

# ELEMENTARY EDUCATION, BS

## Program Description

A minimum of 120 semester hours is required for the BS degree. Degree requirements include University Core Curriculum, the interdisciplinary major, and the professional development sequence. Certification in EC- 6 Core Subjects, EC- 6 Core Subjects-Bilingual, 4-8 Mathematics, EC-6 Core Subjects Early Childhood and STEM Focus or Reading, and EC-12 Special Education is available with the Bachelor of Science Degree.

## Student Learning Outcomes

### EC-6 Core Subjects-Bilingual

Students will:

- demonstrate a depth of knowledge of bilingual education;
- demonstrate a depth of speaking ability in Spanish;
- effectively apply the competencies of a bilingual education teacher in their clinical teaching experience.

### EC-6 Core Subjects with Early Childhood Delivery with STEM Focus

Students will:

- provide well-designed instruction and assessment for students from a variety of backgrounds;
- develop classroom climates conducive to learning;
- apply in-depth knowledge of processes and practices associated with students' reading and literacy development;
- fulfill professional roles and responsibilities.

### EC-6 Core Subjects with Reading Delivery

Students will:

- provide well-designed instruction and assessment for students from a variety of backgrounds;
- develop classroom climates conducive to learning;
- apply in-depth knowledge of processes and practices associated with students' reading and literacy development;
- fulfill professional roles and responsibilities.

## 4-8 Mathematics

Students will:

- establish a respectful educational environment for diverse middle level learners;
- demonstrate content knowledge by applying mathematics constructs;
- apply knowledge of curriculum standards for mathematics and their relationship to middle level learners within and across mathematical domains;
- engage middle level learners in developmentally appropriate mathematical activities and investigations;
- apply mathematical content and pedagogical knowledge to design lessons and units that facilitate student learning by incorporating a variety of strategies, including mathematics-specific instructional technologies;

- use formative and summative assessments to inform mathematics instruction.

## EC-12 Special Education

The Special Education service delivery system in the BS program, prepares preservice special education teachers to meet the needs of students with disabilities and their families, with an emphasis on the provision of services in inclusive environments.

Students will:

- demonstrate a depth of knowledge of understanding individuals with disabilities and evaluating their needs;
- demonstrate a depth of knowledge of fostering learning and development for individuals with disabilities;
- demonstrate a depth of knowledge of foundations of special education and professional roles and responsibilities of the special education teacher;
- effectively apply the competencies of a special education teacher in their clinical teaching experience.

## General Requirements

Requirements	Credit Hours
Core Curriculum Program ( <a href="http://catalog.tamucc.edu/undergraduate/university-college/programs/core-curriculum-program/">http://catalog.tamucc.edu/undergraduate/university-college/programs/core-curriculum-program/</a> )	42
First-Year Seminars (when applicable) <sup>1</sup>	0-2
Major Requirements & Supporting Fields	54-62
Professional Development Requirement	21-25
<b>Total Credit Hours</b>	<b>117-131</b>

- <sup>1</sup> First-Year Seminars or Electives  
Full-time, first time in college students are required to take the first-year seminars.
- UNIV 1101 First-Year Seminar I (1 sch)
  - UNIV 1102 First-Year Seminar II (1 sch)

## Program Requirements

### Interdisciplinary Major Requirements (54-62 semester hours)

The **Interdisciplinary major** consists of an academic or delivery system specialization **and** a **combination of supporting fields**.

1. Interdisciplinary **major concentrations** may be selected from one of the following areas:
  - EC-6 Core Subjects-Bilingual
  - EC-6 Early Childhood Delivery with STEM Focus
  - EC-6 Core Subjects with Reading Delivery
  - 4-8 Mathematics
  - EC-12 Special Education
2. The **combination of supporting fields** consists of a combination of three of the following five fields: English, Mathematics, Reading, Science, and Social Studies. A different combination of supporting

fields is designated for each concentration. A minimum of 24 of the 54-62 semester hours must be in upper-division courses.

Code	Title	Hours
<b>Full-time, First-year Students</b>		
UNIV 1101	First-Year Seminar I	1
UNIV 1102	First-Year Seminar II	1
<b>Core Curriculum Program</b>		
University Core Curriculum		42
Students seeking the 4-8 Math Interdisciplinary Degree must take:		
BIOL 1406	Biology I <sup>1</sup>	
CHEM 1411	General Chemistry I	
<b>Interdisciplinary Major Concentration Requirements</b>		
Select one of the following Concentrations:		54-62
EC-6 Core Subjects-Bilingual (p. 2)		
EC-6 Core Subjects with Early Childhood Delivery with STEM Focus (p. 2)		
EC-6 Core Subjects with Reading Delivery (p. 3)		
4-8 Mathematics (p. 3)		
EC-12 Special Education (p. 3)		
<b>Professional Development Requirements</b>		
Select one of the following Concentrations:		21-25
EC-6 Core Subjects-Bilingual (p. 2)		
EC-6 Core Subjects with Early Childhood Delivery with STEM Focus (p. 2)		
EC-6 Core Subjects with a Reading Delivery System Specialization (p. 3)		
4-8 Mathematics (p. 3)		
EC-12 Special Education (p. 3)		
<b>Total Hours</b>		<b>119-131</b>

<sup>1</sup> Only 3 hours of BIOL 1406 Biology I (4 sch) will apply to the Core Curriculum Program. The one hour laboratory component will be counted in the major requirements.

### EC-6 Core Subjects-Bilingual

All courses in BIEM and READ must be completed with a grade of "C" or better.

Code	Title	Hours
<b>Concentration Requirements</b>		
BIEM 4344	The Bilingual Child, Culture, & the Social Studies Curriculum	3
BIEM 4345	LANGUAGE ACQUISITION AND DEVELOPMENT	3
BIEM 4349	LINGUISTICS FOR BILINGUAL TEACHERS	3
BIEM 4355	LANGUAGE ARTS STUDIES IN THE BILINGUAL CURRICULUM	3
BIEM 4356	CONTENT AREA STUDIES IN THE BILINGUAL CURRICULUM	3
BIEM 4360	Foundations in Bilingualism	3
READ 3310	Principles and Practices of Early Reading Instruction	3
READ 3320	Principles and Practices of Reading Instruction	3
READ 3351	Reading Assessment and Intervention	3
SMTE 1350	Fundamentals of Mathematics I <sup>*,^</sup>	3
SMTE 1351	Fundamentals of Mathematics II <sup>*,^</sup>	3

SMTE 3315	Foundational Approaches to the Physical Sciences	3
SMTE 3316	Foundational Approaches to the Life Sciences <sup>^</sup>	3
SMTE 3352	Fundamentals of Mathematics III <sup>*,^</sup>	3
EDUC 3311	School and Society <sup>^</sup>	3
<i>Additional Requirements for Certification</i>		
ECED 3324	Child Development	3
SPAN 2312	Continuing Spanish	3
SPED 4310	Students with Exceptionalities <sup>*</sup>	3
<b>Professional Development Requirements</b>		
BIEM 4357	METHODS OF TEACHING ENGLISH AS A SECOND LANGUAGE	3
EDUC 4311	Classroom Management	3
EDUC 4321	Instructional Design for Special Populations	3
EDUC 4605	Planning, Teaching, Assessment and Technology	6
EDUC 4995	Clinical Teaching	9
IDET 3100	Educational Technology for Preservice Teachers in Schools <sup>^</sup>	1

**Total Hours** **79**

\* Online offering

<sup>^</sup> Blended offering

### EC-6 Core Subjects Early Childhood Delivery with STEM Focus

All courses in ECED and READ must be completed with a grade of "C" or better.

