 6 - Study Skills & Test Anxiety
- Week 7 - Identification of selected resources for the CAHE students
- Week 9 - Ethics & Professionalism
- Week 10- Creating an academic plan for TTU agriculture students
- Week 11- How do I register for Classes?
- Week 12 - Understanding Financial Aid
- Week 13 - Career options for TTU CAHE graduates
- Week 14 - How does each concentration fit into the College
- Week 15 - University, college and community service.
-

GRADING AND EVALUATION PROCEDURES

Grading is based on completion of the required university activities, homework, out of class activities, in class activities, and class attendance

A = ≥ 60 points plus completion of all required university activities and 10 attendance points

B = 30-59 points plus completion of all required university activities and 10 attendance points

C = 0-30 points plus completion of all required university activities and 10 attendance

F= **Failure to complete any of the required university activities or <10 attendance points**

Letter Grade	Grade Range
A	**xx-xx**
B	**xx-xx**
C	**xx-xx**
D	**xx-xx**
F	xx and below

COURSE POLICIES

STUDENT ACADEMIC MISCONDUCT POLICY

Maintaining high standards of academic integrity in every class at Tennessee Tech is critical to the reputation of Tennessee Tech, its students, alumni, and the employers of Tennessee Tech graduates. The Student Academic Misconduct Policy describes the definitions of academic misconduct and policies and procedures for addressing Academic Misconduct at Tennessee Tech. For details, view the Tennessee Tech's Policy 217 – Student Academic Misconduct at Policy Central.

ATTENDANCE POLICY

Students are expected to attend all classes.

DISABILITY ACCOMMODATION

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view the Tennessee Tech's Policy 340 - Services for Students with Disabilities at Policy Central.

STUDENT EXPECTATIONS & RESPONSIBILITIES:

1. Come to class prepared.
2. Attend all classes. Class attendance is mandatory (see TTU Student Handbook), in addition, students are expected to actively participate in class discussion and activities.

1. Freshman that miss more than four classes GPA= 1.7
2. Freshman that miss four or fewer classes GPA= 2.8
3. TN Tech graduation rate -45%

3. Meet all announced deadlines for assignments. All assignments must be turned in on due date, and they will not be accepted late without strong extenuating circumstances.
4. Students MUST write a note as to why they missed class.
5. Abide by Tennessee Tech University policies regarding academic honesty.

REQUIRED ACTIVITIES: The following activities are **REQUIRED.** Failure to complete any of these activities will result in the student receiving and F for the course. This is a University Requirement for completion of any 1020 course.

A. University requirements:

1. Sexual Assault Education and Bystander Awareness Training:
https://www.tntech.edu/titleix/haven
Complete Sexual Assault Education and Bystander Awareness Training. The quiz CANNOT be taken multiple times. It can only be taken once.

- EverFi - Haven Online System
  - Part 1 Completion Deadline - September 18, 2016
  - Part 2 Completion Deadline - November 1, 2016

2. Fine Arts event:
Attend one fine art event: This are on campus events such as concerts, plays, guest speakers in a campus wide forum discussing historical or popular domestic topics. Concerts by pop, country, or similar musical groups even though on campus will not be accepted as fine art. Check with the instructor if in doubt.

Bring a flyer or something provided at the event as proof of attendance.

Find out about different Fine Arts Events:

- CenterStage Events (https://www.tntech.edu/centerstage/)
- Joan Derryberry Art Gallery Events (https://www.tntech.edu/centerstage/jdag)

3. Multicultural events:
Attend one multicultural event: These are on-campus events such as international desserts tasting, guest speakers in a campus wide forum discussing international topics or cultural topics. Check with the instructor if in doubt.

Bring a flyer or something provided at the event as proof of attendance.

Find out about different Multicultural Events:

- Multicultural Affairs (https://www.tntech.edu/bcc/l
- Center Stage Events (https://www.tntech.edu/centerstage/)

4. TIU Emergency Preparedness Plan:
Turn in a 300 word review of this plan. The URL below gives the TIU Alert System and emergency messaging system homepage.

In the box on the left go to Emergency Operations Plan -Look under: What To Do
This provides access to information of a number of emergency situations.
http://www.tntech.edu/planning-and-finance/safety/responseplan/

To sign up for phone alerts: http://www.tntech.edu/ttualert/

5. Copyright & Plagiarism:
Complete the videos and quiz related to copyright, fair use, plagiarism, and academic integrity. It is best to view the videos and then complete the quiz. The quiz can be taken as many times as possible.

Find the quiz related to copyright & plagiarism:

- Copyright & Plagiarism Site with Quiz (https://www.tntech.edu/library/plagiarism)

6. Athletic Event:
Attend one athletic event. You proof of attendance can be: a) attend with a mentor and have them sign a statement. Statement should include date and event; b) Find a faculty member from the Agriculture department at the event and have them sign your statement; c) a ticket stub or flyer that would only be given out at the event; d) a photo showing you at the event (scoreboard in background or team playing, etc.)

7. Attendance:
You must earn 20 attendance points during the semester. You will receive 1 point per class for attendance. If you will not meet the attendance requirement, you will receive an F for the course. It is your responsibility to make sure you have signed in each day or if I call roll, make sure I got your name checked if you are late. Excused absences from class with written proof, i.e. doctor's note, faculty letter, proof of jury duty, etc. , will be taken into consideration in reducing the number of classes required to meet the attendance requirement.

SPECIFIC DEADLINES

There are times when you will be given a date for turning in a specific item. Your first assignment is to complete the Sexual Assault Education and Bystander Awareness Training by Sept. 13th.

