University Curriculum Committee
February 11, 2021 Meeting Minutes

The University Curriculum Committee met on **Thursday, February 11** at 3:00 p.m. via Zoom Meeting.

Members Present:

Melinda Anderson	Julie Baker	Jeff Boles	Brittany Copley
Lori Maxwell	Mohan Rao	Vicki Dieffenderfer	Jerry Gannod
Rita Barnes	Hayden Mattingly	Sharon Huo	LTC James Bryant
Sharon Holderman	Allen Mackenzie	Barbara Jared	Ben Mohr
Michael Allen	Martin Sheehan	Janet Whiteaker	Kim Hanna
Jeff Roberts	Stephen Robinson	Evan Hart	Linda Null
Thomas Payne	Wesley Pech	Brandi Hill	Christy Killman
Barry Stein	Mark Stephens	Melody Roth, Student	Thomas Timmerman
Lisa Zagumny	Darron Smith	Brenda Wilson	Kim Winkle
Allan Mills	Alexis Harvey, Student	Jeremy Wendt, Chair	Chris Brown
Dawson Davidson, Student	Edith Duvier	Chris Wilson	Holly Stretz
Rachel Baker, Student	Dale Wilson		

Members Absent:

Jennifer Shank	Lori Bruce	Bruce Greene	Steve Frye
Julie Galloway	Mike Gotcher	Brandon Johnson	Braxton Westbrook, Student
Colin Hill	Richard Rand	Paul Semmes	

Official Representative(s):

Rafay Hasan FOR	Allen Mackenzie	Jessica Oswalt FOR	Joseph Slater
Nicole Cook FOR	Helen Hunt		

Guest(s):

Cari Williams	Mary McCaskey	Simone McKelvey

Outline of Proceedings:

1.	Approval of Agenda	**9.**	English
2.	Approval of October 29 Minutes	**10.**	Earth Sciences
3.	Curriculum & Instruction	**11.**	Counseling & Psychology
4.	Mathematics	**12.**	Mechanical Engineering
5.	Art, Craft & Design	**13.**	Chemical Engineering
6.	Learning Support Program	**14.**	Computer Science
7.	History		
8.	Women's Gender Studies		

Proceedings:

Perceiving a quorum, Dr. Jeremy Wendt, Chair of Committee, called the meeting to order at 3:00pm via Zoom.

Due to the meeting being via Zoom, all motion and seconds will be initiated by Lisa Zagumny and Barry Stein throughout the meeting. Any objections can be called for discussion.

1. **Approval of agenda**

   Motion to approve. Lisa Zagumny
   Second. Barry Stein
   Vote. Motion carried.

2. **Approval of minutes, October 29, 2020**
   Motion to approve. Lisa Zagumny
   Second. Barry Stein
   Vote. Motion carried.

3. **Curriculum & Instruction**
   A. **Course/Catalog Changes.**
      1) **From:**
         FOED 3840. Field Experiences in ESL   Lab. 4-12. Credit 1-3.
         Prerequisite: Full admission to the Teacher Education Program. Supervised work experiences in public schools stressing the translation of theory into practice. A minimum grade of B is required to meet degree requirements for licensure candidates.

         To:
         FOED 3840. Field Experiences in ESL   Lab. 4-12. Credit 1-3.
         Prerequisite: ESLP 4100(5100); Full admission to the Teacher Education Program. Supervised work experiences in public schools, stressing the translation of theory into practice and focusing on teaching English Language Learners in PreK-12 settings. A minimum grade of B is required to meet degree requirements for licensure candidates.

         Add: Prerequisite: ESLP 4100(5100).
         Change: clarify description

         Effective Date: Fall 2021

   B. **Catalog Changes.**
      1) **From:**
         Any combination of 15 semester hours chosen from Art Education (ARED), Early Childhood Education (ECED), Educational Psychology (PSY 2210), Elementary Education (ELED), Foundations of Education (FOED), Music

Education (MUED), Reading (READ), Secondary Education (SEED), and Special Education (SPED).

To:
Any combination of 15 semester hours chosen from Art Education (ARED), Computer Science Education (CSED), Curriculum Education (CUED), Early Childhood Education (ECED), Early Childhood Special Education (ECSP), Educational Psychology (PSY 2210), Elementary Education (ELED), English as a Second Language Pedagogy (ESLP), English as a Second or Other Language (ESOL), Foundations of Education (FOED), Music Education (MUED), Reading (READ), Secondary Education (SEED), Service Learning (SVCL-limit 3 credit hours), and Special Education (SPED).

Justification: Update minor to include better selection of courses that don't require admission to the Teacher Education Program.

Effective Date: Fall 2021

C. **Course/Catalog Changes.**

1) **From:**
ECED 3301. Math, Science, Social Studies for the Young Child
Lec. 7. Credit 7.
Prerequisite: Full admission to the Teacher Education Program.
Corequisite: ECED 3310. Developmentally appropriate materials and methods for integrated learning experiences in mathematics, science and social studies. Focus is on diverse and inclusive populations ages B-8. Includes practicum experiences.

To:
ECED 3301. Math, Science, Social Studies for the Young Child
Lec. 7. Credit 7.
Prerequisite: Full admission to the Teacher Education Program.
Developmentally appropriate materials and methods for integrated learning experiences in mathematics, science and social studies. Focus is on diverse and inclusive populations ages B-8. Includes practicum experiences. A minimum grade of B is required to meet degree requirements for licensure candidates.

Delete: Corequisite: ECED 3310.

Add: A minimum grade of B is required to meet degree requirements for licensure candidates.

Effective Date: Fall 2021

D. **Curriculum Changes.**

    1) **Multidisciplinary Studies, Middle School Science, 6-8 Concentration, B.S.**

        First Semester Sophomore Year
        From:
        Social/Behavioral Sciences Elective (Gen Ed) (credit 3)

        To:
        CSED 3010-Prgmg Fund/Compt Thk-Edu (credit 3)

        Second Semester Sophomore Year
        From:
        PSY 2210-Educational Psychology (credit 3)

        To:
        Social/Behavioral Sciences Elective (Gen Ed) (credit 3)

        First Semester Junior Year
        From:
        CUED 4700-Educational Data and Assessment (credit 2)
        HEC 3500-Development: Mid Child/Adolesc (credit 3)
        Total credits: 15

        To:
        SPED 3000-Teaching Prs w/Disabilities in the Reg Classrm (credit 3)
        HEC 3500-Development: Mid Child/Adolesc (credit 3) **OR**
        PSY 2210-Educational Psychology (credit 3)

        Total credits: 16

        First Semester Senior Year
        From:
        SPED 3000-Teaching Prs w/Disabilities in the Reg Classrm (credit 3)
        Total credits: 13

        To:
        CUED 4700-Educational Data and Assessment (credit 2)
        Total credits: 12

    2) **Secondary Education, Biology Concentration, B.S. ED.**

First Semester Freshman Year
From:
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
Total credits: 16

To:
GEOL 1040-Physical Geology (credit 4)
Total credits: 17

Second Semester Freshman Year
From:
GEOL 1040-Physical Geology (credit 4)
Humanities/Fine Arts Elective (Gen Ed) (credit 3)

To:
CHEM 1110-General Chemistry I (credit 4)
Social/Behavioral Sciences Elective (Gen Ed) (credit 3)

First Semester Sophomore Year
From:
Elective (credit 1)
Total credits: 14

To:
PHYS 1310-Concepts of Physics (credit 3)
Total credits: 16

Second Semester Sophomore Year
From:
CHEM 1110-General Chemistry I (credit 4)
PSY 2210-Educational Psychology (credit 3)
Social/Behavioral Sciences Elective (Gen Ed) (credit 3)
Total credits: 14

To:
BIOL 2010-Human Anatomy and Physiology I (credit 4)
BIOL 3140-Cellular Biology (credit 4)
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
Total credits: 15

First Semester Junior Year
From:

BIOL 2010-Human Anatomy and Physiology I (credit 4)
BIOL 3130-General Ecology (credit 4)
Total credits: 18

To:
CUED 4400(5400)-Teaching Methods for Phys Sciences (credit 3)
PSY 2210-Educational Psychology (credit 3)
Total credits: 16

Second Semester Junior Year
From:
BIOL 3140-Cellular Biology (credit 4)
PHYS 2010-Algebra-based Physics I (credit 4)
Total credits: 16

To:
BIOL 3120-General Ecology (credit 3)
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
Total credits: 14

3) **Secondary Education, Chemistry Concentration, B.S. ED.**

First Semester Freshman Year
From:
Total credits: 13

To:
BIOL 1010-Introduction to Biology (credit 4) **OR**
BIOL 1113-General Biology I (credit 4)
Total credits: 17

Second Semester Freshman Year
From:
COMM 2025-Fundamental of Communication (credit 3) **OR**
PC 2500-Communicating in the Professions (credit 3)

GEOL 1040-Physical Geology (credit 4)
Humanities/Fine Arts Elective (Gen Ed) (credit 6)
Total credits: 20

To:
BIOL 1020-Diversity of Life (credit 4) **OR**

BIOL 1123-General Biology II (credit 4)
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
MATH 1130-College Algebra (credit 3) **OR**
MATH 1710-Pre-calculus Algebra (credit 3)

Total credits: 17

First Semester Sophomore Year
From:
BIOL 1010-Introduction to Biology (credit 4) **OR**
BIOL 1113-General Biology I (credit 4)

Social/Behavioral Sciences Elective (Gen Ed) (credit 3)
PSY 2210-Educational Psychology (credit 3)
Total credits: 13

To:
CHEM 3410-Quantitative Analysis (credit 4)

ENGL 2130-Topics in American Literature (credit 3) **OR**
ENGL 2235-Topics in British Literature (credit 3) **OR**
ENGL 230-Topics in World Literature (credit 3)

Social/Behavioral Sciences Elective (Gen Ed) (credit 6)
Total credits: 16

Second Semester Sophomore Year
From:
ASTR 1010-Intro to Modern Astronomy (credit 4) **OR**
ASTR 1020-Intro to Modern Astronomy (credit 4) **OR**
ASTR 1030