Code	Title	Hours
<b>Concentration Requirements</b>		
ECED 3324	Child Development	3
ECED 3380	Developmentally Appropriate Practice in Early Childhood Education	3
ECED 4330	HEALTH, NUTRITION AND LOCOMOTOR CONCEPTS FOR THE YOUNG CHILD	3
ECED 4340	Communication and Aesthetics	3
ECED 4345	EC-6 Assessment and Evaluation	3
ECED 4350	EC-6 Social Studies Curriculum	3
EDCI 4301	STEM Mathematics	3
EDCI 4302	STEM Science EC-6	3
IDET 4300	STEM Technology	3
READ 3310	Principles and Practices of Early Reading Instruction	3
READ 3320	Principles and Practices of Reading Instruction	3
READ 3351	Reading Assessment and Intervention	3
SMTE 1350	Fundamentals of Mathematics I <sup>*,^</sup>	3
SMTE 1351	Fundamentals of Mathematics II <sup>*,^</sup>	3
SMTE 3315	Foundational Approaches to the Physical Sciences	3
SMTE 3316	Foundational Approaches to the Life Sciences <sup>^</sup>	3
SMTE 3352	Fundamentals of Mathematics III <sup>*,^</sup>	3
EDUC 3311	School and Society <sup>^</sup>	3
<b>Professional Development Requirements</b>		
BIEM 4357	METHODS OF TEACHING ENGLISH AS A SECOND LANGUAGE	3
EDUC 4311	Classroom Management	3
EDUC 4605	Planning, Teaching, Assessment and Technology	6

IDET 3100	Educational Technology for Preservice Teachers in Schools <sup>^</sup>	1
SPED 4310	Students with Exceptionalities <sup>*</sup>	3
EDUC 4995	Clinical Teaching	9
<b>Total Hours</b>		<b>79</b>

\* Online offering

<sup>^</sup> Blended offering

### EC-6 Core Subjects with Reading Delivery

All courses in ECED and READ must be completed with a grade of "C" or better.

Code	Title	Hours
<b>Concentration Requirements</b>		
READ 3310	Principles and Practices of Early Reading Instruction	3
READ 3320	Principles and Practices of Reading Instruction	3
READ 3351	Reading Assessment and Intervention	3
READ 3352	Content Area Reading for Elementary Students	3
READ 3380	Children's and Adolescents' Literature	3
READ 4394	Field Experiences in Reading	3
SMTE 1350	Fundamentals of Mathematics I <sup>*,^</sup>	3
SMTE 1351	Fundamentals of Mathematics II <sup>*,^</sup>	3
SMTE 3315	Foundational Approaches to the Physical Sciences	3
SMTE 3316	Foundational Approaches to the Life Sciences <sup>^</sup>	3
SMTE 3352	Fundamentals of Mathematics III <sup>*,^</sup>	3
ENGL 3340	Grammar	3
ENGL 3360	CURRENT APPROACHES TO COMPOSITION AND LITERATURE	3
EDUC 3311	School and Society <sup>^</sup>	3
<i>Additional Requirements for Certification</i>		
ECED 3324	Child Development	3
ECED 4345	EC-6 Assessment and Evaluation	3
ECED 4350	EC-6 Social Studies Curriculum	3
Select one of the following:		3

SPED 4345 Behavioral Supports and Interventions for Students with Disabilities<sup>\*</sup>

SPED 4310 Students with Exceptionalities<sup>\*</sup>

### Professional Development Requirements

BIEM 4357	METHODS OF TEACHING ENGLISH AS A SECOND LANGUAGE	3
EDUC 4311	Classroom Management	3
EDUC 4605	Planning, Teaching, Assessment and Technology	6
IDET 3100	Educational Technology for Preservice Teachers in Schools <sup>^</sup>	1
EDUC 4321	Instructional Design for Special Populations	3
EDUC 4995	Clinical Teaching	9
<b>Total Hours</b>		<b>79</b>

\* Online offering

<sup>^</sup> Blended offering

### 4-8 Mathematics

All major requirements must be completed with a grade of "C" or better.

Code	Title	Hours
<b>Concentration Requirements</b>		
MATH 1316	Trigonometry	3
or MATH 2312	Precalculus	
MATH 2305	Discrete Mathematics I	3
MATH 2413	Calculus I	4
MATH 3312	College Geometry	3
MATH 1442	Statistics for Life <sup>*,^</sup>	4
SMTE 1350	Fundamentals of Mathematics I <sup>*,^</sup>	3
SMTE 1351	Fundamentals of Mathematics II <sup>*,^</sup>	3
SMTE 3352	Fundamentals of Mathematics III <sup>*,^</sup>	3
or EDCI 4301	STEM Mathematics	
SMTE 4382	Basic Mathematics From An Advanced Viewpoint	3
READ 3320	Principles and Practices of Reading Instruction	3
READ 3352	Content Area Reading for Elementary Students	3
SMTE 3315	Foundational Approaches to the Physical Sciences	3
SMTE 3316	Foundational Approaches to the Life Sciences <sup>^</sup>	3
SPED 4310	Students with Exceptionalities <sup>*</sup>	3
IDET 3100	Educational Technology for Preservice Teachers in Schools <sup>^</sup>	1
<b>Professional Development Requirements</b>		
BIEM 4357	METHODS OF TEACHING ENGLISH AS A SECOND LANGUAGE	3
EDUC 3311	School and Society	3
EDUC 4311	Classroom Management	3
EDUC 4321	Instructional Design for Special Populations	3
EDUC 4605	Planning, Teaching, Assessment and Technology	6
EDUC 4995	Clinical Teaching	9
<b>Total Hours</b>		<b>72</b>

\* Online offering

<sup>^</sup> Blended offering

### EC-12 Special Education

All courses in SPED and READ must be completed with a grade of "C" or better.

Code	Title	Hours
<b>Concentration Requirements</b>		
SPED 4310	Students with Exceptionalities <sup>*</sup>	3
SPED 3325	Strategic Instruction for Students with High-Incidence Disabilities	3
SPED 3330	Individualized Education Programs for Students with Disabilities	3
SPED 3335	Applied Learning Theory	3
SPED 3340	Individuals with Severe Disabilities <sup>^</sup>	3
SPED 4345	Behavioral Supports and Interventions for Students with Disabilities <sup>*</sup>	3
SPED 2397	Special Education Field Experience	3
READ 3320	Principles and Practices of Reading Instruction	3
READ 3351	Reading Assessment and Intervention	3
Select one of the following:		3
READ 3352	Content Area Reading for Elementary Students	
READ 3353	Content Area Reading for Secondary Students <sup>^</sup>	