Due dates: Sexual Assault Education and Bystander Awareness Training Sept. 18 and Nov. 1
Emergency Plan Sept. 15
Copyright & Plagiarism Sept. 22

Your mentor and/or professor will go through the materials you hand in and award credit for the activities. You should check to see you have received credit for all activities turned in. It is your responsibility to keep up with your materials, so do not throw anything away until grades are assigned at the end of the semester. A notebook would be helpful to keep all of your assignments and verifications of attendance

Date: 10-6-16

Change _____ Addition ✓ Deletion _____

For Office Use Only
Approved _____ Denied _____

COURSE CHECKLIST FOR CURRICULUM COMMITTEE

Curriculum Committee Date: Oct 2016

Course Subject: AGHE

Course Number: 1020

Course Title: Connections in Agriculture and Human Ecology

Please enter the number of contact hours in the space provided, as well as the Credit Hrs. Example:

Type and Contact Hours: LEC Hrs 2 LAB Hrs ____ IND Hrs ____ Other Hrs ____ Credit Hrs 1

Effective Year: 2017 Spring _____ Summer _____ Fall X

Department: Agriculture and Human Ecology

Repeat for Credit: Y ____ N X If yes, number of times or credit hours the course can be repeated ____

Grade Mode: Standard X Pass/Fail _____ Satisfactory/Unsatisfactory _____

Prereqs: Freshman Classification

Coreqs:

Attributes: _____

Restrictions: Major - Agriculture or Human Ecology
(Class, major, college, etc.)

Course Description

See attached Syllabus

School of Human Ecology

TO: University Curriculum Committee

VIA: Dr. Liz Mullens, Dean, College of Agriculture and Human Ecology-LM

VIA: College of Agriculture and Human Ecology Curriculum Committee-MS

VIA: School of Human Ecology Curriculum Committee-MS

VIA: Dr. Melinda Anderson, Director, School of Human Ecology-MA

DATE: October 5, 2016

RE: HEC Curriculum and Course Changes

Course Additions:

HEC 4910 Internship in Child Development and Family Relations Credit 6, 8, 12.
Prerequisites:
Department approval. Minimum Overall GPA 2.75. Minimum overall GPA of 3.0 in Human Ecology courses. Approval of advisor to include: analysis of coursework, application, and placement at facility.

Course Description: Credit 6, 8, 12
Supervised practical experience in a variety of professional settings.

Justification:
The National Council on Family Relations, which approves the Certified Family Life Educator (CFLE) credential recommends the Internship course to have its own designation and course# specific to Child Development and Family Relations
Effective Date: Summer 20 l7

Course Deletions:
None

Curriculum Changes:

From:
CDFR curriculum, Sophomore year, CFS Practicum 2410

To:
CDFR Curriculum, Sophomore year, **Delete CFS 2410: Practicum: Young Children with Special Needs (1) in the Related Courses:**

Justification: The College of Education teaches both CFS 2400 and 2410, which are co- requisite courses on the CDFR curriculum. The COE is deleting CFS 2410 and rolling the course content into CFS 2400 Children with Special Needs. CFS 2410 will no longer be offered for our students.
Effective Date: Fall 2017

From:
Total Credit hours on CDFR sophomore year 31
hours TO:
Total Credit hours on CDFR sophomore year 30 hours

Justification: removal of 1 credit CFS 2410
Practicum Effective Date: **Fall** 2017

From:
CDFR Curriculum, Senior year, Electives Credit 5.
TO:
CDFR Curriculum, Senior year, Electives Credit 6
Justification:
To account for the removal of the 1 credit CFS 2410
Practicum Effective date: Fall 2017

From:
CDFR Curriculum, HEC Elective 3 credit in Senior year

To:
CDFR Curriculum, Junior Year: Add **EXPW** 2150 Human Sexuality, Credit 3.
Delete HEC Elective Credit 3.

Justification: National Council on Family Relations requires a course in Human Sexuality for the Certified Family **Life** Educator (CFLE) credential.
Effective Date: Fall 2017

From:
CDFR Curriculum, Junior Year HEC 3660 Interpersonal

Relationships To:

CDFR Curriculum, Senior Year HEC 3660 Interpersonal Relationships (move HEC 3660 from Junior Year to Senior Year on Curriculum Sheet)
Justification:
To allow for the addition of EXPW 2150 at the Junior Year
Effective Date: Fall 2017

From:
CDFR Curriculum Senior Year, Total Credit hours 28
To:
CDFR Curriculum Senior Year, Total Credit
hours 29 Justification:
To allow for the addition of 1 elective credit to total number of Electives
Effective Date: Fall 2017

From:
Merchandising and Design curriculum page, Freshman year, UNIV 1020, 1 credit

To:
Merchandising and Design curriculum page, Freshman year, AGHE 1020, 1 credit

Justification:

From:
Housing and Design curriculum page, Freshman year, UNIV 1020, 1 credit

To:
Housing and Design curriculum page, Freshman year, AGHE 1020, 1 credit

From:
Family and Consumer Sciences Education curriculum page, Freshman year, UNIV 1020, 1 credit

To:
Family and Consumer Sciences curriculum page, Freshman year, AGHE 1020, 1 credit

From:
Child Life curriculum page, Freshman year, UNIV 1020, 1 credit

To:
Child Life curriculum page, Freshman year, AGHE 1020, 1 credit

From:

Food Systems Administration curriculum page, Freshman year. UNIV 1020, 1 credit

To:
Food Systems Administration curriculum page, Freshman year, AGHE 1020, 1 credit

From:
Nutrition and Dietetics curriculum page, Freshman year, UNIV 1020, 1 credit

To:
Nutrition and Dietetics curriculum page, Freshman year, AGHE 1020, 1 credit

From:
Child Development and Family Relations curriculum page, Freshman year, UNIV 1020, 1 credit

To:
Child Development and Family Relations curriculum page, Freshman year, AGHE 1020, 1 credit

Justification:
The College of Agriculture and Human Ecology proposes a new combined freshmen orientation course, AGHE 1020 which will be required for our students (both Agriculture and Human Ecology) in place of UNIV 1020.
Effective Date: Fall 2017

Financial Impact: None

From:
Child Life concentration, Sophomore Year, CFS 2410 Practicum, 1 credit Total Credit hours sophomore year, 31 credits
Senior Year elective credit 1 Total
credit hours Senior year: 28

To:
Child Life concentration, Sophomore year, delete CFS 2410 Practicum, 1 credit
Total Credit hours sophomore year, 30 credits
Senior Year elective credits 2
Total credit hours Senior year: 29

Justification:
The College of Education deleted CFS 2410, and since it is no longer available needs to be deleted from the Child Life curriculum. The extra 1 credit is being added to Elective credit in the Senior Year.