BIOL 1020-Diversity of Life (credit 4) **OR**
BIOL 1123-General Biology II (credit 4)

ENGL 2130-Topics in American Literature (credit 3) **OR**
ENGL 2235-Topics in British Literature (credit 3) **OR**
ENGL 2330-Topics in World Literature (credit 3)

To:
CHEM 3005-Elementary Organic Chemistry (credit 4) **OR**
CHEM 3010-Organic Chemistry I (credit 4)

COMM 2025-Fundamental of Communication (credit 3) **OR**
PC 2500-Communicating in the Professions (credit 3)

ESLP 3100-ESL Pedagogy: SEED Methodology & Materials (credit 1)
GEOL 1070-Concepts of Geology (credit 3)

First Semester Junior Year
From:
CHEM 3005-Elementary Organic Chemistry (credit 4) **OR**
CHEM 3010-Organic Chemistry I (credit 4)

CHEM 3410-Quantitative Analysis (credit 4)

MATH 1130-College Algebra (credit 3) **OR**
MATH 1710-Pre-calculus Algebra (credit 3)

Social/Behavioral Sciences Elective (Gen Ed) (credit 3)

To:
ASTR 1010-Intro to Modern Astronomy (credit 4) **OR**
ASTR 1020-Intro to Modern Astronomy (credit 4) **OR**
ASTR 1030

CUED 4400(5400)-Teaching Methods for Phys Sciences (credit 3)
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
PHYS 2010-Algebra-based Physics I (credit 4)

Second Semester Junior Year
From:
MATH 1830-Applied Calculus (credit 3)
PHYS 2010-Algebra-based Physics I (credit 4)
Total credits: 18

To:

PSY 2210-Educational Psychology (credit 3)

Total credits: 14

4) **Secondary Education, Earth Science Concentration, B.S. ED.**

First Semester Freshman Year
From:
Total credits: 13

To:
GEOL 1040-Physical Geology (credit 4)
Total credits: 17

Second Semester Freshman Year
From:
Humanities/Fine Arts Elective (credit 6)
Total credits: 16

To:
GEOL 1045-Earth Envir, Resourses and Society (credit 4)
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
Total credits: 17

First Semester Sophomore Year
From:
GEOL 1040-Physical Geology (credit 4)
Social/Behavioral Sciences Elective (Gen Ed) (credit 3)

To:
BIOL 3120-General Ecology (credit 3)
GEOL 3230-Structural Geology and Tectonics (credit 4)

Second Semester Sophomore Year
From:
GEOL 1045-Earth Envir, Resourses and Society (credit 4)
Total credits: 14

To:
CHEM 1110-General Chemistry I (credit 4)
ESLP 3100-ESL Pedagogy: SEED Methodology and Materials (credit 1)
Total credits: 15

First Semester Junior Year

From:
BIOL 3130-General Ecology (credit 4)
GEOL 3230-Structural Geology and Tectonics (credit 4)

GEOL 3410-Paleontology (credit 4) OR
Other 3000 Course (credit 4)

Total credits: 18

To:
CUED 4400(5400)-Teaching Methods for Phys Sciences (credit 3)
FOED 3010-Integrating Instrl Tech into the Classrm (credit 3)
GEOL 4150(5150)-Geomorphology (credit 4)
Total credits: 16

Second Semester Junior Year
From:
FOED 3010-Integrating Instrl Tech into the Classrm (credit 3)
GEOL 4150(5150)-Geomorphology (credit 4)
MATH 1830-Applied Calculus (credit 3)
Total credits: 18

To:
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
Social/Behavioral Sciences Elective (Gen Ed) (credit 3)
Total credits: 14

5) **Secondary Education, Physics Concentration, B.S. ED.**

First Semester Freshman Year
From:
Total credits: 14

To:
Social/Behavioral Sciences Elective (Gen Ed) (credit 3)
Total credits: 17

Second Semester Freshman Year
From:
HIST 1310-Science and World Cultures (credit 3)

To:

Humanities/Fine Arts Elective (Gen Ed) (credit 3)

Second Semester Sophomore Year
From:
Humanities/Fine Arts Elective (Gen Ed) (credit 3)
Total credits: 15

To:
ESLP 3100-ESL Pedagogy: SEED Methodology & Materials (credit 1)
GEOL 1070-Concepts of Geology (credit 3)
Total credits: 16

First Semester Junior Year
From:
GEOL 1070-Concepts of Geology (credit 3)
Social/Behavioral Sciences Elective (Gen Ed) (credit 3)

To:
CUED 4400(5400)-Teaching Methods for Phys Sciences (credit 3)
Humanities/Fine Arts Elective (Gen Ed) (credit 3)

Second Semester Junior Year
From:
BIOL 1080-Concepts of Biology (credit 3)

PHYS Elective (credit 3) **OR**
PHYS 1903-Sp Topics in Phys and Phys Ed (credit 1-4) (3 credit hours required)

Total credits: 17

To:
PHYS Elective (credit 2) **OR**
PHYS 1903-Sp Topics in Phys and Phys Ed (credit 1-4) (2 credit hours required)

Total credits: 13

6) **Multidisciplinary Studies, Middle School English, 6-8 Concentration, B.S.**

First Semester Sophomore Year
From:
PSY 2210-Educational Psychology (credit 3)

To:
PSY 2210-Educational Psychology (credit 3) **OR**
HEC 3500-Develop: Middle Child/Adolescence (credit 3)

Second Semester Sophomore Year
From:
HEC 3500-Develop: Middle Child/Adolescence (credit 3)
Elective (credit 1)

To:
Elective (credit 4)

7) **Multidisciplinary Studies, Middle School Math, 6-8 Concentration, B.S.**

Second Semester Sophomore Year
From:
HEC 3500-Develop: Middle Child/Adolescence (credit 3)

To:
HEC 3500-Develop: Middle Child/Adolescence (credit 3) **OR**
PSY 2210-Educational Psychology (credit 3)

8) **Multidisciplinary Studies, Middle School Social Studies, 6-8 Concentration, B.S.**

Second Semester Sophomore Year
From:
PSY 2210-Educational Psychology (credit 3)
Elective from ECON, POLS, GEOG, or HIST (credit 3)

To:
Elective from ECON, POLS, GEOG, or HIST (credit 6)

First Semester Junior Year
From:
HEC 3500-Develop: Middle Child/Adolescence (credit 3)

To:
HEC 3500-Develop: Middle Child/Adolescence (credit 3) **OR**
PSY 2210-Educational Psychology (credit 3)

Effective Date: Fall 2021

E. Curriculum Changes.
   1) Elementary Education, B.S.

   First Semester Sophomore Year
   From:
   ENGL 2235-Topics in British Literature (credit 3) OR
   ENGL 2330-Topics in World Literature (credit 3)

   To:
   ENGL 2130-Topics in American Literature (credit 3) OR
   ENGL 2235-Topics in British Literature (credit 3) OR
   ENGL 2330-Topics in World Literature (credit 3)

   Second Semester Sophomore Year
   From:
   ENGL 2130-Topics in American Literature (credit 3)

   To:
   Humanities/Fine Arts Elective (Gen Ed) (credit 3)

   Effective Date: Fall 2021

F. Course/Catalog Changes.
   1) From:
   ECED 4230 (5230). Early Intervention I   Lec. 3. Credit 3.
   Prerequisite: ECSP 2400. Methods of service delivery for infants and
   toddlers with developmental delays and their families. Effective
   consultation, trans-disciplinary collaboration, service coordination, family
   centeredness, and culturally responsive practices.

   To:
   ECED 4230 (5230). Early Intervention I   Lec. 3. Credit 3.
   Prerequisite: ECSP 2400. Methods of service delivery for infants and
   toddlers with developmental delays and their families. Effective
   consultation, trans-disciplinary collaboration, service coordination, family
   centeredness, and culturally responsive practices. A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

   Add: A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

2) From:

ECED 4240 (5240). Early Intervention II   Lec. 3. Credit 3.
Prerequisite: ECED 4230 (5230). Corequisite: ECED 4221. Best practices in early intervention for a variety of special needs. Methods and curriculum development to enable effective reciprocal relationships with families.

To:

ECED 4240 (5240). Early Intervention II   Lec. 3. Credit 3.

Prerequisite: ECED 4230 (5230). Corequisite: ECED 4221. Best practices in early intervention for a variety of special needs. Methods and curriculum development to enable effective reciprocal relationships with families. A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

Add: A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

3) From:
ECSP 4000. Developmentally Appropriate Practices: Birth-Preschool
Lec. 3. Credit 3.
Cross-listing: ECED 4000
Prerequisite: Full admission to the Teacher Education Program.
~~Corequisite:~~ Corequisite: ECSP 4010. Integrated learning experiences with emphasis on approaches, teaching strategies, and management. A minimum grade of B is required to meet requirements for licensure candidates.

To:
ECSP 4000. Developmentally Appropriate Practices: Birth-Preschool
Lec. 3. Credit 3.
Cross-listing: ECED 4000
Prerequisite: Full admission to the Teacher Education Program.
Corequisite: ECSP 4010. Integrated learning experiences with emphasis on approaches, teaching strategies, and management. A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

4) From:

ECSP 4010. Practicum: Preschool Practices   Lab. 2. Credit 2.
Prerequisite: Full admission to the Teacher Education Program.
Corequisite: ECSP 4000. This course includes supervised teaching of
integrated learning experiences with emphasis on developmentally
appropriate approaches, teaching strategies, management, and inclusion
for preschool students.

To:

ECSP 4010. Practicum: Preschool Practices   Lab. 2. Credit 2.
Prerequisite: Full admission to the Teacher Education Program.
Corequisite: ECSP 4000. This course includes supervised teaching of
integrated learning experiences with emphasis on developmentally
appropriate approaches, teaching strategies, management, and inclusion
for preschool students. A minimum grade of B is required to meet degree
requirements for licensure and practitioner candidates.

Add: A minimum grade of B is required to meet degree requirements for
licensure and practitioner candidates.