SMTE 1350	Fundamentals of Mathematics I <sup>*,^</sup>	3
SMTE 1351	Fundamentals of Mathematics II <sup>*,^</sup>	3
SMTE 3315	Foundational Approaches to the Physical Sciences	3
SMTE 3316	Foundational Approaches to the Life Sciences <sup>^</sup>	3
SMTE 3352	Fundamentals of Mathematics III <sup>*,^</sup>	3
<i>Additional Requirements for Certification</i>		
IDET 3310	Technology Applications for Teachers <sup>^</sup>	3
READ 3310	Principles and Practices of Early Reading Instruction	3
READ 3380	Children's and Adolescents' Literature	3
<b>Professional Development Requirements</b>		
BIEM 4357	METHODS OF TEACHING ENGLISH AS A SECOND LANGUAGE	3
EDUC 3311	School and Society <sup>^</sup>	3
EDUC 4311	Classroom Management	3
EDUC 4393	Student Teaching: Grades 7-12	3
EDUC 4605	Planning, Teaching, Assessment and Technology	6
EDUC 4995	Clinical Teaching	9
<b>Total Hours</b>		<b>81</b>

\* Online offering

<sup>^</sup> Blended offering

## Non-Certification Track to the BS Degree

The degree will be a BS Degree without certification. Students will follow the same degree plan as one of the five emphasis above (EC-6 Reading, EC-6 Bilingual, EC-6 Early childhood with STEM, EC-12 Special Education or 4-8 Mathematics) except for the last semester, during which they will choose 9 SCH of faculty advisor approved elective courses that will replace the clinical teaching component of the degree.

## Courses

### Bilingual/ESL/Multicultural Education Courses

#### **BIEM 4344 The Bilingual Child, Culture, & the Social Studies Curriculum** **3 Semester Credit Hours (3 Lecture Hours)**

STUDIES OF THE BILINGUAL CHILDREN, THE EFFECT OF CULTURE ON PSYCHOLOGICAL DEVELOPMENT, AND THE CHALLENGES OF THE SOCIAL STUDIES CURRICULUM.

#### **BIEM 4345 LANGUAGE ACQUISITION AND DEVELOPMENT** **3 Semester Credit Hours (3 Lecture Hours)**

A STUDY OF LANGUAGE ACQUISITION AND DEVELOPMENT WITH SPECIAL REFERENCE TO IMPLICATIONS FOR MONOLINGUAL AND BILINGUAL LEARNERS.

#### **BIEM 4349 LINGUISTICS FOR BILINGUAL TEACHERS** **3 Semester Credit Hours (3 Lecture Hours)**

A STUDY OF THE PHONOLOGICAL, MORPHOLOGICAL, SYNTACTICAL, LEXICAL, AND SEMANTIC CHARACTERISTICS OF CONTEMPORARY SPANISH AND ENGLISH. THE COURSE FOCUSES ON SPANISH-ENGLISH BILINGUALISM.

#### **BIEM 4351 The Minority Child**

##### **3 Semester Credit Hours (3 Lecture Hours)**

INTRODUCES STUDENTS TO THEMES AND ISSUES ASSOCIATED WITH THE EDUCATION OF THE MINORITY CHILD; MODES OF LEARNING IN VARIOUS CURRICULUM SUBJECTS; RELATION OF MATERIALS AND METHODS TO AFFECTIVE AND COGNITIVE ASPECTS OF LEARNING; INFORMATION CONCERNING THE LEARNING STRENGTHS AND NEEDS OF CHILDREN FROM VARIOUS MINORITY GROUPS. (MAY BE USED TO SATISFY COE MULTICULTURAL REQUIREMENT.)

#### **BIEM 4355 LANGUAGE ARTS STUDIES IN THE BILINGUAL CURRICULUM**

##### **3 Semester Credit Hours (3 Lecture Hours)**

BASIC METHODOLOGICAL STRATEGIES AND ASSESSMENT SKILLS REQUIRED TO TEACH LANGUAGE ARTS IN THE ELEMENTARY BILINGUAL CLASSROOM ARE PROVIDED. EMPHASIS IS ON TEACHING IN SPANISH.

#### **BIEM 4356 CONTENT AREA STUDIES IN THE BILINGUAL CURRICULUM** **3 Semester Credit Hours (3 Lecture Hours)**

THE CONCEPTS AND SKILLS REQUIRED TO TEACH MATHEMATICS AND SCIENCE IN THE ELEMENTARY BILINGUAL CLASSROOM ARE PROVIDED.

#### **BIEM 4357 METHODS OF TEACHING ENGLISH AS A SECOND LANGUAGE**

##### **3 Semester Credit Hours (3 Lecture Hours)**

STUDIES IN METHODOLOGY AND TECHNIQUES AVAILABLE FOR TEACHING THOSE WHOSE NATIVE LANGUAGE IS NOT ENGLISH. TESTING AND ASSESSMENT OF ENGLISH LANGUAGE LEARNERS WILL BE INTEGRATED INTO THE COURSE.

#### **BIEM 4360 Foundations in Bilingualism**

##### **3 Semester Credit Hours (3 Lecture Hours)**

THE PHILOSOPHICAL AND LEGAL FOUNDATIONS OF BILINGUAL SCHOOLING IN THE UNITED STATES THROUGH A SOCIOHISTORICAL APPROACH. THE RATIONALE FOR BILINGUAL EDUCATION IS EXAMINED, AS ARE THE BASIC PROGRAM MODELS. AN OVERVIEW OF BILINGUAL EDUCATION IN TEXAS IS ALSO PROVIDED.

#### **BIEM 4393 FIELD STUDIES IN FAMILY LITERACY**

##### **3 Semester Credit Hours (3 Lecture Hours)**

FIELD EXPERIENCES DESIGNED TO DEVELOP SKILLS REGARDING THE ORIENTATION OF THE ADULT POPULATION TO BILINGUAL/ESL PURPOSES AND PHILOSOPHY, IMPROVING PARENTAL INVOLVEMENT, AND ENGLISH LITERACY SKILLS.

#### **BIEM 4696 Directed Individual Study**

##### **1-6 Semester Credit Hours (1-6 Lecture Hours)**

PROGRAMS WILL BE DESIGNED FOR INDIVIDUAL CASES THROUGH SPECIAL PERMISSION OF THE DEPARTMENT CHAIR AND DEAN. MAY BE REPEATED FOR CREDIT WHEN THE TOPIC VARIES.

## Early Childhood Education Courses

#### **ECED 3324 Child Development**

##### **3 Semester Credit Hours (3 Lecture Hours)**

PROVIDES THE STUDENT WITH AN OVERVIEW OF THE PHYSICAL, SOCIAL, EMOTIONAL, AND PSYCHOLOGICAL DEVELOPMENT OF CHILDREN FROM INFANCY THROUGH EARLY CHILDHOOD.

**ECED 3380 Developmentally Appropriate Practice in Early Childhood Education****3 Semester Credit Hours (3 Lecture Hours)**

AN INTENSIVE STUDY OF DEVELOPMENTALLY APPROPRIATE PRACTICE IN EARLY CHILDHOOD EDUCATION. STUDENTS WILL LEARN THE COMPONENTS OF LESSON PLANS AND CREATE SEVERAL LESSON PLANS. EMPHASIS WILL BE PLACED ON SELECTING, DEFINING, DEVELOPING STRATEGIES AND TECHNIQUES, AND ASSESSING PRACTICES WHICH SUPPORT DEVELOPMENTALLY APPROPRIATE PRACTICES.