Financial Impact: None

Effective date: Fall 2016 (was previously deleted in Spring 2016); will be shown on Curriculum sheet in Fall 2017

From:
Food Systems Administration curriculum sheet, Note 3: Note: This option DOES NOT meet accreditation content requirements to complete the Didactic Program in Dietetics (DPD) and therefore students in the FSA option are not eligible to continue requirements to become a Registered Dietitian/Nutritionist (RDN).

To:
Food Systems Administration curriculum sheet, Note 3:
This curriculum DOES NOT meet accreditation content requirements to complete the Didactic Program in Dietetics (DPD); therefore students in the Food Systems Administration curriculum are NOT eligible to complete requirements to become a Registered Dietitian/Nutritionist (RDN).

Justification:
The Food Systems Administration concentration was recently approved as its own concentration. The word "option" needs to be removed from the Note, in order to clarify the correct terminology for the curriculum.
Effective Date: Fall 2016 (if possible); otherwise Fall 2017

From:
Nutrition and Dietetics curriculum sheet, Note 1: The DPD option is part of an accredited Didactic Program in Dietetics (DPD): which requires a mandatory enrollment policy. (no changes to remaining note sentences)

To:
Nutrition and Dietetics curriculum sheet, Note 1: The Nutrition and Dietetics concentration is an accredited Didactic Program in Dietetics (DPD); which requires a mandatory enrollment policy. (no changes to remaining note sentences)

Justification:
The Nutrition and Dietetics concentration was recently approved as its own concentration. The word "option" needs to be removed from the Note, in order to clarify the correct terminology for the curriculum.
Effective Date: Fall 2016 (if possible); otherwise Fall 2017

From:
Nutrition and Dietetics curriculum sheet, Note 2: The Dietetics option is an accredited Didactic Program in Dietetics (DPD) by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics. (no changes to remaining note sentences)

To:
Nutrition and Dietetics curriculum sheet, Note 2: The Nutrition and Dietetics concentration is an accredited Didactic Program in Dietetics (DPD) by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of

Nutrition and Dietetics. (no changes to remaining note sentences)

Justification:
The Nutrition and Dietetics concentration was recently approved as its own concentration. The word "option" needs to be removed from the Note, in order to clarify the correct terminology for the curriculum.
Effective Date: Fall 2016 (if possible); otherwise Fall 2017

TO: University Curriculum Committee

VIA: Dr. Liz Mullens, Dean, College of Agriculture and Human Ecology-LM

VIA: College of Agriculture and Human Ecology Curriculum Committee-MS

VIA: Teacher Education Committee-MS

FROM: Dr. Melinda Swafford, Professor-MS

DATE: January 12, 2017

RE: Course Addition, HEC 3290 Nutrition through the Life Cycle

Course Additions:

1. HEC 3290 Nutrition through the Life Cycle Lec.3. Credit 3

Prerequisite: HEC 1030: Introduction to Nutrition or HEC 2020: Nutrition for Health Sciences.

Justification: The School of Human Ecology has identified the need to increase nutrition content in the concentration of Family and Consumer Sciences Education in order to be better prepared to teach career cluster of Human Services for Tennessee Department of Education. Course syllabus attached.

Financial Impact: None

Effective Date: Fall 2017

Course Deletions:

HEC 2031 Aspects of Dress Lec. 3. Credit 3

Justification: The School of Human Ecology identified that HEC 2031 is not needed to prepare students in the concentration of Family and Consumer Sciences to teach in the career cluster for Tennessee Department of Education.

Financial Impact: None

Program of Study Changes

TENNESSEE TECH UNIVERSITY

SCHOOL OF HUMAN ECOLOGY

HEC 4910-001 INTERNSHIP IN CHILD DEVELOPMENT AND FAMILY RELATIONS

DATES TBA, TIME TBA, CLASSROOM-NO REGULAR MEETING TIME, 6, 8 OR 12 CREDITS, XX SEMESTER

INSTRUCTOR INFORMATION

Instructor's Name: Dr. Lee Ann Shipley, CFLE
Office: Oakley Hall 112
Telephone Number: 931-372-3867
Email: lshipley@tntech.edu

OFFICE HOURS By appointment only

COURSE INFORMATION

PREREQUISITES

DEPARTMENT APPROVAL. MINIMUM OVERALL GPA 2.75. MINIMUM OVERALL GPA OF 3.0 IN HUMAN ECOLOGY COURSES. APPROVAL OF ADVISOR TO INCLUDE: ANALYSIS OF COURSEWORK, APPLICATION, AND PLACEMENT AT FACILITY.

TEXTS AND REFERENCES

Required: ***no text required***

References: course materials will be posted in iLearn

COURSE DESCRIPTION

Supervised practical experience in a variety of professional settings.

COURSE OBJECTIVES/STUDENT LEARNING OUTCOMES

At the completion of this course, the student will be able to

1. Demonstrate application of effective communication strategies with a variety of diverse populations and within diverse settings;

2. Demonstrate competence in family systems theory as applied to recognition of basic human needs, individual well-being, and family strengths in professional settings;

3. Analyze the effectiveness of strategies and processes within the facility to promote quality of life for individuals, families and communities;

4. Describe appropriate professional organizations and memberships related to the professional experience;

5. Demonstrate appropriate use of technology within the professional experience; and

6. Demonstrate appropriate ethical and professional behavior while adhering to all policies and procedures of the facility including strict confidentiality

MAJOR TEACHING METHODS

Mentoring from site supervisor; journal readings, special projects; experiential learning

SPECIAL INSTRUCTIONAL PLATFORM/MATERIALS

All course materials are posted in iLearn

TOPICS TO BE COVERED

- Professional communication
- Appropriate ethical and professional behavior, including confidentiality
- Effective use of strategies and processes to promote quality of life
- Application of Family Systems Theory
- Appropriate professional organizations and memberships
-

GRADING AND EVALUATION PROCEDURES

Each student will engage in a unique professional internship with unique methods and solutions. A Service Learning Agreement Statement and Course Objectives Form will be agreed on by student, site supervisor and TIU instructor with deadlines, expectations, and portfolio/presentation requirements.