5) From:

ECSP 4100. Developmentally Appropriate Practices: K-4
Lec. 3. Lab. 4. Credit 3.
Cross-Listing: ECED 4100
Prerequisite: Full admission to the Teacher Education Program.
Curriculum, instruction, management, and assessment for grades K-4 in
diverse and inclusive settings. Practicum embedded into course. A
minimum grade of B is required to meet degree requirements.

To:

ECSP 4100. Developmentally Appropriate Practices: K-4
Lec. 3. Lab. 4. Credit 3.
Cross-Listing: ECED 4100
Prerequisite: Full admission to the Teacher Education Program.
Curriculum, instruction, management, and assessment for grades K-4 in
diverse and inclusive settings. Practicum embedded into course. A
minimum grade of B is required to meet degree requirements. A
minimum grade of B is required to meet degree requirements for
licensure and practitioner candidates.

6) **From:**

READ 3310. Inclusive Emergent and Family Literacy   Lec. 6. Credit 6.
Prerequisite: Full admission to the Teacher Education Program.
Corequisite: FOED 3810. Study in emergent and early literacy learning (birth through age 8) combines theory and practice in literacy assessment, teaching reading, writing, and language arts. Emphasis on addressing the needs of young children with developmental, communication and language delays. A grade of B is required to meet requirements for licensure candidates.

To:

READ 3310. Inclusive Emergent and Family Literacy   Lec. 6. Credit 6.
Prerequisite: Full admission to the Teacher Education Program.
Corequisite: FOED 3810. Study in emergent and early literacy learning (birth through age 8) combines theory and practice in literacy assessment, teaching reading, writing, and language arts. Emphasis on addressing the needs of young children with developmental, communication and language delays. ~~A grade of B is required to meet requirements for licensure candidates.~~ A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

Change: change last sentence to "A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates."

7) **From:**

READ 3312. Literacy II – Middle School Reading Program   Lec .7. Credit 7.
Prerequisite: Full admission to the Teacher Education Program. This course is an integration of concepts fundamental to the development of literacy from birth through middle grades. It includes a study of language development and communication skills, language arts, content area reading, and the assessment and selection of appropriate instructional strategies based upon student need.

To:

READ 3312. Literacy II – Middle School Reading Program   Lec .7. Credit 7.

Prerequisite: Full admission to the Teacher Education Program. This course is an integration of concepts fundamental to the development of literacy from birth through middle grades. It includes a study of language development and communication skills, language arts, content area reading, and the assessment and selection of appropriate instructional strategies based upon student need. A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

Add: A minimum grade of B is required to meet degree requirements for licensure and practitioner candidates.

Effective Date: Fall 2021

G.   **Curriculum Changes.**

1)   **Secondary Education, Chemistry Concentration, B.S.ED.**

First Semester Freshman Year
From:
MATH 1530-Introductory Statistics (credit 3)

To:
MATH 1130-College Algebra (credit 3) OR
MATH 1710-Pre-calculus Algebra (credit 3)

Second Semester Freshman Year
From:
MATH 1130-College Algebra (credit 3) OR
MATH 1710-Pre-calculus Algebra (credit 3)

To:
MATH 1830-Applied Calculus (credit 3)

Note: changes to this PoS were requested previously at UCC, these are additional changes (appears in green on attached PoS).

Effective Date: Fall 2021

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried.

4. **Mathematics**

A. Course Description Changes.

    1) From:

MATH 3070-3080**.** Statistical Methods I-II**.** Lec. 3-3. Credit 3-3. Prerequisite: MATH 3070: Recommended C or better in MATH 1130; MATH 3080: C or better in MATH 3070.

Introduction to parametric statistical methods with some non-parametric alternatives, sampling, probability, Type I and Type II error, sample size estimation, confidence interval estimation, test of hypotheses using normal, Student's t, Snedecor's F, Chi-square and the binomial distributions, linear regression, analysis of variance, and data analysis utilizing statistical software.

To:

MATH 3070-3080**.** Statistical Methods I-II**.** Lec. 3-3. Credit 3-3. Prerequisite: MATH 3070: ACT mathematics score greater than or equal to 19; or C or better in MATH 1130 or MATH 1710 or equivalent; MATH 3080: C or better in MATH 3070.
Introduction to parametric statistical methods with non-parametric alternatives, confidence intervals, test of hypotheses using normal, Student's t, Snedecor's F, Chi-square and the binomial distributions, linear regression, analysis of variance, and data analysis utilizing a programming language for statistical computing.

Justification: The recommendation clause in the prerequisite for MATH 3070 should be replaced with the minimum requirement of ACT mathematics of 19 or C in MATH 1130 or MATH 1710. In the course description we find it necessary to specify more clearly that a programming language for statistical computing is taught in this course.

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried.

5. Art, Craft & Design

    A. Curriculum and Catalog Changes.

        1) ADD ART 2000, Art History Survey I , lecture 3, credits 3. To list of General Education Humanities/Fine Arts course offerings. Prerequisites: none

           Recommended completion of course in Junior year.

           Effective: Fall 2021

        2) ADD ART 2020, Art History Survey II, lecture 3, credits 3, to the list of General Education Humanities/Fine Arts Course offerings.

Effective: Fall 2021

B.   Curriculum and Catalog Changes.

1) REMOVE UNIV 1020: University Connections , lecture 1, credits 1

Effective: Fall 2021

7 Curriculum change sheets attached.
-Glass
-Metals
-Clay
-Fibers
-Wood
-Painting
-Design

Justification: Course no longer offered. UNIV 1020 added 1 hour to the degree, thus these concentrations are now 120 credit hours.

C.   Catalog Corrections/Changes and Curriculum Changes.

1) ARED 2020: Art Education Theory , lecture 2, lab 1, **credits 3.**
This course is incorrectly listed as a 2 credit hour course in the course catalog. It was changed from a 2 credit hour course to a 3 credit hour course in March 2018.

Effective: immediately or as soon as possible.

2) ARED 2020: Art Education Theory
Add: must earn "B" or better togain course credit and move forward in program

Effective: Fall 2021

Justification: Successful completion of this course is essential for success in the program; this course provides essential foundational Art Education content. This change/requirement will also create consistency in equivalent courses in the Office of Teacher Ed and Curriculum and Instruction.

3) ARED 4872: Professional Seminar I
Add: Must earn "B" or better to gain course credit and move forward in program

Effective: Fall 2021

Justification: Successful completion of this course is essential for success in the program; this course provides essential student teaching and classroom management content. This change/requirement will also create consistency in equivalent courses in the Office of Teacher Ed and Curriculum and Instruction.

D. **Course Additions.**

   1) ART 3170: History of Design, Lecture 3. Credit 3.
   Pre-requisites: None

   Description: Survey of the history of design from the mid-eighteenth century to present. Investigation into the role that economic, political and social revolutions transformed society and design will be the focus. Covering a wide range of fields, including, art, architecture, interior design, industrial design and graphic design to introduce the various ways in which design interacts with culture and society.

   Justification: We're eliminating our History of Crafts II course and replacing it with the new History of Design course. These changes better fit the composition of our majors and their related needs.

   Effective date: Fall 2021

   2) Course deletions:

   ART 3160: History of Crafts II, Lecture 3. Credit 3.
   Pre-requisites: None

   Description: Survey of crafts from the Medieval Period through the present.

   Justification: We're consolidating History of Craft I and History of Crafts II into a single course. The resulting opening in the curriculum will be filled with the new course, History of Design, which better suits the composition of our majors and their related needs.

   Effective date: Fall 2021

   3) Course changes:

   From:
   ART 3150-History of Crafts I

   To:
   ART 3150-History of Crafts

New description: A survey of global history of craft to present. Craft's relationship with aesthetic, material and technical concerns along with social/religious, economic, and political influences are investigated.

Justification: We're consolidating History of Craft I and History of Crafts II into a single course. The resulting opening in the curriculum will be filled with the new course, History of Design, which better suits the composition of our majors and their related needs.

Effective date: fall 2021

4) Curriculum and catalog changes:

Add: ART 3170: History of Design , lecture 3, credits 3.
Prerequisites: none

Recommended completion of course in Junior year.

Effective: Fall 2021

Justification: We're eliminating our History of Crafts II course and replacing it with a new History of Design course. These changes better fit the composition of our majors and their related needs.

5) REMOVE ART 3160: History of Crafts II
Effective: Fall 2021

6) CHANGE ART 3150: History of Craft I to History of Craft
Effective: Fall 2021

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

6. **Learning Support Progam**
   A. **Course/Catalog Changes.**

   To alleviate the confusion between READ1100 and READ1010, LSP requests the following changes:

   1) Course Deletions: Two
   READ 1010 to be replaced by UNIV 1010
   READ 1100 to be replaced by UNIV 1100

   2) Course Additions: Two
   i. UNIV 1010 - College Reading Improvement…………….Lec. 2. Lab. 2. Credit 3.

Placement by ACT Reading score less than 19 and/or by ACCUPLACER Next Generation Placement Reading score less than 250, by advisor recommendation, or by student self placement. Improvement of reading skills includes vocabulary, spelling, comprehension, rate, main idea, supporting details, organization and relationships, and critical and strategic reading. This course uses MyReadingLab software (Pearson).

Students with a Reading requirement may be restricted in the number or type of high-reading-content classes they may take until they have removed the learning support requirement. High-reading-content classes include history, sociology, psychology, philosophy, literature, political science, and criminal justice.

Attendance is required.

Withdrawal is not allowed except with special permission.

Students who self-place/volunteer for LSP 1010 are not under such restrictions.

ii.   UNIV 1100 - Learning Support Lab for English Composition I….Lab. 1. Credit 0.
Placement by ACT English score less than 18 and/or by ACCUPLACER Next Generation Placement Exam Writing score less than 250.

Learning Support Lab for English Composition I [Co-Requisite for English Composition I] is provided through computer software (MyWritingLab), brief lectures, conferences, and one-on-one assistance conducted by Learning Support Program faculty and supervised teaching assistants. Topics covered include (1) basic grammar; (2) sentence skills; (3) punctuation, mechanics, and spelling; and (4) usage, style, and proofreading. After the students' learning paths are established indicating one, two, three, or all four modules to be completed, students are encouraged to attend the class regularly and to work outside of class to complete the requirements as soon as possible; this will allow them to apply what they have learned to their English 1010 papers and improve their chances of making good grades.