**Prerequisite:** ECED 2310 or 3324.

**ECED 4310 SOCIALIZATION OF THE YOUNG CHILD****3 Semester Credit Hours (3 Lecture Hours)**

AN INTENSIVE STUDY OF THE SOCIAL DEVELOPMENT, THE AGENTS OF SOCIALIZATION, AND THE SOCIALIZATION PROCESS IN EARLY CHILDHOOD.

**Prerequisite:** ECED 2310 or 3324.

**ECED 4320 The Young Child, Family and Community Resources****3 Semester Credit Hours (3 Lecture Hours)**

A STUDY OF CURRENT FAMILY STRUCTURES, THEIR RELATIONSHIP TO THE YOUNG CHILD, SOCIETY, AND THE COMMUNITY. EMPHASIS WILL BE PLACED ON AN INCLUSIVE MODEL WHICH ADDRESSES THE NEEDS OF THE GLOBAL COMMUNITY AS IT RELATES TO THE YOUNG CHILD.

**Prerequisite:** ECED 2310 or 3324.

**ECED 4330 HEALTH, NUTRITION AND LOCOMOTOR CONCEPTS FOR THE YOUNG CHILD****3 Semester Credit Hours (3 Lecture Hours)**

THE RELATIONSHIP BETWEEN HEALTH, NUTRITION, AND LOCOMOTOR DEVELOPMENT IN THE YOUNG CHILD IS INVESTIGATED.

**ECED 4340 Communication and Aesthetics****3 Semester Credit Hours (3 Lecture Hours)**

A STUDY OF LANGUAGE DEVELOPMENT; EARLY LITERACY, LANGUAGE ARTS, AND AESTHETICS. STUDENTS WILL DEVELOP AN INTEGRATED THEMATIC UNIT PLAN. STRATEGIES AND CURRICULUM MATERIALS THAT ARE DEVELOPMENTALLY APPROPRIATE FOR YOUNG CHILDREN WILL BE EMPHASIZED TO SUPPORT THE TEXAS ESSENTIAL KNOWLEDGE AND SKILLS (TEKS).

**Prerequisite:** ECED 3311 and 3324.

**ECED 4345 EC-6 Assessment and Evaluation****3 Semester Credit Hours (3 Lecture Hours)**

A STUDY OF ASSESSMENT FOR CHILDREN EC-6 UTILIZING BOTH FORMAL AND INFORMAL INSTRUMENTS WILL BE ADDRESSED. A KNOWLEDGE OF CHOOSING, ADMINISTERING, AND REPORTING DEVELOPMENTAL ASSESSMENT WILL BE EXPLORED WITH AN EMPHASIS ON ASSESSMENT TOOLS THAT CAN BE USED BY TEACHERS OF YOUNG CHILDREN. PRINCIPLES OF DESIGNING AND USING ASSESSMENT AND EVALUATION TECHNIQUES THAT ARE CULTURALLY FAIR, INTELLECTUALLY SOUND, RELIABLE, AND CONTENT-VALID FOR YOUNG CHILDREN. DIFFERENTIATION AMONG CRITERION-REFERENCED, NORM-REFERENCED, INDIVIDUAL, INFORMAL, AUTHENTIC, AND GROUP ASSESSMENTS WILL BE EMPHASIZED. STUDENTS WILL REVIEW STRATEGIES FOR USING ASSESSMENT DATA TO DESIGN INSTRUCTION, AND MATCH ASSESSMENT TECHNIQUES TO INDIVIDUAL CHILDREN AND LEARNING SITUATIONS

**ECED 4350 EC-6 Social Studies Curriculum****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE WILL EXPOSE STUDENTS TO SKILLS AND CONCEPTS TAUGHT IN THE SOCIAL STUDIES CURRICULUM IN THE ELEMENTARY SCHOOL. DEVELOPMENTALLY APPROPRIATE STRATEGIES, CONCEPTS, AND CURRICULAR MATERIALS USED IN TEACHING THE SOCIAL STUDIES WILL BE EMPHASIZED.

**Prerequisite:** ECED 3324, EDCI 3311 and ECED 3380\*.

\* May be taken concurrently.

**Mathematics Courses****MATH 0099 Math Non-Course Based Development****0 Semester Credit Hours**

PREPARATION WORKSHOP TO HELP STUDENTS ACHIEVE COLLEGE READINESS IN MATHEMATICS UNDER THE TEXAS SUCCESS INITIATIVE. TOPICS INCLUDE FIVE GENERAL AREAS: FUNDAMENTAL MATHEMATICS, ALGEBRA, GEOMETRY, STATISTICS, AND PROBLEM SOLVING.

**MATH 0200 Brief Developmental Mathematics****1-2 Semester Credit Hours (1-2 Lecture Hours)**

TOPICS AS IN MATH 0300. FOR STUDENTS WHO HAVE COMPLETED MOST TOPICS IN MATH 0300. REQUIRES PERMISSION OF MATH DEPARTMENT. (NOT COUNTED TOWARD GRADUATION) FALL, SPRING, MAYMESTER, SUMMER.

**Co-requisite:** MATH 1314, MATH 1442.

**MATH 0214 Brief Developmental Mathematics-Algebra****2 Semester Credit Hours (2 Lecture Hours)**

THIS COURSE IS CO-REQUISITE COURSE SUPPORTING FOR MATH 1314. SUPPORT WILL FOCUS ON ESSENTIAL SKILLS REQUIRED FOR SUCCESS IN COLLEGE ALGEBRA (MATH 1314). SUPPORTING TOPICS INCLUDE REVIEW OF INTERMEDIATE ALGEBRA, POLYNOMIAL EQUATIONS, GRAPHING TECHNIQUES, AND APPLICATIONS. COURSE PROVIDES THE NECESSARY ACADEMIC SUPPORT FOR TSI LIABLE STUDENTS CONCURRENTLY ENROLLED IN MATH 1314 AS THE CO-REQUISITE WITH MATH 0214. STUDENTS WHO REGISTER FOR MATH 0214 MUST CO-REGISTER IN MATH 1314. MATH 0214 IS NOT COUNTED TOWARD GRADUATION. FALL, SPRING, SUMMER.

**Co-requisite:** MATH 1314.

**MATH 0224 Brief Developmental Mathematics-Business Mathematics****2 Semester Credit Hours (2 Lecture Hours)**

THIS COURSE IS THE CO-REQUISITE COURSE SUPPORTING FOR MATH 1324. SUPPORT WILL FOCUS ON ESSENTIAL SKILLS REQUIRED FOR SUCCESS IN BUSINESS MATH (MATH 1324). SUPPORTING TOPICS INCLUDE THE USE OF CALCULATORS AND TECHNOLOGY. TOPICS FOCUS ON BASIC REVIEW OF MATHEMATICAL SKILLS, ELEMENTARY ALGEBRA, MATHEMATICAL AND LOGICAL REASONING, PROBABILITY, AND FINANCIAL MANAGEMENT, WHILE PROVIDING THE NECESSARY ACADEMIC SUPPORT FOR TSI LIABLE STUDENTS CONCURRENTLY ENROLLED IN MATH 1324 AS THE CO-REQUISITE WITH MATH 0224.

STUDENTS WHO REGISTER FOR MATH 0224 MUST CO-REGISTER IN MATH 1324. MATH 0224 IS NOT COUNTED TOWARD GRADUATION. FALL, SPRING, SUMMER.