This course is graded as a "U", unsatisfactory; or "S" Satisfactory. A satisfactory grade means all forms are completed on time, the student completes assignments correctly and on time, journal entries are submitted on time, student completes objectives, student exhibits professional behavior at all times while in the host facility, student exhibits professional and appropriate communication, student adheres to work schedule and all facility requirements, portfolio is completed and presented as final project. Students who fail to complete one or more of these expectations are at risk for receiving a grade of "U".

COURSE POLICIES

STUDENT ACADEMIC MISCONDUCT POLICY

Maintaining high standards of academic integrity in every class at Tennessee Tech is critical to the reputation of Tennessee Tech, its students, alumni, and the employers of Tennessee Tech graduates. The Student Academic Misconduct Policy describes the definitions of academic misconduct and policies and procedures for addressing

Academic Misconduct at Tennessee Tech. For details, view the Tennessee Tech's Policy 217 - Student Academic Misconduct Policy at Policy Central.

ATTENDANCE POLICY

Students are expected to attend all scheduled meetings and work times associated with field experience. Unexplained and/or frequent Absences and tardiness will result in a grade of "U" for this course.

ASSIGNMENTS AND RELATED POLICY

Course and Student Responsibilities Each student must be responsible for completing all required forms including:

1. Internship Application and Current Resume

2. Student Confidentiality Statement

3. Course Objectives for Professional Internship

4. Student completes "Student Evaluation of Professional Experience"

5. Preceptor completes "Professional Experience Evaluation"

Thirty (30) hours of on the job work must be completed for each credit hour earned.3 Credit = 90 hours; 6 Credit= 180 hours; 8 Credit = 240 hours; 12 Credit = 360 hours

1. Electronic weekly journal communications. The journal will be submitted into iLearn by Sunday evening each week and should include:

a. the student's perception of and reaction to the job occurrences, experiences and observations (include: details of the day, etc)

b. an evaluation of these job occurrences, experiences and observations. (The reflection portion of the journal should include the answers to these questions: how did the week fit together with what I have learned at TIU? How did I use my human ecology knowledge this week? What classes prepared me to be successful in this internship?)

c. the student's suggestions for improving the internship situations and experiences.

d. description of observations, skills and competencies

e. deficiencies or situations which inhibit effective job performance.

2. Attendance at all orientation meetings.

3. Arrange at least one site visit with TTU supervisor and phone call conferences.

4. Attendance with short portfolio presentation

5. Attend evaluation conference with site supervisor Have supervisor complete Professional Experience Evaluation - these should be mailed to TTU Supervisor.

6. Submit portfolio before end of semester in time for grades to be posted.

DISABILITY ACCOMMODATION

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view the Tennessee Tech's Policy 340- Services for Students with Disabilities at Policy Central.

Portfolio Competencies and Criteria

A portfolio is used to assess and document authentic job skills. It is not like taking a test and describing theories or writing an answer, it is describing and documenting *your* set of skills, attitudes, knowledge and abilities unique to *your* field experience situation.

Your portfolio evidence should be neat, clean and labeled. It should describe how the information will be important to your use in the future. You should describe the significance to the course content or goals in your portfolio.

Portfolio Content:

I. Full description of the organization or agency should be included:

a. state the overall goal or mission

b. outline and diagram the organizational structure

c. identify key personnel and their responsibilities

d. identify and summarize agency policies

e. identify the responsibilities and duties of your Site Supervisor using a job description

f. describe the work environment and its challenges and opportunities.

g. address, phone and FAX numbers for your Site Supervisor.

II. A statement of your personal goals and objectives during your Internship.

III. Information used by professionals - organized by content area.

IV. Business cards of other professionals who interact with your Site Supervisor or others in the work team.

V. Photos of important events and people you **work** with (check facility policy first!)

These goals should be considered in presenting your portfolio entries. The student will:

1. Develop ability to apply principles and generalizations already learned to new problems and situations.
2. Develop ability to think creatively (photographs are excellent documentation).
3. Develop skill in using materials, tools, and/or technology central to the job selected.
4. Prepare for job interviews or graduate study.
5. Develop a commitment to personal achievement.
6. Develop ability to perform skillfully.

Professional Internship Dress Code:

Students should adhere to the dress code policy of the facility in which they are working. At a minimum, students should:

- Wear casual dress clothes with closed toe shoes (no flip flops, or sandals)
- No jeans, no cleavage, no short skirts/dresses, no large pieces of jewelry
- Minimum make-up, no overpowering cologne or perfumes
- Hair should be styled neatly and pulled **away** from face if appropriate
- Wear name tag at all times

Please ask your Site Supervisor if you have any questions about the correct Dress Code.

Internship Professional Behavior

As a representative of the School of Human Ecology, and TIU it is the responsibility of the student to act in a professional and appropriate manner at all times during the Internship.

- Cell phones - please respect the professional environment in which you will be working. Cell phones should be on vibrate/silent at all times, and should never be visible during work hours. NEVER answer texts or check email on your phone while waiting for something to do. This is disrespectful and displays a lack of interest. ASK what the policy is for using cell phones, and follow those guidelines.

- Break Time - do NOT take breaks without first asking your Site Supervisor. DO NOT assume that coffee and drinks are free - always ask what the policy is for employee meals/drinks and follow this policy.

- Your opinion - do NOT criticize people or processes that you observe. Do not give your opinion of what you think is wrong, or how things could be improved. Do NOT assume that you know more than your Site Supervisor - follow their lead when talking to patients/clients - NEVER interrupt your Site Supervisor or other person you are working with to give your opinion or information. Always ASK if you can share information first.

- Being a guest - remember that you are a GUEST at your facility - it is the kindheartedness of your Supervisor that allows you to be there. Please remember that other students will want to visit the facility in the future, and your behavior will either allow or prevent that from happening.

- Be Proactive - look for things you can do or be involved in. Ask questions. Volunteer. Offer to help with projects or other tasks. Make yourself useful. You will only get out of the Field Experience what you are willing to do.

- Use your manners - write your Site Supervisor a "thank you" note at the end of your rotation. Be respectful of your supervisor's time - realizing that you are in their way - be prepared with pen and paper to take notes. Your site supervisor should never have to wait on you. Be on time.

TTU School of Human Ecology

Student ResponsibilitiesDuring Professional Experience*

It is the student's responsibility to be on time, be prepared, and participate fully in all supervised practice experiences, classes, and events.