Attendance is required.

May be taken as a Co-Requisite with ESL 1020 with special permission.

Withdrawal is not allowed except with special permission.

3) Course [Rubric]Changes:

     i. **From:**
      READ1010 College Reading Improvement

      To:
      UNIV 1010 College Reading Improvement

     ii. **From:**
      READ1100 LS Lab for English Composition I

      To:
      UNIV 1100 LS Lab for English Composition I

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

7. **History**
  A. Course Additions.

    The History Department proposes the addition of a new course HIST 2050, Introduction to Race and Ethnic Studies.

    Catalog Description: Lec. 3 Credit 3. An introduction to the academic study of race and ethnic groups in the United States.

    Curriculum Changes: None

    Justification:

    The United States is becoming increasingly racially and culturally diverse. At many institutions of higher learning, there is an increasing awareness of the need to reflect our rapidly changing society and better prepare students to compete in an increasingly diverse and competitive global workforce.

    The Introduction to Race and Ethnic Studies course will expose students to voices, histories, cultural practices, and issues regarding Americans from a variety of backgrounds. Modelled after similar courses at other institutions, this course is grounded conceptually in interdisciplinary studies, combining a foundation in the historical narratives of race and ethnicity in the United States with other discipline/fields of study such as Sociology, English, Music, and Communications.

    This course would also be an excellent complement to the mission of diversity, equity, and inclusion at Tennessee Technological University, and to the overall core values, strategic priorities, and initiatives of Tennessee Tech and President Oldham to increase, retain, and graduate students of color, and to promote among all students an improved understanding of the roles of race and ethnicity in shaping American society.

The Introduction to Race and Ethnic Studies also serves as a foundation to upper division courses in the Race and Ethnic Studies minor. Ideally, it should be completed prior to enrollment in upper division courses but is not required. The course and its topics follow the model of Ethnic Studies departments that were recently reviewed by the Association of Ethnic Studies.

Effective: Fall 2021

B. Addition of New Minor.

The History Department proposes the creation of a new minor in Race and Ethnic Studies in the US. The minor will be housed in the History Department. Dr. Arthur Banton will serve as initial administrator.

As per the catalog, a minor requires the completion of 15 hours including 6 upper division hours.

A minor in Race and Ethnic Studies in the US will consist of five courses/fifteen hours as follows: (All are 3 hour courses)

- HIST 2050 "Introduction to Race and Ethnic Studies"
- HIST 2060 "Introduction to African-American Studies" **OR**
  HIST 3910 "Introduction to American Indian Studies" **OR**
  HIST 3390 "The Civil Rights Movement"

And nine additional hours from the list of courses above, and/or below:

ENGL 4712 "African-American Literature"

ENGL 4713 "Native-American Literature"

HEC 3100 "Cultural Competency for Professionals"

HIST 4390-4399 "Studies in African American History"

HIST 4440-4449 "Studies in Native American History"

MUS 4110 "History and Literature of Jazz"

SOC 4210 "Race, Ethnicity and Multiculturalism"

SOC 4090 "Cross Cultural Communication and Cultural Diversity

Substitutions are possible (for example, to include any relevant "Special Topics" courses) but require the approval of the program administrator.

Justification: The minor offers a coherent study of issues that continue to have significant relevance to the United States and the world. It would supplement many programs and areas of study across the campus. The minor will further assist the University in reaching its goal of increasing diversity and enriching the experience of students who may have had limited exposure to cultural variation.

We continue to believe that minors strengthen degrees, and can point to many examples wherein our graduates have used their minors to various advantages.

The History Department has communicated with departments across campus throughout the development of the minor. We believe our proposal includes all appropriate current regular offerings.   We invite, indeed welcome, proposals of additional courses that might be added to the list. Examples might include ENGL xxxx "Asian-American Literature, RELS xxxx "Race and Religion in America," ART xxxx "indigenous American Art," PC xxxx "Skin Complexion Politics," POLS xxxx "The Politics of Race in the United States," SOC xxxx "Race, Ethnicity and Crime." Etc.

The program will be subject to regular review and updated accordingly.

Effective Start Date: Fall 2021

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

8. **Women and Gender Studies**
    A. **Curriculum Changes.**
        1) Delete SOC 2200 (3 credit hours), a course that no longer exists and replace it with SOC 3200 Sociology of Sex and Gender (3 credit hours)

        2) Remove the following courses from the WGS minor electives list
             a. HIST 4360-4369 US Social History (3 credit hours)
             b. POLS 3200 American Political Thought (3 credit hours)
             c. POLS 4610 Public Administration and Public Policies (3 credit hours)
             d. SOC 2840 The Aged in American Society (3 credit hours)
             e. POLS 3800
             f. HON 4010
             g. HON 4900

         JUSTIFICATION: SOC 2200 no longer exists. SOC 3200 meets the curriculum goals of the

        WGS curriculum content goals of at least 50% of class content and/or assignments related to women and gender studies. The courses listed in a-d above do not meet WGS content standards of 50% or above of the content and/or assignments related to women and gender studies. POLS 3800, HON 4010, and HON 4900 no longer exist.

        3) Add the following courses to the electives list:
             a. HIST 4401 History of Horror Films (3 credit hours)
             b. CJ/SOC 4520 Patterns of Domestic Violence (3 credit hours)
             c. CJ/SOC 4540 Women and Crime (3 credit hours)

d. HON 4011-4013 Honors Colloquium (3 credit hours) (When the topic meets WGS standards.)
e. HON 4021-4023 Directed Studies (3 credit hours) (When the topic meets WGS standards.)

JUSTIFICATION: These courses meet content goals of at least 50% of the course content and/or assignments related to women and gender studies.

4) Change the language describing the electives list

From:

May include additional core courses listed above or approved courses that contain a significant focus on women and/or gender, or in which a student may individually contract with course instructor to focus on women and/or gender issues. These courses include but are not limited to the following:

HIST 4360-4369 US Social History (Credit 3) (May be repeated if topic is different.)
HIST 4440-4449 (5440) Native American Studies (Credit 3) (May be repeated if topic is different.)
POLS 3200 American Political Thought (Credit 3)
POLS 3800
POLS 4610 Public Administration and Public Policies (Credit 3)
SOC 2630 Marriage and Family Relations (Credit 3)
SOC 2840 The Aged in American (Credit 3)
SOC 4210 (5210) Race, Ethnicity and Multiculturism (Credit 3)
SOC 4610 (5610) Contemporary American Family (Credit 3)
HON 4010 and 4900 in various disciplines

To:

Electives include additional core courses listed above or courses from the list below. Students may also individually contract with course instructor to emphasize women and/or gender issues through course content and/or course work. The WGS advisor may also approve additional courses as electives if the specific version of that course contains a significant focus on women and/or gender studies.

HIST 4440-4449 (5440) Native American Studies (Credit 3) (May be repeated if topic is different.)
HIST 4401 History of Horror Films (Credit 3)
CJ/SOC 4520 Patterns of Domestic Violence (Credit 3)
CJ/SOC 4540 Women and Crime (Credit 3)
SOC 3200 Sociology of Sex and Gender (Credit 3)
SOC 2630 Marriage and Family Relations (Credit 3)
SOC 4210 (5210) Race, Ethnicity and Multiculturism (Credit 3)

SOC 4610 (5610) Contemporary American Family (Credit 3)
HON 4011-4013 Colloquium (Credit 3) (When the topic meets WGS standards.)
HON 4021-4023 Directed Studies (Credit 3) (When the topic meets WGS standards.)

JUSTIFICATION: The current wording is vague and has led to confusion. This new wording clearly marks eligible electives.

Effective Date: Summer/Fall 2021.

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

9. <u>**English**</u>
   A. **Addition of Course to PTC Concentration.**
      1) Add PC 4950—Topics in Professional and Technical Communication—to the list of courses to include in the Professional and Technical Communication minor.

Under the statement "At least 12 additional hours of coursework from the following" in the undergraduate catalog, please make the following change to add PC 4950 (Topics in Professional and Technical Communication) to the list:

From:
PC 3250—Professional Communication 1 Credit: 3.
PC/WEBD 3500—Rhetoric and the Internet Credit: 3.
PC 3700—Information Design in the Professions Credit: 3.
PC 3750—Ethics in the Professions Credit: 3.
PC 4850 (5850)—Internship Credit: 3, 6, 9.
PC 4940 (5940)—Technical Editing Credit: 3.
PC 4970 (5970)—Professional Communication II Credit: 3
PC 4990 (5990)—Business and Grant Proposal Writing Credit: 3

To:
PC 3250—Professional Communication 1 Credit: 3.
PC/WEBD 3500—Rhetoric and the Internet Credit: 3
PC 3700—Information Design in the Professions Credit: 3.
PC 3750—Ethics in the Professions Credit: 3.
PC 4850 (5850)—Internship Credit: 3, 6, 9.
PC 4940 (5940)—Technical Editing Credit: 3.
PC 4950 (5950)—Topics in Professional and Technical Communication Credit: 3.
PC 4970 (5970)—Professional Communication II Credit: 3
PC 4990 (5990)—Business and Grant Proposal Writing Credit: 3

Justification: PC 4950/5950 (Topics in Professional and Technical Communication) is a newly-approved course to be added to the minor.