**Co-requisite:** MATH 1324.

**MATH 0232 Brief Developmental Mathematics-Contemporary Mathematics****2 Semester Credit Hours (2 Lecture Hours)**

THIS COURSE IS CO-REQUISITE COURSE SUPPORTING FOR MATH 1332. SUPPORT WILL FOCUS ON ESSENTIAL SKILLS REQUIRED FOR SUCCESS IN CONTEMPORARY MATHEMATICS (MATH 1332). SUPPORTING TOPICS INCLUDE A BASIC REVIEW OF MATHEMATICAL SKILLS, ELEMENTARY ALGEBRA, MATHEMATICAL AND LOGICAL REASONING, PROBABILITY, AND DESCRIPTIVE STATISTICS, WHILE PROVIDING THE NECESSARY ACADEMIC SUPPORT FOR TSI LIABLE STUDENTS CONCURRENTLY ENROLLED IN MATH 1332 AS THE CO-REQUISITE WITH MATH 0232. STUDENTS WHO REGISTER FOR MATH 0232 MUST CO-REGISTER IN MATH 1332. MATH 0232 IS NOT COUNTED TOWARD GRADUATION. FALL, SPRING, SUMMER.

**Co-requisite:** MATH 1332.

**MATH 0242 Brief Developmental Mathematics-Statistics****2 Semester Credit Hours (2 Lecture Hours)**

THIS COURSE IS CO-REQUISITE COURSE SUPPORTING FOR MATH 1442. SUPPORT WILL FOCUS ON ESSENTIAL SKILLS REQUIRED FOR SUCCESS IN STATISTICS FOR LIFE (MATH 1442). SUPPORTING TOPICS INCLUDE THE USE OF CALCULATORS AND TECHNOLOGY. TOPICS FOCUS ON DESCRIPTIVE AND INFERENCE STATISTICS, PROBABILITIES INCLUDING NOTATION, WHILE PROVIDING THE NECESSARY ACADEMIC SUPPORT FOR TSI LIABLE STUDENTS CONCURRENTLY ENROLLED IN MATH 1442 AS THE CO-REQUISITE WITH MATH 0242. STUDENTS WHO REGISTER FOR MATH 0242 MUST CO-REGISTER IN MATH 1442. MATH 0242 IS NOT COUNTED TOWARD GRADUATION. FALL, SPRING, SUMMER.

**Co-requisite:** MATH 1442.

**MATH 0300 Developmental Mathematics****3 Semester Credit Hours (3 Lecture Hours)**

TOPICS INCLUDE NUMBER CONCEPTS, COMPUTATION, ELEMENTARY ALGEBRA, GEOMETRY, AND MATHEMATICAL REASONING. ALSO, LINEAR EQUATIONS AND INEQUALITIES, RATIONAL EXPRESSIONS, EXPONENTS AND RADICALS, QUADRATICS AND WORD PROBLEMS. MAY BE REPEATED FOR CREDIT AS NEEDED TO COMPLETE MASTERY OF ALL TOPICS. (NOT COUNTED TOWARD GRADUATION.) FALL, SPRING, SUMMER.

**MATH 0310 Development Mathematics-Algebra****3 Semester Credit Hours (2 Lecture Hours, 2 Lab Hours)**

3 SEM. HRS. (2:2) TOPICS INCLUDE NUMBER CONCEPTS, COMPUTATION, ELEMENTARY ALGEBRA, AND GEOMETRY. ALSO, LINEAR EQUATIONS AND INEQUALITIES, RATIONAL EXPRESSIONS, EXPONENTS AND RADICALS, QUADRATICS AND WORD PROBLEMS. MAY BE REPEATED FOR CREDIT AS NEEDED TO COMPLETE MASTERY OF ALL TOPICS. (NOT COUNTED TOWARD GRADUATION.) FALL, SPRING, SUMMER.

**MATH 0398 Introduction to Algebra****3 Semester Credit Hours (3 Lecture Hours)**

NUMBER CONCEPTS, COMPUTATION, ELEMENTARY ALGEBRA, GEOMETRY, AND MATHEMATICAL REASONING.

**MATH 0399 Intermediate Algebra****3 Semester Credit Hours (3 Lecture Hours)**

TOPICS INCLUDE LINEAR EQUATIONS AND INEQUALITIES, RATIONAL EXPRESSIONS, EXPONENTS AND RADICALS, QUADRATICS AND WORD PROBLEMS.

**Prerequisite:** MATH 0398.

**MATH 1314 College Algebra****3 Semester Credit Hours (3 Lecture Hours)**

QUADRATIC EQUATIONS, INEQUALITIES, GRAPHS, LOGARITHMS AND EXPONENTIALS, THEORY OF POLYNOMIAL EQUATIONS, SYSTEMS OF EQUATIONS.

**Prerequisite:** MATH 0300, minimum score of 530 in 'SAT MATH SECTION', minimum score of 19 in 'ACT1 Math', MATH 0320 or minimum score of 350 in 'TSI Math'.

**TCCNS:** MATH 1314

**MATH 1316 Trigonometry****3 Semester Credit Hours (3 Lecture Hours)**

TRIGONOMETRIC FUNCTIONS, IDENTITIES, EQUATIONS INVOLVING TRIGONOMETRIC FUNCTIONS, SOLUTIONS OF RIGHT AND OBLIQUE TRIANGLES.

**Prerequisite:** (MATH 1314, minimum score of 550 in 'SAT MATH SECTION' or minimum score of 21 in 'ACT1 Math') or minimum score of 21 in 'ACT Math'.

**TCCNS:** MATH 1316

**MATH 1324 Mathematics for Business and Social Sciences****3 Semester Credit Hours (3 Lecture Hours)**

STUDENTS WILL LEARN HOW THE PROPERTIES AND LANGUAGE OF MATHEMATICS CAN BE USED IN BUSINESS AND REAL-WORLD PROBLEM SOLVING AND UNDERSTAND THE TECHNIQUES AND APPLICATIONS OF FINANCE PROBLEMS, BASIC MATRIX OPERATION, BASIC COUNTING PRINCIPLES, AND PROBABILITY ANALYSIS IN MODELING REAL-WORLD SCENARIOS.

**Prerequisite:** minimum score of 550 in 'SAT MATH SECTION', minimum score of 21 in 'ACT Math' or minimum score of 21 in 'ACT1 Math'.

**TCCNS:** MATH 1324

**MATH 1325 Calculus for Business & Social Sciences****3 Semester Credit Hours (3 Lecture Hours)**

STUDENTS WILL DEVELOP AND COMBINE THE CONCEPTS IN AND RELATIONSHIPS BETWEEN MATHEMATICS AND BUSINESS FROM THE FUNDAMENTALS OF CALCULUS AND OPTIMIZATION IN ALL BUSINESS FIELDS. STUDENTS ARE EXPECTED TO LEARN THE MATERIALS ALGEBRAICALLY WITH TECHNOLOGY. STUDENTS WILL COMBINE THE CONCEPTS OF LIMITS, CONTINUATION, DIFFERENTIATION AND INTEGRATION TECHNIQUES TO SOLVE PROBLEMS IN BUSINESS, ECONOMICS, AND SOCIAL SCIENCES.