- The student should have a positive attitude, that is, be prepared and eager to learn what the curriculum prescribes - even when the value of the experiences may not be immediately evident to the student, consider how they fit into the big picture. There is always something to learn.
- The student should be internally motivated, that is, be interested in learning because they want to become excellent practitioners, team members, and professional leaders. Grades and other extrinsic reward are less important than what the student learns.
- Always be on time during ALL rotations, classes, field trips and with meeting deadlines set for assignments. Discuss with preceptors ahead of time if you are not able to make the deadline. Adhere to assigned work hours.
- Look ahead and plan meetings with upcoming preceptors to arrange schedules and review assignments.
- Get started on assignments early.
- Take advantage of opportunities offered inside and outside of the organization.

It is the student's responsibility to communicate regularly and appropriately with preceptors and others so that expectations, arrangements, responsibilities etc. are understood and agreed upon.

- The student should be open to new information, ideas, experiences, approaches, ways of accomplishing things, and opportunities - even when these seem to be or are in conflict with the student's personal beliefs and prior experiences.
- Students should be willing to approach each new situation with the same openness and eagerness that they had at the beginning of their professional experience.
- The student should remember that preceptors, wonderful as they are, are not mind-readers.
- You are not expected to know all the answers. Remember, you are in a professional experience to learn so ask lots of questions to enhance your knowledge.
- Practice good listening skills and avoid gossiping. Display positive body language, such as good eye contact, firm hand shakes, greeting people with a smile and avoid distracting non-verbals.

It is the student's responsibility to plan carefully and thoroughly as their preceptor asks them to do. It is also the student's responsibility to follow through with all supervised practice plans and to prepare for the unexpected.

- The student should be organized and willing to assume responsibility for their own learning. Excuses for disorganization and forgetfulness are not acceptable.

- Students should be flexible and willing and able to adapt appropriately as situations change and circumstances warrant. Expect and accept that problems and frustrations will occur periodically, but learning to deal with problems will allow you to grow as a professional.
- Cope with problems with a positive attitude.
- Students should remember that providing high quality services and care is their preceptor's priority.

It is the student's responsibility to learn when to ask for guidance and when to be appropriately self-directed.

- Students should learn when to ask others questions and when to search for the answers themselves. Clarify tasks given to you so you don't waste time. If expectations are not clear to you, ask the preceptor what the expectations are.
- Be flexible; respond positively to changes in schedules or assignments.
- Students should be able and willing to build upon their prior learning.
- Students should be able to integrate new information and concepts with those that they learned previously. (Preceptors do not have the time nor should they be expected to teach or re-teach theory that students should have mastered previously.)

It is the student's responsibility to maintain an appropriate perspective and stay focused on learning and the tasks at hand.

- Students should manage their personal lives so that they can take full advantage of the experiences the program and their preceptors are providing for them.
- Students should expect that completing a supervised practice experience will be time-consuming and challenging. Without challenge and stretching, there will not be growth.

It is the student's responsibility to look for connections
-between theory and practice
-to what is already known and understood
-between and among the new things being learned
-between the training environment and future roles

- Students should expect to spend time in reflection and self-assessment.
- Students should be patient – with patients, clients, employees, preceptors, and themselves. Learning and the development of professional skills takes time, effort, practice, and patience.
- Students should understand that not everyone is 'great' at everything. They should expect their assessments from you will generally reflect the fact that there is room for them to improve.

It is the student's responsibility to take care of him or herself.

They should:

- Eat well
- Exercise
- Get enough rest
- Manage their stress

It is the student's responsibility to be organized, respectful, and appreciative.

- Student behaviors should reflect their recognition that many are doing extra tasks and giving generously of the time, energy, and talents so that students can be in this facility, having these learning experiences.
- Students should not take their professional experience course or the guidance of their preceptors for granted or make unwarranted assumptions.
- Always treat others with respect, even when you don't share the same values or opinions.
- Be courteous to preceptors and do not fall asleep in class or during presentations.
- Ask for things to do. Don't always wait to he told what to do. Volunteer to see patients or do other tasks especially then the preceptor is busy. If you lack guidance, talk to the preceptor, or to the internship director.
- Understand that constructive criticism is given to improve you skills and is not to be taken personally
- Read e-mails daily and respond {if needed) promptly. {But not at work)
- Practice good organizational skills and pay attention to details.

I have read the above and agree to abide by this:

Signature _____

Date _____

*Adapted from the Academy of Nutrition and Dietetics Preceptor Training Manual, and Jill Johnson, WVU Hospitals, Inc. Dietetic Internship Director, 2013.

Tennessee Tech
UNIVERSITY

Department of Mechanical Engineering
Box 5014 • Cookeville, TN 38505-0001 • (931) 372-3254 • Fax (931) 372-6340

MEMORANDUM

TO: University Curriculum Committee (UCC)

VIA: Engineering Curriculum Committee (ECC)

From: Mohan D Rao, Chair, M.E. Department and Wayne Johnson, Chair, ECE Department

SUJBECT: Curriculum for the proposed new program in Vehicle Engineering

I. ADDITIONS: Please see attached New Curriculum

II. Justification: Please see attached Letter of Application

III. Financial Impact: Please see attached Implementation Portfolio

IV. Effective: Fall 2017

MEMORANDUM

TO: The University Curriculum Committee

FROM: The Committee to Revise the FYE Course
Pedro Arce
Rita Barnes
Laura Cruz
Edith Duvier
Sharon Huo
Allen Mullis
Linda Null, Chair
Steve Robinson
Amy Lee Rogers
Lenly Weathers

DATE: January 19, 2017

SUBJECT: Change of course description for UNIV 1020 and program goals and student learning outcomes for the FYE courses, effective Fall 2017

I. Course Change

A. Change the course description for UNIV 1020 First-Year Connections

From:

UNIV 1020. First-Year Connections. Rec. 2. Credit 1. Prerequisite: Freshman standing. Engages the student in meaningful academic and non-academic, out-of-classroom activities. Emphasizes critical thinking in the formation of academic and social goals and support groups, and in self-management and study skills.