2) Add PC 4950/5950 (Topics in Professional and Technical Communication), and clarify the wording of the course listing for students in the Literature Concentration interested in adding the PTC concentration while majoring in another concentration:

From:
Students in the Literature Concentration can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

To:
Students in the Literature Concentration can also have a concentration in Professional and Technical Communication by using elective hours and three additional credit hours to complete 24 credit hours from the following courses (the nine credit hours from the Professional Communication Core are required):

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics in Professional and Technical Communication
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

3) Add PC 4950/5950 (Topics in Professional and Technical Communication), and clarify the wording of the course listing for students in the Creative Writing Concentration interested in adding the PTC concentration while majoring in another concentration:

From:
Students in the Creative Writing Concentration can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics in Professional and Technical Communication
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

To:
Students in the Creative Writing Concentration can also have a concentration in Professional and Technical Communication by using elective hours and three additional credit hours to complete 24 credit hours from the following courses (the nine credit hours from the Professional Communication Core are required):

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics in Professional and Technical Communication
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

4) Add PC 4950/5950 (Topics in Professional and Technical Communication), and clarify the wording of the course listing for students in the Rhetoric and Language Concentration interested in adding the PTC concentration while majoring in another concentration:

From:
Students in the Rhetoric and Language Concentration can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

To:
Students in the Rhetoric and Language Concentration can also have a concentration in Professional and Technical Communication by using elective hours and three additional credit hours to complete 24 credit hours from the following courses (the nine credit hours from the Professional Communication Core are required):

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics in Professional and Technical Communication
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

5) Add PC 4950/5950 (Topics in Professional and Technical Communication), and clarify the wording of the course listing for students in the Theatre Concentration Performance Option interested in adding the PTC concentration while majoring in another concentration:

From:
Students in the Theatre Concentration Performance Option can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

To:
Students in the Theatre Concentration Performance Option can also have a concentration in Professional and Technical Communication by using elective hours and three additional credit hours to complete 24 credit hours from the following courses (the nine credit hours from the Professional Communication Core are required):

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics in Professional and Technical Communication
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

6) Add PC 4950/5950 (Topics in Professional and Technical Communication), and clarify the wording of the course listing for students in the Theatre Concentration Technical Option interested in adding the PTC concentration while majoring in another concentration:

From:
Students in the Theatre Concentration Technical Option can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

To:
Students in the Theatre Concentration Technical Option can also have a concentration in Professional and Technical Communication by using elective hours and three additional credit hours to complete 24 credit hours from the following courses (the nine credit hours from the Professional Communication Core are required):

Professional Communication Core (9 hours)
PC 2500 Communicating in the Professions
PC 3250 Professional Communication 1
PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses
PC 3500 Rhetoric and the Internet
PC 3700 Information Design in the Professions
PC 3750 Ethics in the Professions
PC 4850 (5850) Internship
PC 4940 (5940) Technical Editing
PC 4950 (5950) Topics in Professional and Technical Communication
PC 4970 (5970) Professional Communication II
PC 4990 Business and Grant Proposal Writing

Motion to approve. Lisa Zagumny

Second. Barry Stein
Vote. Motion carried

10. <u>Earth Sciences</u>
    A. **Course/Curriculum/Prerequisite Changes.**
        1) **Course Changes:**

        Changes to the course description and prerequisite for GEOL 4210 Advanced Historical Geology.

        From:
        Lec. 3. Credit 3.
        Prerequisite: Completion of core curriculum in Geology and GEOL 3410.
        Advanced treatment of the Earth's history concentrating on plate tectonics, evolution of the biosphere and chemical changes from the Archaean to the Holocene.

        To:
        Lec. 3. Credit 3.
        Prerequisite: GEOL 2500.
        Advanced treatment of the Earth's history concentrating on plate tectonics, evolution of the biosphere and chemical changes from the Hadean to the Holocene.

        Justification: GEOL 4210 will replace GEOL 2000 in the Geology concentration required courses. The GEOL 2500 prerequisite is sufficient preparation for the advanced topics of this course. The slight change in the course description reflects a newer term now used to describe Earth's early history.

        2) **Curriculum Changes:**

        Replace GEOL 2000 with GEOL 4210 for the Geology concentration required courses.

        From:
        Geology Concentration Required Courses, any 4 of the following courses (15-16 hours)
        GEOL 2000 - Earth Evolution and Life History Credit: 3.
        GEOL 3110 - Principles of Mineralogy and Petrology Credit: 4.
        GEOL 3230 - Structural Geology and Tectonics Credit: 4.
        GEOL 3830 - Field Geology Credit: 4.
        GEOL 4110 - Sedimentation and Stratigraphy Credit: 4.

        To:
        Geology Concentration Required Courses, any 4 of the following courses (15-16 hours)

GEOL 3110 - Principles of Mineralogy and Petrology Credit: 4.
GEOL 3230 - Structural Geology and Tectonics Credit: 4.
GEOL 3830 - Field Geology Credit: 4.
GEOL 4110 - Sedimentation and Stratigraphy Credit: 4.
GEOL 4210 – Advanced Historical Geology Credit: 3.

Justification: GEOL 2000 is no longer taught. GEOL 4210 is a similar course and is one that is common to geology programs elsewhere.

Effective Date: Fall 2021

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

11. Counseling & Psychology
A.Curriculum Changes and Deletions.
3) Delete:
UNIV 1020 First-Year Connections, 1 hour credit from Psychology Major

Effective Date: Summer/Fall 2021

Justification: UNIV 1020 is no longer needed in the curriculum. This change will alter the total number of credit hours in the first semester of freshman year from 14 to 13, and the number of elective credits in the first semester of sophomore year to 6 credits.

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

12. Mechanical Engineering
A. Curriculum Changes.
1) From:
ME 3001 – Mechanical Engineering Analysis
Catalog Data: Lec. 3. Cr. 3.

Prerequisite: ENGR 1120; C or better in MATH 2010; C or better in MATH 2120. Analytical and numerical techniques are developed for problems arising in mechanical engineering. Analytical methods include applications of Laplace transforms, Fourier series and separation of variables. Numerical methods include root finding, quadrature rules, and solutions to ordinary and partial differential equations. Use of modern numerical computing tools for problem solving.

To:

ME 3001 – Mechanical Engineering Analysis

Catalog Data: Lec. 3. Cr. 3.

Prerequisite: ENGR 1120 or CSC 1300; C or better in MATH 2010; C or better in MATH 2120. Analytical and numerical techniques are developed for problems arising in mechanical engineering. Analytical methods include applications of Laplace transforms, Fourier series and separation of variables. Numerical methods include root finding, quadrature rules, and solutions to ordinary and partial differential equations. Use of modern numerical computing tools for problem solving.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: The prerequisite is changed from ENGR 1120 to ENGR 1120 or CSC 1300 to allow Mechatronics concentration students to take ME 3001 without a special permit.

2) **From:**
ME 3023 – Measurements in Mechanical Systems
Catalog Data: Lec. 2. Lab 2. Cr. 3.

Prerequisites: ECE 2850, PHYS 2120 and PHYS 2121 (or ECE 2011 for ME Mechatronics Concentration) and CEE 3110 (CEE 3110 may be taken concurrently). Principles of measurement and calibration; basic instrumentation and measurement techniques in mechanical systems.

To:
ME 3023 – Measurements in Mechanical Systems
Catalog Data: Lec. 2. Lab 2. Cr. 3.

Prerequisites: ECE 2850, PHYS 2120 (or ECE 2011 and PHYS 2119), and CEE 3110 (CEE 3110 may be taken concurrently). Principles of measurement and calibration; basic instrumentation and measurement techniques in mechanical systems.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: The prerequisite is changed from PHYS 2120 and PHYS 2121 (or ECE 2011) to PHYS 2120 (or ECE 2011 and PHYS 2119) to allow both ME and Mechatronics concentration students to take ME 3023 without any prerequisite issues.

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

13. **Chemical Engineering**

A. Course Additions.

1) CHE 3050 – Transfer Science I: Conduction, Radiation, Diffusion
Lec. 3 Credits 3

Prerequisites: CHE 2015, CHE 2020, MATH 2110, MATH 2120
Corequisite: CHE 3051

Catalog Description: Energy conservation principles. Experimental studies of diffusive heat transfer. Design and operation of systems for heat transfer with applications to heat exchange and diffusive motion.

2) CHE 3051 – Transfer Science I: Conduction, Radiation, Diffusion Laboratory
Lab. 2 Credits 1
Corequisite: CHE 3050

Catalog Description: Energy conservation principles. Experimental studies of diffusive heat transfer. Design and operation of systems for heat transfer with applications to heat exchange and diffusive motion.

3) CHE 3510 – Separations & Solution Thermodynamics
Lec. 3 Credits 3

Prerequisites: CHE 2015, MATH 2110, MATH 2120
Corequisite: CHE 3511

Catalog Description: Analysis and prediction of mixture properties at equilibrium in single and multiple phases. Lab is focused on solution thermodynamic topics and industrially-relevant separation processes.

4) CHE 3511 – Separations & Solution Thermodynamics Laboratory
Lab. 2 Credits 1

Corequisite: CHE 3510

Catalog Description: Analysis and prediction of mixture properties at equilibrium in single and multiple phases. Lab is focused on solution thermodynamic topics and industrially-relevant separation processes.

5) CHE 3550 – Transfer Science II: Fluid Mechanics
Lec. 3 Credits 3

Prerequisites: CHE 3050, CHE 3051, MATH 2110, MATH 2120
Corequisite: CHE 3551

Catalog Description: Theory of mass, momentum, and mechanical energy conservation principles. Characterization of flow regimens and key non-dimensional number of scaling. Experimental studies of fluid mechanics. Design and operation of systems involving fluids with application to fluid flow and fluid property measurements.

6) CHE 3551 – Transfer Science II: Fluid Mechanics Laboratory
Lab. 2 Credits 1
Corequisite: CHE 3550

Catalog Description: Theory of mass, momentum, and mechanical energy conservation principles. Characterization of flow regimens and key non-dimensional number of scaling. Experimental studies of fluid mechanics. Design and operation of systems involving fluids with application to fluid flow and fluid property measurements.

7) CHE 4050 – Transfer Science III: Diffusion & Diff. Mass Transfer
Lec. 3   Credits 3

Prerequisites: CHE 3010, CHE 3050, CHE 3051, CHE 3510, CHE 3511, CHE 3550, CHE 3551
Corequisite: CHE 4051

Catalog Description: Mathematical description of diffusion and diffusive-convective mass transfer. Mass transfer with reaction. Dimensional Analysis. Mass transfer in one and two-dimensions in Cartesian, cylindrical, and spherical coordinates. Integrated labs demonstrating the concept of diffusion, computational experiments, and demonstrating the effect of geometry, flow, etc., on mass transfer.