**Prerequisite:** MATH 1324, minimum score of 550 in 'SAT Math', minimum score of 21 in 'ACT Math' or minimum score of 21 in 'ACT1 Math'.

**TCCNS:** MATH 1325

**MATH 1332 Contemporary Mathematics****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE SERVES AS A TERMINAL COURSE AND SUPPLIES A BRIEF OVERVIEW OF SEVERAL TOPICS IN MATHEMATICS. TOPICS MAY INCLUDE INTRODUCTORY TREATMENTS OF SETS, LOGIC, NUMBER SYSTEMS, NUMBER THEORY, RELATIONS, FUNCTIONS, PROBABILITY AND STATISTICS. APPROPRIATE APPLICATIONS ARE INCLUDED. THIS COURSE EMPHASIZES USING CRITICAL THINKING TO MAKE DECISIONS BASED ON INFORMATION.

**TCCNS:** MATH 1332

**MATH 1390 Introduction to Mathematical Topics****1-3 Semester Credit Hours (1-3 Lab Hours)**

A COURSE TO INTRODUCE STUDENTS TO MATHEMATICAL TOPICS IN A FORMAL SETTING. THE COURSE MAY SUPPORT PROBLEM SOLVING, OR SYSTEMATIC INVESTIGATIONS OF TOPICS OUTSIDE THE CURRENT MATHEMATICAL CATALOG. MAY NOT BE SUBSTITUTED FOR REGULARLY SCHEDULED OFFERINGS.

**MATH 1442 Statistics for Life****4 Semester Credit Hours (3 Lecture Hours, 2 Lab Hours)**

AN INTRODUCTION TO STATISTICAL CONCEPTS AND METHODS USED IN ALL DISCIPLINES TO ENHANCE DECISION MAKING BASED ON DATA ANALYSIS, INCLUDING: BASIC EXPERIMENTAL DESIGN MODELS, MEASUREMENT AND DATA COLLECTION THROUGH SAMPLING; DISPLAY AND SUMMARY OF INFORMATION, AND ASSESSMENT OF RELATIONSHIP THROUGH DESCRIPTIVE TECHNIQUES; PROBABILITY CONCEPTS LEADING TO ESTIMATION AND HYPOTHESIS TESTING OF MEANS, VARIANCE AND PROPORTIONS, REGRESSION ANALYSIS, ONE-FACTOR ANOVA AND CHI-SQUARE TEST OF INDEPENDENCE; AND APPLICATIONS THROUGH CASE STUDIES. THE LABORATORY COMPONENT OF THE COURSE OFFERS APPLICATIONS OF THE THEORY PRESENTED DURING THE CLASSROOM SESSIONS.

**Prerequisite:** MATH 0300, minimum score of 530 in 'SAT MATH SECTION', minimum score of 19 in 'ACT1 Math', MATH 0310, 0320, minimum score of 350 in 'TSI Math' or minimum score of 19 in 'ACT Math'.

**TCCNS:** MATH 1442

**MATH 2305 Discrete Mathematics I****3 Semester Credit Hours (3 Lecture Hours)**

AN INTRODUCTION TO TOPICS IN DISCRETE MATHEMATICS WITH AN EMPHASIS ON APPLICATIONS IN MATHEMATICS AND COMPUTER SCIENCE. TOPICS INCLUDE FORMAL LOGIC, GRAPHS, TREES AND RELATED ALGORITHMS, AND COMBINATORICS AND DISCRETE PROBABILITY.

**Prerequisite:** MATH 2413, minimum score of 620 in 'SAT Math', minimum score of 620 in 'SAT1 Mathematics', minimum score of 640 in 'SAT MATH SECTION', minimum score of 27 in 'ACT Math' or minimum score of 27 in 'ACT1 Math'.

**TCCNS:** MATH 2305

**MATH 2312 Precalculus****3 Semester Credit Hours (3 Lecture Hours)**

A MORE RAPID TREATMENT OF THE MATERIAL IN MATH 1314 AND MATH 1316, THIS COURSE IS DESIGNED FOR STUDENTS WHO WISH A REVIEW OF THE ABOVE MATERIAL, OR WHO ARE VERY WELL PREPARED. FUNCTIONS, GRAPHS, TRIGONOMETRY, AND ANALYTIC GEOMETRY.

**Prerequisite:** MATH 1314, minimum score of 550 in 'SAT MATH SECTION', minimum score of 21 in 'ACT Math' or minimum score of 21 in 'ACT1 Math'.

**TCCNS:** MATH 2312

**MATH 2413 Calculus I****4 Semester Credit Hours (4 Lecture Hours, 2 Lab Hours)**

LIMITS, CONTINUITY, DERIVATIVES, APPLICATIONS OF THE DERIVATIVE, AND AN INTRODUCTION TO INTEGRALS. CONTAINS A LABORATORY COMPONENT.

**Prerequisite:** MATH 1316, 2312, minimum score of 640 in 'SAT MATH SECTION' or minimum score of 27 in 'ACT1 Math'.

**TCCNS:** MATH 2413

**MATH 2414 Calculus II****4 Semester Credit Hours (3 Lecture Hours, 2 Lab Hours)**

TECHNIQUES OF INTEGRATION, APPLICATIONS OF INTEGRALS, SEQUENCES, SERIES, TAYLOR POLYNOMIALS AND SERIES. PARAMETRIC EQUATIONS. CONTAINS A LABORATORY COMPONENT.

**Prerequisite:** MATH 2413.

**TCCNS:** MATH 2414

**MATH 2415 Calculus III****4 Semester Credit Hours (3 Lecture Hours, 2 Lab Hours)**

VECTORS AND SPACE CURVES, PARTIAL DERIVATIVES, MULTIPLE INTEGRALS, SPECIAL COORDINATE SYSTEMS, LINE AND SURFACE INTEGRALS, GREEN'S, STOKES', AND THE DIVERGENCE THEOREMS. CONTAINS A LABORATORY COMPONENT.

**Prerequisite:** MATH 2414.

**TCCNS:** MATH 2415

**MATH 3300 Geospatial Mathematical Techniques****3 Semester Credit Hours (3 Lecture Hours)**

CHARACTERISTICS OF GEOGRAPHIC/SPATIAL INFORMATION; OVERVIEW OF RELEVANT SECTIONS OF NUMBERS, ALGEBRA AND GEOMETRY, PLANE AND SPHERICAL TRIGONOMETRY, MATRICES, DETERMINANTS AND VECTORS, CURVES AND SURFACES, INTEGRAL AND DIFFERENTIAL CALCULUS, PARTIAL DERIVATIVES, WITH AN EMPHASIS ON GEOSPATIAL APPLICATIONS. CONCEPTS OF GEOSPATIAL COORDINATE SYSTEMS AND GEOSPATIAL COORDINATE TRANSFORMATIONS; OVERVIEW OF SPATIAL STATISTICS AND BEST-FIT SOLUTIONS WITH GEOSPATIAL APPLICATIONS. STUDENTS MAY NOT RECEIVE CREDIT FOR BOTH MATH 3300 AND GISC 3300.

**Prerequisite:** MATH 2413 and 2414.

**MATH 3301 Introduction to Complex Analysis****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE INTRODUCES FUNCTIONS OF A COMPLEX VARIABLE AND THEIR APPLICATIONS. CONTENTS INCLUDE DIFFERENTIATION AND INTEGRATION; ZEROS, POLES AND RESIDUES; CONFORMAL MAPPINGS.