To:

First-Year Connections. Rec. 2 Credit 1. Prerequisite: Freshman standing. Engages students in meaningful academic and nonacademic, in-class and out-of-class activities. Emphasizes ethical behavior and the use of critical thinking in the formation of academic and social goals and support groups, and in self-management and study skills. Includes a creative inquiry project/activity which students should share.

B. Change the student learning outcomes and program goals for all FYE courses

The student learning outcomes and program goals described in this memo will be used in all courses that serve as the first-year connections courses. These courses, currently, are AGR 1020, BIOL 1000, CHEM 1500, GEOL 1020, HIST 1066, UNPP 1020, MSCI 1020, UBUS 1020, FOED 1822, UNMU 1020, EXPW 1021, ENGR 1020, CHE 1010, CEE 1020, ECE 1020, ESS 1020, UNIV 1020, NURS 1020, UNIV 1030, and HON 1010.

From: To connect students with other students, encouraging both academic and personal networks

To connect students with the University and the Department

To connect students' college experiences with their future plans and ambitions

To improve retention, especially between the freshman and sophomore years

To: First-Year Connections Student Learning Outcomes:

- Build meaningful connections
  - With other students (develop personal and professional networks)
  - With the faculty and staff in your department/program
  - With the student life of the University
  - With available resources and support systems for both academics and student life
- Integrate students' college experiences with their future plans and career ambitions
- Demonstrate proficiency in the identification and evaluation of information sources to support academic inquiry and introduce students to elements of creative inquiry/research.
- Exercise written and oral communication skills to discover, develop, and articulate ideas and viewpoints.

First-Year Connections Program Goals

- Foster student success, as measured through first-semester to second-semester retention rates.
- Utilize and promote support networks for a diverse student body, including at-risk and high-achieving populations
- Support students in building personal, curricular, and co-curricular connections across the campus as part of their continued transition to the University
- Provide pathways to address academic challenges of college transition, including the development of foundational skills in critical thinking, information literacy, and ethical reasoning
- Cultivate a growth mindset for TTU students, including attention to articulating and achieving both short- and long-term personal, academic, and career goals
- Promote service learning and civic engagement

JUSTIFICATION: As the recent SACSCOC report revealed, the first-year connections courses, overall, did not have program goals, only student outcomes, and those outcomes had not been revised since the beginning of the first-year connections course program in 2004. The course, like almost every other course TTU offers, has taken on new responsibilities, roles, and goals over the years. These new learning outcomes reflect the changes in the course.

The addition of a research creative inquiry project/activity will introduce students to basic research their first year at the University. Undergraduate research has been identified as a High Impact Practice that contributes to student retention. With increasing numbers of freshmen coming to TTU with prior credit for freshman English, the University must assure that new students are introduced to college-level research. Further, the addition of a research component in the FYE course will help to address two areas where the 2016 NSSE response by seniors indicated that TTU was significantly lower than its peers:

How much has your coursework emphasized evaluating a point of view, decision, or information science? (TTU mean: 2.7; Carnegie Class: 3.1)

Identified key information from reading assignments (TTU mean: 2.9; Carnegie Class 3.3)

(Information provided by the Office of Assessment based on the 2016 NSSE results)

In addition, the revision in the course content of the first-year connections course will provide the first tier in students' preparation for participating in creative inquiry and thereby enhance performance in future QEP projects. With the inclusion of an entry level research project/activity, each of the 20 different first-year connections courses will be able to incorporate and align this component to meet the program's learning outcomes. Students in the program will share their research by creating posters, giving speeches/presentations, writing papers, creating models, performing and documenting observations, or through various other methods that support the particular project or course.

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Tennessee Technological University
Policy No. 260

Requirements for a Baccalaureate Degree and Graduation

Effective Date: ~~*July 1, 2015*~~

Policy No.: 260
Policy Name: Requirements for a Baccalaureate Degree and Graduation
Policy Subject: Requirements for Obtaining a Baccalaureate Degree and Graduating from Tennessee Tech
Date Effective: ~~July 1, 2015~~

I. Purpose

This policy establishes and details the requirements for obtaining a Baccalaureate Degree and graduating from Tennessee Tech.

II. Review

This policy will be reviewed every four years or whenever circumstances require review, whichever is earlier, by the Associate Vice President for Enrollment Management and Student Success, with recommendations for revision presented to the Academic Council and University Assembly.

III. Policy

A. Notwithstanding anything in this policy to the contrary, each student is personally responsible for completing all degree and graduation requirements. While a student's advisor may assist the student in identifying and understanding these requirements, ultimately it is the student's responsibility to inform himself/herself of these requirements. Any substitution, waiver, or exemption for or from any applicable requirement or academic standard may be accomplished only ~~with appropriate approval~~pursuant to policy and/or with appropriate approvals, as applicable.

B. In order to graduate, a student must meet the requirements of

1. This policy and

2. The degree requirements of the undergraduate catalog in effect, as determined by Tennessee Tech at the time he/she entered the curriculum, ~~as defined by Tennessee Tech,~~ provided graduation occurs within seven years from the student's entrance date into the curriculum, or

3. The degree requirements of the catalog in effect at the time of graduation.

C. The relevant departmental chairperson with the approval of the Associate Vice President for Enrollment Management and Student Success may grant, for good cause, an exception to the requirements in Section B, provided the exception is limited to any catalog that was in effect at any time between the date the student entered the curriculum and the date of graduation and was in effect at any time within the seven (7) year period prior to the date of graduation.

D. Degree requirements for all students, regardless of date of enrollment in their curricula, may be subject to change at any time when the implementation of curricular changes is necessary to maintain quality programs.