8) CHE 4051 – Transfer Science III: Diffusion & Diffusive Mass Transfer Laboratory
Lab. 2   Credits 1

Corequisite: CHE 4050

Catalog Description: Mathematical description of diffusion and diffusive-convective mass transfer. Mass transfer with reaction. Dimensional Analysis. Mass transfer in one and two-dimensions in Cartesian, cylindrical, and spherical coordinates. Integrated labs demonstrating the concept of diffusion, computational experiments, and demonstrating the effect of geometry, flow, etc., on mass transfer.

9) CHE 4060 – Chemical Reaction Engineering
Lec. 3   Credits 3

Prerequisites: CHE 3010, CHE 3050, CHE 3051, CHE 3510, CHE 3511, CHE 3550, CHE 3551
Corequisite: CHE 4061

Catalog Description: Chemical reaction kinetics and chemical reactor design. There is an emphasis on homogeneous reactions and ideal and non-ideal reactors. Introduction to laboratory experiments to illustrate typical situations found in chemical reacting systems: kinetics parameter determination, residence time visualization, and introduction to different types of reactors, (i.e., batch, tubular and gradient-less).

10) CHE 4061 – Chemical Reaction Engineering Laboratory
Lab. 2   Credits 1
Corequisite: CHE 4060

Catalog Description: Chemical reaction kinetics and chemical reactor design. There is an emphasis on homogeneous reactions and ideal and non-ideal reactors. Introduction to laboratory experiments to illustrate typical situations found in chemical reacting systems: kinetics parameter determination, residence time visualization, and introduction to different types of reactors, (i.e., batch, tubular and gradient-less).

Course Changes:

11) **From:**
CHE 4240 – Chemical Engineering Capstone Project
Lab. 3   Credits 1
Prerequisites: CHE 3010, CHE 3021, CHE 3111, CHE 3121, CHE 4131, CHE 4210, CHE 4410, CHEM 3010, CHEM 3020

Catalog Description: Project serves as a culminating experience for the student. Project content varies depending on the interests of the student, project team, and project sponsors. Projects serve to integrate junior- and senior-level coursework, promote an understanding of team dynamics and the development of project management skills. *Senior Standing in Chemical Engineering: Transfer Science I, II, III; Thermodynamics, Process Design I; Organic Chemistry I, II; Chemical Reaction Engineering. Senior Standing by cumulative credit hours is not adequate.

To:
CHE 4240 – Chemical Engineering Capstone Project
Lab. 3   Credits 1

Prerequisites: either CHE 3021 or CHE 3510, either CHE 3121 or CHE 3550, either CHE 4131 or CHE 4050, either CHE 4210 or CHE 4060, CHE 4410, CHEM 3010 (may take CHEM 3010 concurrently)

Catalog Description: Project serves as a culminating experience for the student. Project content varies depending on the interests of the student, project team, and project sponsors. Projects serve to integrate junior- and senior-level coursework, promote an understanding of team dynamics and the development of project management skills. *Senior Standing in Chemical Engineering: Transfer Science I, II, III; Thermodynamics, Process Design I; Organic Chemistry I; Chemical Reaction Engineering.

JUSTIFICATION: CHEM 3020 is not required to take the Capstone Lab.

12) **From:**
CHE 4250 – Chemical Engineering Capstone Project
Lab. 4   Credits 2
Prerequisites: CHE 3010, CHE 3021, CHE 3111, CHE 3121, CHE 4131, CHE 4210, CHE 4410, CHEM 3010, CHEM 3020

Catalog Description: Project serves as a culminating experience for the student. Project content varies depending on the interests of the student, project team, and project sponsors. Projects serve to integrate junior- and senior-level coursework, promote an understanding of team dynamics and the development of project management skills. *Senior Standing in Chemical Engineering: Transfer Science I, II, III; Thermodynamics, Process Design I; Organic Chemistry I, II; Chemical Reaction Engineering. Senior Standing by cumulative credit hours is not adequate.

To:
CHE 4250 – Chemical Engineering Capstone Project
Lab. 4   Credits 2
Prerequisites: either CHE 3021 or CHE 3510, either CHE 3121 or CHE 3550, either CHE 4131 or CHE 4050, either CHE 4210 or CHE 4060, CHE 4410, CHEM 3010 (may take CHEM 3010 concurrently)

Catalog Description: Project serves as a culminating experience for the student. Project content varies depending on the interests of the student, project team, and project sponsors. Projects serve to integrate junior- and senior-level coursework, promote an understanding of team dynamics and the development of project management skills. *Senior Standing in Chemical Engineering: Transfer Science I, II, III;

Thermodynamics, Process Design I; Organic Chemistry I; Chemical Reaction Engineering.

JUSTIFICATION: CHEM 3020 is not required to take the Capstone Lab.

13) **From:**
CHE 4335 – Fuel Cells
Lec. 3   Credits 3
Prerequisites: CHE 3010 or ME 3210, CHEM 3510

Catalog Description: Emphasis will be on electrochemical techniques, fundamental principles and technologies related to proton exchange membrane fuel cells. The course will delineate theoretical energy vs. specific losses: including ohmic, mass transport, and catalytic losses. Advanced materials for specific proton exchange membrane fuel cells will be discussed and diagnostic testing methodologies will be demonstrated (polarization curves, electrochemical impedance spectroscopy, and cyclic voltammetry).

To:
CHE 4335 – Fuel Cells
Lec. 3   Credits 3
Prerequisites: CHE 3010 or ME 3210

Catalog Description: Emphasis will be on electrochemical techniques, fundamental principles and technologies related to proton exchange membrane fuel cells. The course will delineate theoretical energy vs. specific losses: including ohmic, mass transport, and catalytic losses. Advanced materials for specific proton exchange membrane fuel cells will be discussed and diagnostic testing methodologies will be demonstrated (polarization curves, electrochemical impedance spectroscopy, and cyclic voltammetry).

JUSTIFICATION: CHEM 3510 is not required to understand the course material.

14) **From:**
CHE 4990 – Intro to Research
Lab. 2-6Credits 1 to 3

Prerequisites: CHE 3990

Catalog Description: Research and development problems, laboratory investigations, planning experimental programs, and correlating and reporting results through written works and presentations. Because of the impossibility of duplicating the conditions on a special problem, this course may not be repeated for the improvement of a grade.

To:
CHE 4990 – Intro to Research
Lab. 2-6Credits 1 to 3
Prerequisites: Consent of Instructor

Restrictions: Junior or Senior standing in Chemical Engineering

Catalog Description: Introduces students to research methods used within chemical engineering. Research and development problems, laboratory investigations, planning experimental programs, and correlating and reporting results through written works and presentations. Because of the impossibility of duplicating the conditions on a special problem, this course may not be repeated for the improvement of a grade.

JUSTIFICATION: CHE 3990 is no longer offered.

Course Deletions:

15)   CHE 3990 – Introduction to Research Methods
Lab. 2   Credit 1
Prerequisite: Consent of instructor.

Catalog Description: Introduces students to research methods used within chemical engineering.

JUSTIFICATION: CHE 3990 is no longer offered due to students having issues with Financial aid.

Curriculum Change:

16)   Inclusion of 3000/4000 level courses from Environmental and Sustainable Studies (ESS) to the List of allowed Technical Electives

JUSTIFICATION: Environmental sustainability is an important topic for Chemical Engineers. Students are encouraged to take such courses. This change will eliminate substitution forms for students that wish to take ESS courses for their Technical electives.

Motion to approve. Lisa Zagumny
Second. Barry Stein

Vote. Motion carried

14. Computer Science
    A. Course Additions.

        1) CSC 2510 – Introduction to DevOps with Unix
        Catalog Data:
        Lec. 2. Lab. 2. Credit: 3.
        Prerequisites: C or better in CSC 1310.

        Co-requisites: None.

        An introduction to DevOps with Unix including terminology, processes, and techniques with an emphasis on development procedures for systems programming and management, and automated provisioning.

        EFFECTIVE DATE**:** Fall 2021

        2) CSC 1020 – Connections to Computing
        Catalog Data:
        Lab. 2. Credit 1.
        Prerequisite: Freshman Standing.

        Engages the student in meaningful academic and non-academic, out-of-the classroom activities involving computing. Emphasizes critical thinking in the formation of academic and social goals and support groups and in self-management and study skills. Introduces communication and teamwork skills.

        EFFECTIVE DATE: Fall 2021

    Course Changes:

        3) From:
        CSC 4620 – Software Engineering II
        Catalog Data:
        Lec. 2. Lab. 2. Credit 3.
        Prerequisite: C or better in CSC 4610.
        Course covers advanced agile methods, coding, advanced testing concepts, deployment and maintenance.

        To:
        CSC 4620 – Software Engineering II
        Catalog Data:
        Lec. 1. Lab. 2. *Credit 2*.
        Prerequisite: C or better in CSC 4610.

Course covers advanced agile methods, ~~*coding*~~, advanced testing concepts, deployment and maintenance. ***Includes significant senior collaborative design experience.***

EFFECTIVE DATE: Spring 2022

JUSTIFICATION: The department is actively working towards pushing content earlier in the program, which includes some of the outcomes in the instructional portion of the Software Engineering I and Software Engineering II courses. As part of this change, we are reducing the number of credits in the Software I and II courses.

Course Deletions:

4) CSC 2500 – Unix Laboratory

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.

Delete from the CSC course list.

EFFECTIVE DATE: Spring 2022

JUSTIFICATION: The Unix laboratory course is a practice-based course and has lacked context that helps students retain knowledge gained. The content of this course will have an overlap with the new CSC 2510 course and the content is better suited to the 2510 course. As a one (1) credit course it creates an issue with course credit distribution on the rest of the curriculum.

Curriculum Changes:

5) Reduce number of required science credits from 12 credits to 8 credits. Students take at least one science sequence from BIOL 1113- BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS 2020 or PHYS 2110-PHYS 2120.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: The most recent ABET Computing Accreditation Commission guidelines require 6 credits of science as follows:

At least six (6) semester credit hours (or equivalent) in natural science course work intended for science and engineering majors. This course work must develop an understanding of the scientific method and must include laboratory work.

We are setting the requirement to 8 credits to stay consistent with the TNTech General Education core.