**Prerequisite:** (MATH 2415) or (MATH 2414 and 3314).

**MATH 3310 Mathematical Analysis for Mechanical Engineering****3 Semester Credit Hours (3 Lecture Hours)**

APPLICATIONS OF FUNDAMENTALS OF LINEAR ALGEBRA, VECTOR ANALYSIS, NUMERICAL METHODS, COMPUTER PROGRAMMING AND PROBABILITY AND STATISTICS INTO MECHANICAL ENGINEERING. MAY NOT COUNT TOWARDS THE MATH MAJOR. STUDENTS MAY NOT RECEIVE CREDIT FOR BOTH MATH 3310 AND MEEN 3310.

**Prerequisite:** MATH 3315.

**MATH 3311 Linear Algebra****3 Semester Credit Hours (3 Lecture Hours)**

FUNDAMENTALS OF LINEAR ALGEBRA AND MATRIX THEORY. TOPICS INCLUDE VECTORS, MATRIX OPERATIONS, LINEAR TRANSFORMATIONS, FUNDAMENTAL PROPERTIES OF VECTOR SPACES, SYSTEMS OF LINEAR EQUATIONS, EIGENVALUES AND EIGENVECTORS. APPLICATIONS.

**Prerequisite:** MATH 2413.

**MATH 3312 College Geometry****3 Semester Credit Hours (2 Lecture Hours, 2 Lab Hours)**

A CAREFUL STUDY OF THE FOUNDATIONS OF EUCLIDEAN GEOMETRY BY SYNTHETIC METHODS WITH AN INTRODUCTION TO NON-EUCLIDEAN GEOMETRIES. AN INTRODUCTION TO TRANSFORMATIONAL GEOMETRY.

**Prerequisite:** MATH 2413.

**MATH 3313 Foundations of Number Theory****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE ASSISTS A STUDENT'S TRANSITION TO ADVANCED MATHEMATICS. FUNDAMENTALS OF LOGIC AND PROOF ARE REVIEWED AND APPLIED TO TOPICS FROM ELEMENTARY NUMBER THEORY.

**Prerequisite:** MATH 2305 and 2414.

**MATH 3314 Foundations of Real Numbers****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE ASSISTS A STUDENT'S TRANSITION TO ADVANCED MATHEMATICS. FUNDAMENTALS OF LOGIC AND PROOF ARE REVIEWED AND APPLIED TO DEVELOPMENT OF THE REAL NUMBER LINE.

**Prerequisite:** MATH 2414 and 2305.

**MATH 3315 Differential Equations****3 Semester Credit Hours (3 Lecture Hours)**

AN INTRODUCTION TO BOTH THEORETICAL AND APPLIED ASPECTS OF ORDINARY DIFFERENTIAL EQUATIONS. TOPICS INCLUDE: FIRST ORDER EQUATIONS, LINEAR SECOND ORDER EQUATIONS, ELEMENTARY NUMERICAL METHODS, AND THE LAPLACE TRANSFORM.

**Prerequisite:** MATH 2414.

**MATH 3342 Applied Probability and Statistics****3 Semester Credit Hours (3 Lecture Hours)**

A CALCULUS BASED INTRODUCTION TO PROBABILITY AND STATISTICS. EMPHASIS WILL BE ON DEVELOPMENT OF STATISTICAL THINKING AND WORKING WITH DATA. TOPICS INCLUDE PROBABILITY THEORY, DESCRIPTIVE STATISTICS, COMMON DISTRIBUTIONS, AND STATISTICAL INFERENCE.

**Prerequisite:** MATH 2413.

**MATH 3345 Statistical Modeling and Data Analysis****3 Semester Credit Hours (3 Lecture Hours)**

AN INTRODUCTION TO PROBABILITY/STATISTICAL MODELING AND DATA ANALYSIS TECHNIQUES TO INVESTIGATE DATA. TOPICS INCLUDE: EXPLORATORY DATA ANALYSIS, PROBABILITY MODELS AND SIMULATION, SAMPLING DISTRIBUTIONS, STATISTICAL INFERENCE. APPLICATIONS TO REAL WORLD PROBLEMS. STUDENTS WILL BE EXPECTED TO PRESENT AND JUSTIFY RESULTS ORALLY AND IN WRITING.

**Prerequisite:** MATH 2413 and (COSC 1330 or 1435).

**MATH 3347 Introduction to Probability****3 Semester Credit Hours (3 Lecture Hours)**

THIS IS AN INTRODUCTION TO PROBABILITY. IN THE COURSE, KEY FUNDAMENTAL CONCEPTS OF PROBABILITY, RANDOM VARIABLES AND THEIR DISTRIBUTIONS, EXPECTATIONS, AND CONDITIONAL PROBABILITIES WILL BE COVERED. TOPICS INCLUDE COUNTING RULES, COMBINATORIAL ANALYSIS, SAMPLE SPACES, AXIOMS OF PROBABILITY, CONDITIONAL PROBABILITY AND INDEPENDENCE, DISCRETE AND CONTINUOUS RANDOM VARIABLES, JOINTLY DISTRIBUTED RANDOM VARIABLES, CHARACTERISTICS OF RANDOM VARIABLES, LAW OF LARGE NUMBERS AND CENTRAL LIMIT THEOREM, RANDOM PROCESSES, MARKOV CHAINS, MARKOV CHAIN-MONTE CARLO, POISSON PROCESS AND ENTROPY.

**Prerequisite:** MATH 2415.

**MATH 3385 Linear Optimization and Decisions****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE INTRODUCES THE LINEAR PROGRAMMING AND OPTIMIZATION PROBLEMS ARISING IN MANY APPLICATIONS. CONTENTS INCLUDE LINEAR PROGRAMMING MODELS WITH SOLUTIONS, THE SIMPLEX METHOD, DUALITY THEORY AND ITS USE FOR MANAGEMENT DECISION MAKING, DUAL SIMPLEX METHOD AND SENSITIVITY ANALYSIS.

**Prerequisite:** MATH 3311 and 2413.

**MATH 3390 Problem Solving in Mathematics****1-3 Semester Credit Hours (1-3 Lecture Hours)**

A PROBLEM SOLVING COURSE FOR STUDENTS WHO WANT TO PARTICIPATE IN MATH PROBLEM SOLVING COMPETITIONS, TRAIN FOR THE ACTUARIAL OR OTHER PROFESSIONAL EXAMINATIONS, WORK ON RESEARCH AIMED AT CONFERENCE PRESENTATIONS, OR PERFORM RESEARCH PROJECTS AT THE JUNIOR LEVEL THAT ARE NOT AT THE LEVEL OF DIRECTED INDEPENDENT STUDY MATERIAL.

**Prerequisite:** MATH 2414.

**MATH 4185 Senior Mathematics Seminar****1 Semester Credit Hour (1 Lecture Hour)**

THIS COURSE INTRODUCES A WEEKLY MATHEMATICS SEMINAR. STUDENTS WILL GENERATE A VIABLE PROJECT FOR THE CAPSTONE COURSE.