E. Students entering a curriculum in any summer term are required to follow the catalog for the next academic year.

~~C.~~**F.** A Tennessee public community college student may select the Tennessee Tech catalog in effect at the time he/she is admitted and enrolled in a degree-granting or a designated articulation program, collectively "qualifying program," at the community college, provided~~Exceptions to the requirement in Section B~~

~~1. The relevant departmental chairperson with the approval of the Associate Vice President for Enrollment Management and Student Success may grant, for good cause, an exception to the requirements in Section B.~~

~~2. In issuing any such exception, the departmental chairperson shall be limited to considering approval for the student to meet the requirements of any catalog that was in effect at any time between the date the student entered the curriculum and the date of graduation and was in effect at any time within the seven (7) year period prior to the date of graduation.~~

1. The student enrolls at Tennessee Tech within six years of entering a qualifying community college program and

~~3.~~ The student continues in the qualifying program. ~~Degree requirements for all students, regardless of date of enrollment in their curricula, may be subject to change at any time when the implementation of curricular changes is necessary to maintain quality programs.~~

~~4. Students entering a curriculum in any summer term are required to follow the catalog for the next academic year.~~

~~5.~~**2.** ~~A Tennessee public community college student may select the Tennessee Tech catalog in effect at the time he or she is admitted and enrolled in a degree granting or a designated articulation program at the community college, provided~~

~~a. The student enrolls at Tennessee Tech within six years of entering a qualifying community college program and~~

~~b. Continues in the major chosen while in community college.~~

~~D.~~**G.** Any c~~C~~redit ~~which was~~ earned ~~earlier~~ more than ten years prior to the proposed date of graduation is ~~will be~~ subject to review and approval by the academic department of the student's major.

~~E.~~H. General Education Requirements

~~1. *General education* encompasses the knowledge, skills, attitudes, and values that are obtained from studies in communication, mathematics, social and natural sciences, and humanities. It is the foundation of the undergraduate collegiate experience at Tennessee Tech and is of critical importance. General education is unbounded by academic disciplines and honors the relationships among bodies of knowledge. General education develops the cognitive process of reasoning essential for effective functioning and self-directed learning. General education provides opportunities for the student:~~

~~a. to think logically, critically, and creatively;~~

~~b. to communicate effectively both orally and in writing;~~

~~c. to read extensively and perceptively;~~

~~d. to explore moral and aesthetic values, social relationships, and critical thinking through the humanities;~~

~~e. to understand the importance of key social institutions, ethics and values, and how individuals influence events and function with others in these institutions throughout the world;~~

~~f. to appreciate creative and aesthetic expressions along with their impact on individuals and cultures;~~

~~g. to express, define, and logically explore questions about the world through mathematics;~~

~~h. to use computer technology to communicate and to solve problems;~~

~~i. to use acquired facts, concepts, and principles of the physical and natural sciences in applying the scientific process to natural phenomena;~~

~~j. to perceive the importance of wellness and values in human life; and~~

~~k. to manifest a commitment to life-long learning.~~

1. ~~Pursuant to TBR Policy 2:01:00:00, as amended from time to time,~~ Tennessee Tech ~~has~~ requires the successful completion of a lower-division (e.g., freshman and sophomore level) general education core curriculum of forty-one (41) semester hours ~~for baccalaureate degrees and the Associate of Arts and the Associate of Science degrees in common with other TBR institutions~~as outlined in the Tennessee Tech Undergraduate Catalog in the section labeled "General

Education Core."

2. In addition to any other requirements to graduate, - students must successfully complete six hours of American History, except those students who are majoring in Chemical, Civil, Computer, Electrical or Mechanical Engineering. If the student has not completed one unit of American History in high school, the student will be required to complete 6 semester hours of American History for the deficiency.

~~**a.** Specific courses designated by Tennessee Tech to fulfill general education core curriculum requirements are found in the Undergraduate Catalog here.~~

~~**b.** A complete listing of the courses fulfilling general education core curriculum requirements for all TBR institutions is available on the TBR website here.~~

~~**3.** In addition to the requirements detailed in TBR Policy 2:01:00:00, students fulfilling their general education core curriculum requirements at Tennessee Tech must comply with the following restrictions:~~

~~**a.** English must be taken each semester, except the summer, until the communication requirement, as established by TBR Policy 2:01:00:00, is satisfied. Neither ENGL 1010 nor ENGL 1020 may be dropped.~~

~~**b.** For students taking English courses at Tennessee Tech, the prerequisite for ENGL 1020 is a grade of C or better in ENGL 1010 , and the prerequisite for a 2000-level English course is a grade of C or better in ENGL 1020.~~

~~**c.** If a transfer student has completed ENGL 1010 and ENGL 1020 at a different institution and has a grade of D in ENGL 1020 , then the student must repeat ENGL 1020 before beginning any literature courses.~~

~~**d.** English as a Second Language (ESL) classes do not satisfy the ENGL 1010 and ENGL 1020 communication requirement of the general education core, nor do these courses count toward any degree requirements.~~

~~**e.** Students must take a mathematics course no later than their second semester at Tennessee Tech and must take mathematics each semester thereafter until all mathematics requirements (e.g. requirements for the major, TBR Policy 2:01:00:00, etc.) are satisfied.~~

~~**f.** All students must complete six hours of American History except those students who are majoring in Chemical, Civil, Computer, Electrical or Mechanical Engineering. If the student has not completed one unit of American History in high school, the student will be required to complete 6 semester hours of American History for the deficiency.~~

~~g. Other applicable requirements related to general education core curriculum specific to a given degree and major may be found by consulting the portion of the Undergraduate Catalog devoted to the particular college or school offering the degree.~~

~~F.~~I. Degree Requirements~~:~~

In order to be awarded a degree from Tennessee Tech, a student must successfully fulfill the following requirements:

1. ~~Completion of~~ Successfully complete the general education core curriculum requirements ~~as established in TBR Policy 2:01:00:00;~~, and

2. Successfully complete~~Completion of~~ the curriculum for the major subject and degree chosen~~, as outlined in the Undergraduate Catalog under the department in which the major is offered~~.

a. A ~~Student~~ student must successfully complete at least 6 semester hours of Tennessee Tech 3000 or 4000 level courses in the major chosen.

b. A~~ll~~ student~~s~~ must successfully complete at least ~~25~~ twenty-five percent of the credit for the degree requirements~~,~~, including a minimum of 24 semester ~~of the last 30 semester~~ hours of 3000 and 4000 level ~~requirements~~course credit~~,~~ at Tennessee Tech.

c. A student must successfully complete a minimum of 120 semester hours, including 36 hours of 3000 and 4000 level upper-division credit approved courses. ~~are required for all baccalaureate degrees~~Some programs of study require more than 120 semester hours.

i. Not more than ~~33~~ 60 semester hours may be earned ~~by correspondence, workshop or extension, or by a combination of these and special examination~~toward a baccalaureate degree by Prior Learning Assessment (PLA), including, but not limited, to Advanced Placement, CLEP, International Baccalaureate (IB), special examination, correspondence, portfolio credit, or any combination of these.

ii. Not more than 12 semester hours in music ensembles, Physical Education 1010-1990, and Military Science activity courses may be counted toward ~~graduation~~a baccalaureate degree.

d. In addition to the requirements of Section III.~~F~~I.2.b, a student transferring credit from a two-year institution must complete a minimum of ~~60~~ 50 semester hours at a four-year institution.