6) CS Core Curriculum

Curriculum
Freshman Year

First Semester
  ENGL 1010 - English Composition I Credit: 3.
  MATH 1910 - Calculus I Credit: 4.
  CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
  ~~ENGR 1020 - Connections to Engineering and Technology Credit: 1.1~~
  CSC 1020 - Connections to Computing Credit: 1.1
  HIST 2010 - Early United States History Credit: 3.
Total: 15

Second Semester

  ENGL 1020 - English Composition II Credit: 3.
  HIST 2020 - Modern United States History Credit: 3.
  MATH 1920 - Calculus II Credit: 4.
  Social/Behavioral Science Elective Credit: 3.2
  CSC 1310 - Data Structures and Algorithms Credit: 4.
Total: 17

Sophomore Year

First Semester

  ENGL 2130 - Topics in American Literature Credit: 3. or
  ENGL 2235 - Topics in British Literature Credit: 3. or
  ENGL 2330 - Topics in World Literature Credit: 3.
  ~~First~~ Science Sequence Credit: 4.3
  CSC 2310 - Object-Oriented Programming and Design Credit: 4.
  ~~CSC 2500 - Unix Lab Credit: 1.~~
  CSC 2510 – Introduction to DevOps and Unix Credit: 3
  MATH 2010 - Introduction to Linear Algebra Credit: 3.
Total: 17

Second Semester

  COMM 2025 - Fundamentals of Communication Credit: 3. or
  PC 2500 - Communicating in the Professions Credit: 3.
  ~~First~~ Science Sequence Credit: 4.3

CSC 2700 - Discrete Structures for Computer Science Credit: 3.
CSC 2400 - Design of Algorithms Credit: 3.
CSC lower division elective Credit: 3.4

Total: ~~14~~ 16

Junior Year

First Semester

CSC 3300 - Database Management Systems Credit: 3.
CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
Humanities/Fine Arts Elective Credit: 3.2
~~Second Science Sequence Credit: 4.3~~
CSC 3710 - Foundations of Computer Science Credit: 3.
MATH 3070 - Statistical Methods I Credit: 3. or
MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: ~~16~~ 15

Second Semester

CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
CSC 4320 (5320) - Computer Architecture Credit: 3.
CSC Upper-Division Elective Credit: 3.5
CSC lower division elective Credit: 3.4
Humanities/Fine Arts Elective Credit: 3.2

Total: 15

Senior Year

First Semester

CSC 4610 - Software Engineering I Credit: 3.
CSC 4100 (5100) - Operating Systems Credit: 3.
CSC Upper-Division Elective Credit: 3.5
~~Electives Credit: 3.~~
Social/Behavioral Science Elective Credit: 3.2

Total: 12

Second Semester

CSC 4200 (5200) - Computer Networks Credit: 3.
CSC 4620 - Software Engineering II Credit: ~~3~~ 2.
CSC Upper-Division Elective Credit: 3.5
Electives Credit: 5.

Total: ~~12~~ 13

Note:

1. Not required for transfer students with more than 12 hours; transfer students take 1 credit hour free elective.

2. See TTU General Education Core Requirements.

3. Take at least one science sequence from BIOL 1113- BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS 2020 or PHYS 2110-PHYS 2120.

4. ~~The remaining 4- hour science elective must be in a different discipline from the science sequence.~~ Take two of the three Concentration gateway courses (Cyber, DS-AI, HPC)

5. Take any additional 3000- or 4000-level CSC course except CSC 4990.

B. Curriculum Changes.

Course Deletions:

1) CSC 2560 Networking for Information Technologists
CURRENT CATALOG DATA:
Lec. 3. Credit 3.

Prerequisite: C or better in CSC 2500 or concurrent enrollment in CSC 2500.

Description: Course covers theoretical and practical aspects of computer networks from an information technology perspective.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: This course was last taught Summer 2020 after a long break. Under current guidance of the Cyber curriculum committee, this course will be eliminated, and course material distributed to other courses. The department is piloting two new courses (CSC 2510: Introduction to DevOps and Unix CSC 2770: Introduction to Systems and Networking) that will fulfill the need of teaching this course. Under the current NSA CAE application, this course maps to the following KUs:

• BNW – Basic Networking

• NDF – Network Defense

• ANT – Advanced Network Technology and Protocols

• NTP – Network Technology and Protocols

These KUs will be mapped to the courses mentioned above.

Course Changes:

1) CSC 3570 IT Security (Change for CSC 4570 IT Security course number and prerequisite)

> **From:**
> CSC 4570 IT Security
> Lec. 3. Credit 3.
>
> Prerequisite: C or better in CSC 2500, and in either CSC 2560 or CSC 4200 (5200).
>
> Description: It is an overview of various technical and administrative aspects of Information Security. It introduces students to assets in typical IT infrastructure, potential threats to assets, common associated vulnerabilities, protection of assets, and response to security incidents.
>
> **To:**
> CSC 4570 3570 IT Security
> Lec. 3. Credit 3.
>
> Prerequisite: C or better in CSC 2500, and in either CSC 2560 or CSC 4200 (5200). C or better in CSC 2500 or CSC 2510, and CSC 2570 or CSC 4200 (5200).
>
> Description: It is an overview of various technical and administrative aspects of Information Security. It introduces students to assets in typical IT infrastructure, potential threats to assets, common associated vulnerabilities, protection of assets, and response to security incidents.
>
> EFFECTIVE DATE: Fall 2021
>
> JUSTIFICATION: This is a renumbering of CSC 4570 allowing the course to be reordered in the proposed schedule such that students could take it during their junior year after meeting course prerequisites. Also, with the two new course introductions (CSC 2510 and CSC 2570), the prereqs has changed to include the new courses. The KUs mapped to this class are:
>
> - ISC – IT Systems Components
> - SPM – Security Program Management
> - SRA – Security Risk Analysis
> - NDF – Network Defense
> - OSA – Operating Systems Administration
> - OSH – Operating Systems Hardening
> - PLE – Policy, Legal, Ethics, and Compliance

CSC 4575 Cryptography and Network Security (Change for CSC 4575 Information Assurance and Cryptography course title and description)

2) **From:**

CSC 4575 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.

Description: 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.

To:

CSC 4575 Information Assurance and Cryptography and Network Security

Lec. 3. Credit 3.

Prerequisite: Junior Standing and C or better in CSC 1310 or both CSC 2110 and CSC 2111.

Description: 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 for network security.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: Since now we are introducing a new fundamental course in cybersecurity (CSC 2570: Introduction to Cybersecurity and Privacy), this course can now concentrate on more advance topics in the area of cryptographic application for network security and the fundamental of security is moved to CSC 2570. KU mapping will not be impacted.

Course Additions:

1) **CSC 2570 CATALOG DATA:**
   CSC 2570 Introduction to Cybersecurity and Privacy
   Lec. 3. Credit 3.
   Prerequisite: None.

   Description: Introduction to fundamental principles, common attacks and defense mechanisms in the area of cybersecurity, and privacy. Students will be introduced to fundamental concepts and building blocks of computer with

cyber defense elements including security objectives, attack types, adversary models policies and models, threat modeling along with anonymity, cyber security ethics, and legal issues. This is an introduction level course for students interested in cybersecurity.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: New course for all students to receive basic information about cybersecurity and privacy related concepts. This course will allow the CSC 4575 Introduction to Cryptography and Network Security course to concentrate on more advance topics. As proposed, the course will map to the following KUs:
- •CSF – Cybersecurity Foundations
- •CTH – Cyber Threats
- •CSP – Cybersecurity Principles

2) **CSC 4585 CATALOG DATA:**

CSC 4585 Software and Systems Security
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 2400. CSC 4610 (can be taken concurrently)

Description: Introduction to the characteristics and practices of secure programming, approaches used in the development and deployment of secure web applications, and security assessment of software systems.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: This course is part of an effort to modernize the security curriculum in order to better prepare students for the workforce. This Software and Systems Security course will integrate and implement modern secure software engineering practices into the undergraduate Computer Science (CS) curriculum. The novelty of the proposed course into the existing CS undergraduate curriculum is the integration of state-of-the art software engineering best practices with security engineering, such as automated testing and automated vulnerability assessment. As proposed, the course will map to the following KUs:
- • SPP – Secure Programming Practices
- • WAS –Web Application Security
- • VLA – Vulnerability Analysis

Curriculum Changes:

The curriculum change is an effort to modernize the security curriculum in order to better prepare students for the workforce and better align the curriculum with

the CAE KUs needed for CAE designation. With the proposed introduction of the following new courses in the CS curriculum,

- CSC 2570: Introduction to Cybersecurity and Privacy
- CSC 2510: Introduction to DevOps with Unix
- CSC 2770: Introduction to Systems and Networking
- CSC 4585: Introduction to Software and Systems Security

And the proposed elimination of CSC 2560, recent elimination of CSC 3550, and use of elective hours, allows the cyber concentration changes to have no impact on faculty or total credit hour requirements for students.

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
HIST 2010 - Early United States History Credit: 3.
MATH 1910 - Calculus I Credit: 4.
~~Social/Behavioral Science Elective Credit: 3.~~
CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
CSC 1020 - Connections to Computing Credit: 1.
~~ENGR 1020 – Connections to Engineering and Technology. Credit: 1~~
Total: ~~18~~ 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.
COMM 2025 - Fundamentals of Communication Credit: 3. OR PC 2500 - Communicating in the Professions Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH 1920 - Calculus II Credit: 4.
CSC 1310 - Data Structures and Algorithms Credit: 4.
Total: ~~14~~ 17

Sophomore Year

First Semester

CSC 2510 – Introduction to DevOps with Unix Credit: 3.
~~First Science Sequence Credit: 4.~~
~~Math 2010 – Introduction to Linear Algebra Credit: 3.~~
CSC 2400 - Design of Algorithms Credit: 3.
CSC 2700 - Discrete Structures for Computer Science Credit: 3.
ENGL 2130 - Topics in American Literature Credit: 3. OR ENGL 2235 - Topics in British Literature Credit: 3. OR ENGL 2330 - Topics in World Literature Credit: 3.
CSC 2310 - Object-Oriented Programming and Design Credit: 4.