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e. A student must earn a ~~quality~~ grade point average (~~QPA~~GPA) of at least 2.0 (C) as defined below:

i. For students who have no transfer credit,

(A) A student must earn a 2.0 ~~QPA~~ GPA calculated on all courses, excluding any remedial or developmental courses; and

(B) A student must earn a 2.0 ~~QPA~~ GPA calculated on all major-related courses. The courses designated as "major-related" are available in each student's academic degree audit in DegreeWorks.

ii. For student who have transfer credit,

(A) A student must earn a 2.0 ~~QPA~~ GPA calculated on all courses taken at Tennessee Tech, excluding any remedial or developmental courses; and

(B) A student must earn a 2.0 ~~QPA~~ GPA calculated on all major-related courses taken at Tennessee Tech. The courses designated as "major-related" are available in each student's academic degree audit in DegreeWorks; and

(C) Except as provided in (E) below, a student must earn a 2.0 ~~QPA~~ GPA calculated on all courses taken, including courses taken at Tennessee Tech and courses transferred from all institutions; and

(D) Except as provided in (E) below, a student must earn a 2.0 ~~QPA~~ GPA calculated on all major-related courses, including courses taken at Tennessee Tech and courses transferred from all institutions. The courses designated as "major-related" are available in each student's academic degree audit in DegreeWorks.

(E) A student whose transfer credits are applied to any term after spring semester of 2015 will not have the grades associated with those credits calculated in the ~~QPA~~ GPA or the major-related ~~QPA~~GPA.

f. Students who are majoring in areas other than business but are taking course work in the College of Business must limit credit in business courses to 30 hours of the degree requirements as required by the Association to Advance Collegiate Schools of Business ("AACSB").

3. Notwithstanding anything in this policy to the contrary, Tennessee Tech may make reasonable academic adjustments to degree requirements for qualified students with disabilities, as determined by joint agreement of the Office of Disability Services and the Office of Enrollment Management and Student Success, after consultation with the college dean and department chairperson, if

appropriate. Students with a disability requiring academic adjustments and accommodations must contact the Office of Disability Services.

~~G.~~J. Academic Minor Requirements

1. The awarding of a minor at Tennessee Tech requires the successful completion of a minimum of 15 hours of specified course work in the relevant area of discipline, in addition to fulfilling the requirements for a degree ~~above~~ detailed in Section ~~I~~F above. ~~In some cases, s~~Successfully completed courses may simultaneously fulfill a student's degree requirements and the requirements for a minor.

2. A student may elect to complete ~~more than one~~multiple minors; however, no more than two minors will appear on the student's academic transcript.

3. The specific course requirements for each minor offered at Tennessee Tech may be found in the portion of the applicable Undergraduate Catalog addressing the relevant academic area or discipline.

4. A student may not earn a minor in the same academic program as his/her major.

5. A student may not earn a minor in the same academic program as his/her concentration.

~~3.~~6. A student who wishes to substitute any course requirements for a minor must receive the approval of the academic unit responsible for the minor requirements. A list of available minors and the ownership of programs is available here.

~~H.~~K. Graduation Requirements

1. In addition to completing the degree requirements ~~above~~ detailed above, in order to graduate from Tennessee Tech, a student must fulfill the following requirements:

a. All candidates for an undergraduate degree must file an application for graduation found here no later than the deadlines provided below:

   i. For students planning to graduate in the spring semester, the graduation application must be filed no later than September 1 of the previous year;

   ii. For students planning to graduate in the summer semester, the graduation application must be filed no later than December 1 of the previous year;

   iii. For students planning to graduate in the fall semester, the graduation application must be filed no later than May 1 of that year.

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b. With the exception of grades for courses taken at another institution during the student's final semester before graduation ("transfer grades"), all requirements for graduation, including, but not limited, to substitution forms, grade changes, major/minor changes, and requests for exception, must be received by the Graduation Office ~~(Derryberry Room 122)~~ no later than two (2) days prior to graduation date. In addition, all transcripts related to transfer ~~work~~ grades must be received by the Graduation Office no later than two (2) weeks after the graduation date. The receipt of such transcripts more than two (2) weeks after the graduation date will result in the student's graduation occurring at the end of the next semester.

~~b.~~**2.** Students who complete degree requirements during the summer term will be allowed to participate in commencement activities along with the fall term graduates in December.

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~~I.~~L. Exceptions or Appeals

1. A student wishing to request an exception to any portion of this policy may complete the Request for Exception Form and submit it to the Office of Academic Services.

2. The Director of Academic Services will notify the student of approval or denial of his/her request within 14 calendar days of receipt of the request.

3. A student may appeal the decision of the Director of Academic Services by submitting a written appeal letter to the Associate Vice President for Enrollment Management and Student Success (AVP-EMSS) within 14 calendar days~~:~~ from the notice of the ~~notification of the Director of Academic Services~~ decision. At this time, the student may supply any additional or supplemental information he/she believes is pertinent to the request.

4. The AVP-EMSS will convene a sub-committee of the Admissions and Credits Committee to ~~hear~~ consider the student's written appeal. The AVP-EMSS on behalf of the sub-committee will notify the student in writing of its decision no later than 14 calendar days after receipt of the appeal and all supporting information.

5. The decision of the sub-committee of the Admissions and Credits Committee is final.

IV. Interpretation

The Provost or his/her designee has the final authority to interpret the terms of this policy.

V. Citation of Authority for Policy

T.C.A. 48-8-203 (a) (4)~~TBR Policy 2:01:00:00~~

Approved by:

Academic Council: ~~2015-04-15~~

University Assembly: ~~2015-04-22~~