Total: 16

Second Semester

Science Sequence Credit: 4.
~~Comm 2025 – Fundamentals of Communication Credit: 3. OR Pc 2500 – Communicating in the Professions Credit: 3.~~
~~CSC 2310 – Object-Oriented Programming and Design Credit: 4.~~
~~CSC 2500 – Unix Lab Credit: 1.~~
~~CSC 2560 – Networks for Information Technologists Credit: 3.~~
Social/Behavioral Science Elective Credit: 3.
CSC 2570 - Introduction to Cybersecurity and Privacy Credit: 3.
CSC 2770 - Introduction to Systems and Networking Credit: 3.
CSC 3710 - Foundations of Computer Science Credit: 3.
Total: ~~18~~ 16

Junior Year

First Semester

~~Math 3070 – Statistical Methods I Credit: 3. OR Math 3470 – Introductory Probability and Statistics Credit: 3.~~
Humanities/Fine Arts Elective Credit: 3.
CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
CSC 3570 - IT Security Credit: 3.
CSC 3300 - Database Management Systems Credit: 3.
MATH 2010 - Introduction to Linear Algebra Credit: 3.
~~CSC 4575 (5575) – Information Assurance and Cryptography Credit: 3.~~
~~CSC or Cyber-Security Elective Credit: 3.~~
Total: 15

Second Semester

Humanities/Fine Arts Elective Credit: 3.
CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
~~CSC 3300 – Database Management Systems Credit: 3.~~
CSC 4320 (5320) - Computer Architecture Credit: 3.
CSC 4575 (5575) - ~~Information Assurance and~~ Cryptography and Network Security Credit: 3.
Elective Credit: 2.
~~Natural Science Credit: 4.~~
Total: ~~16~~ 14

Senior Year

First Semester

MATH 3070 - Statistical Methods I Credit: 3. Or MATH 3470 - Introductory Probability and Statistics Credit: 3.
Social/Behavioral Science Elective Credit: 3.
CSC 4610 - Software Engineering I Credit: 3.
~~CSC 4570 (5570) – IT Security Credit : 3.~~
CSC 4200 (5200) - Computer Networks Credit: 3.
CSC 4585 (5585) Software and Systems Security Credit: 3.
~~CSC Elective Credit: 3.~~
Total: ~~12~~ 15

Second Semester

Science Credit: 4.
CSC 4100 (5100) - Operating Systems Credit: 3.
~~CSC 4200 (5200) – Computer Networks Credit: 3.~~
CSC 4620 Software Engineering II Credit: ~~3~~ 2.
CSC Elective Credit: 3.
Total: 12

Note:
1. Not required for transfer students with more than 12 hours; transfer students take 1 credit hour free elective.
2. See TTU General Education Core Requirements.
3. Take at least one science sequence from BIOL 1113-BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS 2020 or PHYS 2110-PHYS 2120. ~~The remaining 4-hour science elective must be in a different discipline from the science sequence.~~
~~4   Must be a different discipline than the required science sequence.~~

C. **Course Additions**.

1) **CSC 2220 – Data Science and AI for Everyone**

   Catalog Data:

   Lec. 3. Credit: 3.

   Prerequisites: None. Introduction to how data science and artificial intelligence are used in industry and academia. Students will be introduced to what data science is all about; how statistics, machine learning, and software engineering play a role in data science; and be introduced to some of the terms and tools used by data scientists. Students will learn about the structure of a data science project, what makes for successful and unsuccessful projects, and take part in a data science project. Students will

also be introduced to artificial intelligence and its application to real-world problems.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: Data Science has become pervasive, and this course will provide an accessible introduction to that field. Additionally, this course allows us to move some of the introductory material from the existing CSC 3220 course, which we allow us to improve the depth of coverage for the remaining material in CSC 3220.

2) **CSC 4260 – Advanced Data Science and Applications**
Catalog Data:

Lec. 3. Credit: 3.

Prerequisites: CSC 3220 and CSC 4220. Project-oriented course that exposes the students to advanced data science topics and the real-world application of data science. Students will learn MapReduce/Hadoop, advanced visualization techniques, and a variety of data acquisition tools. Students will also explore issues surrounding data management and data privacy. In addition, students will complete a data science capstone project connected by a theme selected by the instructor, immersing students in the data science exploration of topics in areas such as healthcare, sports, cyber-security. The course requires students to put into practice advanced data science techniques that address the full data science life-cycle.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: The old real-world experience requirement (CSC 4040/CSC 4990) has been a problematic part of the existing Data Science curriculum. This course will replace that requirement and ensure that our students get the comprehensive project experience that they need, and it will allow us to address some data science topics in more depth that we have been able to do in CSC 3220.

Course Changes.

1) **From:**
CSC 3220 – Fundamentals of Data Science
Lec. 3. Credit 3.

Prerequisite: MATH 2010, MATH 3070 or MATH 3470 or MATH 4470 (5470), CSC 3300, and C or better in CSC 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 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.

To:

Lec. 3. Credit 3.

Prerequisite: MATH 2010, MATH 3070 or MATH 3470 or MATH 4470 (5470), **CSC 2220,** CSC 3300, and C or better in CSC 1310 or both of CSC 2110 and CSC 2111. CSC 3300 **and MATH 2010** may be taken concurrently. 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.

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: Since CSC 2220 will contain the introductory Data Science material that was in CSC 3220, it will be necessary for students to complete that course first.

Curriculum Changes:

The new CSC 2220 (Data Science and AI for Everyone) now serves as an introduction to the concentration, and the other course (CSC 4260) serves as project course replacing the old real-world experience requirement (CSC 4040 or CSC 4990). CSC 4240 (Artificial Intelligence) replaces the old Data Science Technical Elective and reflects the proposed concentration name change (see Item D below). CSC 3220 and CSC 4220 to provide more consistent exposure to concentration curriculum. MATH 2010 and the statistics courses have been swapped because statistics is important to have before CSC 3220, and MATH 2010 is more foundational to CSC 4220. Other courses were moved to accommodate those changes.

Data Science Concentration Curriculum
Freshman Year
    First Semester
    CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
    ENGL 1010 - English Composition I Credit: 3.
    CSC 1020 - Connections to Computing Credit: 1.[1]
    HIST 2010 - Early United States History Credit: 3.
    MATH 1910 - Calculus I Credit: 4.
    Total: 15

    Second Semester
    CSC 1310 - Data Structures and Algorithms Credit: 4.
    ENGL 1020 - English Composition II Credit: 3.
    HIST 2020 - Modern United States History Credit: 3.
    MATH 1920 - Calculus II Credit: 4.
    Social/Behavioral Science Elective Credit: 3.[2] (ECON 2010 or ECON 2020 recommended)
    Total: 17

Sophomore Year
    First Semester
    COMM 2025 - Fundamentals of Communication Credit: 3. or
    PC 2500 - Communicating in the Professions Credit: 3.
    CSC 2310 - Object-Oriented Programming and Design Credit: 4.
    CSC 2510 – Introduction to DevOps and Unix: 3.
    CSC 2700 - Discrete Structures for Computer Science Credit: 3.
    Science Sequence Credit: 4.[3]
    Total: 17
    Second Semester
    CSC 2220 - Data Science and AI for Everyone Credit: 3
    CSC 2400 - Design of Algorithms Credit: 3.
    ENGL 2130 - Topics in American Literature Credit: 3. or
    ENGL 2235 - Topics in British Literature Credit: 3. or
    ENGL 2330 - Topics in World Literature Credit: 3.
    MATH 3070 - Statistical Methods I Credit: 3. or
    MATH 3470 - Introductory Probability and Statistics Credit: 3.
    Science Sequence Credit: 4.[3]
    Total: 16

Junior Year
    First Semester
    MATH 2010 - Introduction to Linear Algebra 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.
    Humanities/Fine Arts Elective Credit: 3.[2]

Total: 15
Second Semester
CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
CSC 4320 (5320) - Computer Architecture Credit: 3.
CSC 3710 - Foundations of Computer Science Credit: 3.
CSC 4220 - Data Mining and Machine Learning Credit: 3.
Humanities/Fine Arts Elective Credit: 3.[2]
Total: 15

Senior Year
First Semester
CSC 4610 - Software Engineering I Credit: 3.
CSC 4100 (5100) - Operating Systems Credit: 3.
CSC 4240 – Artificial Intelligence Credit: 3.
Social/Behavioral Science Elective Credit: 3.[2]
Total: 12
Second Semester
CSC 4200 (5200) - Computer Networks Credit: 3.
CSC 4620 - Software Engineering II Credit: 2.
CSC 4260 - Advanced Data Science and Applications Credit: 3.
~~Data Science Technical Elective Credit: 3.~~[5]
CSC Elective Credit: 5.
Total: 13

Note:
[1]Not required for transfer students with more than 12 hours; transfer students take 1 credit hour free elective.
[2]See TTU General Education Core Requirements.
[3]Take at least one science sequence from BIOL 1113-BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS 2020 or PHYS 2110-PHYS 2120. ~~The remaining 4 hour science elective must be in a different discipline from the science sequence.~~

Concentration Name Change:

Change the concentration name from **Data Science** to **Data Science and Artificial Intelligence**.

Updated description of the concentration: The Data Science and Artificial Intelligence concentration (DSAI) equips students to solve real world problems by combining data analysis skills with computational techniques that enable computers to behave intelligently. Students in the DSAI concentration will learn the full data science lifecycle through classes and real-world projects that cover data management, statistical inference, data mining and machine learning algorithms, and data visualization. They will also learn advanced techniques for working with the large, diverse data that companies now rely on to improve decision making and automate business processes. Additionally, DSAI students will be equipped with a strong foundation in AI, the technology driving many of

EFFECTIVE DATE: Fall 2021

JUSTIFICATION: The name change reflects the new broader focus of the concentration. This broader focus is a response to the increased application of artificial intelligence in industry.

Motion to approve. Lisa Zagumny
Second. Barry Stein
Vote. Motion carried

3)
No other such matters being presented, the meeting was adjourned at 3:35 pm.