**MATH 4285 Mathematics Major Capstone****2 Semester Credit Hours (2 Lecture Hours)**

DEVELOPMENT OF PROJECTS AS PROPOSED IN MATH 4185, AS WELL AS MATHEMATICS COMMUNICATION SKILLS. STUDENTS WILL PRESENT THEIR PROJECTS, AND TAKE A NATIONAL LEVEL ASSESSMENT.

**Prerequisite:** MATH 4185.

**MATH 4301 Introduction to Analysis****3 Semester Credit Hours (3 Lecture Hours)**

AN ADVANCED TREATMENT OF THE FOUNDATIONS OF CALCULUS STRESSING RIGOROUS PROOFS OF THEOREMS. TOPICS INCLUDE: ELEMENTS OF PROPOSITIONAL AND PREDICATE LOGIC, TOPOLOGY OF THE REAL NUMBERS, SEQUENCES, LIMITS, THE DERIVATIVE, AND THE RIEMANN INTEGRAL.

**Prerequisite:** MATH 2415 and 3314.

**MATH 4306 Modern Algebra****3 Semester Credit Hours (3 Lecture Hours)**

FUNDAMENTALS OF SET OPERATIONS, MAPS AND RELATIONS, GROUPS, RINGS AND FIELD THEORY. TOPICS INCLUDE PERMUTATION GROUPS, COSETS, HOMOMORPHISMS AND ISOMORPHISMS, DIRECT PRODUCT OF GROUPS AND RINGS, INTEGRAL DOMAINS FIELD OF QUOTIENTS, FUNDAMENTAL PROPERTIES OF INTEGERS, THE RING OF INTEGERS MODULO  $N$ , AND RINGS OF POLYNOMIALS. APPLICATIONS.

**Prerequisite:** MATH 3311 and 3313.

**MATH 4312 Differential Geometry****3 Semester Credit Hours (3 Lecture Hours)**

DIFFERENTIAL FORMS ON  $R^1$ ,  $R^2$ ,  $R^3$ , AND  $R^n$ ; INTEGRATION AND DIFFERENTIATION OF DIFFERENTIAL FORMS; STOKES' THEOREM; MANIFOLDS; GAUSSIAN CURVATURE AND THE GAUSS-BONNET THEOREM.

**Prerequisite:** MATH 2415.

**MATH 4315 Partial Differential Equations****3 Semester Credit Hours (3 Lecture Hours)**

AN INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS EMPHASIZING THE WAVE, DIFFUSION AND POTENTIAL (LAPLACE) EQUATIONS. A FOCUS ON UNDERSTANDING THE PHYSICAL MEANING AND MATHEMATICAL PROPERTIES OF SOLUTIONS OF PARTIAL DIFFERENTIAL EQUATIONS. METHODS INCLUDE FUNDAMENTAL SOLUTIONS AND TRANSFORM METHODS FOR PROBLEMS ON THE LINE, AND SEPARATION OF VARIABLES USING ORTHOGONAL SERIES FOR PROBLEMS IN REGIONS WITH BOUNDARY. ADDITIONAL TOPICS INCLUDE HIGHER DIMENSIONAL PROBLEMS AND SPECIAL TOPICS LIKE HARMONIC FUNCTIONS, THE MAXIMUM PRINCIPLE, GREEN'S FUNCTIONS ETC.

**Prerequisite:** MATH 3315 and 2415.



**MATH 4321 Applied Regression Analysis****3 Semester Credit Hours (3 Lecture Hours)**

INTRODUCTION TO THE FORMULATION OF LINEAR MODELS AND THE ESTIMATION OF THE PARAMETERS OF SUCH MODELS, WITH PRIMARY EMPHASIS ON LEAST SQUARES. APPLICATION OF MULTIPLE REGRESSION AND CURVE FITTING AND THE DESIGN OF EXPERIMENTS FOR FITTING REGRESSION MODELS.

**Prerequisite:** MATH 1342, 2342 or 1470.

**MATH 4328 Discrete Mathematics II****3 Semester Credit Hours (3 Lecture Hours)**

A CONTINUED STUDY OF TOPICS FROM DISCRETE MATHEMATICS I WITH ADDITIONAL TOPICS FROM DISCRETE MATHEMATICS THAT HAVE STRONG APPLICATION TO THE FIELD OF COMPUTER SCIENCE. ADDITIONAL TOPICS INCLUDE: RECURRENCE RELATIONS, FORMAL LANGUAGES, AND FINITE-STATE MACHINES.

**Prerequisite:** MATH 2305 and COSC 2437.

**MATH 4342 Introduction to Mathematical Statistics****3 Semester Credit Hours (3 Lecture Hours)**

THIS IS A FIRST COURSE IN MATHEMATICAL STATISTICS, TOPICS INCLUDE: MOMENT-GENERATING FUNCTIONS, FUNCTIONS OF RANDOM VARIABLES, SAMPLING DISTRIBUTIONS, METHODS OF ESTIMATION INCLUDING BAYESIAN ESTIMATION, CHARACTERISTICS OF ESTIMATORS, INTERVAL ESTIMATION, HYPOTHESIS TESTING, NEYMAN-PEARSON LEMMA, LIKELIHOOD RATIO TEST, TESTS INVOLVING MEANS AND VARIANCES, REGRESSION AND CORRELATION, MULTIPLE LINEAR REGRESSION, INTRODUCTION TO ANOVA, NON-PARAMETRIC TESTS.

**Prerequisite:** MATH 2415.

**MATH 4385 Applied Modeling****3 Semester Credit Hours (3 Lecture Hours)**

CAPSTONE COURSE FOR MATHEMATICS MAJORS. THE CONSTRUCTION OF MATHEMATICAL MODELS FROM AREAS SUCH AS ECONOMICS, REFINING, BIOLOGY AND MARICULTURE, ETC. WHERE POSSIBLE, LOCAL PHENOMENA WILL BE MODELED WITH THE ASSISTANCE OF OUTSIDE CONSULTANTS.

**Prerequisite:** MATH 3315 and 3342 or MATH 3345.

**MATH 4390 Selected Topics****3 Semester Credit Hours (3 Lecture Hours)**

OFFERED ON SUFFICIENT DEMAND.

**MATH 4696 Directed Independent Study****1-6 Semester Credit Hours**

SEE COLLEGE DESCRIPTION.

**Reading Courses****READ 0399 Basic Reading and Comprehension****3 Semester Credit Hours (3 Lecture Hours)**

THIS IS A READING COURSE FOR STUDENTS WHO NEED ASSISTANCE IN DEVELOPING COLLEGE LEVEL READING SKILLS. EMPHASIS WILL BE ON IMPROVING READING COMPREHENSION, CRITICAL REASONING SKILLS, RECOGNITION OF THE ORGANIZATION OF IDEAS IN WRITTEN MATERIAL, STUDY SKILLS AND VOCABULARY DEVELOPMENT. THE HIGHER EDUCATION ASSESSMENT (THEA) READING SKILLS WILL BE COVERED.

**READ 3310 Principles and Practices of Early Reading Instruction****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE EXPLORES THEORIES OF EARLY LANGUAGE AND LITERACY DEVELOPMENT OF CHILDREN. COURSE CONTENT ADDRESSES LANGUAGE DEVELOPMENT AND LITERACY CONCEPTS ESSENTIAL FOR PRE-READING AREAS, SUCH AS PHONEMIC AWARENESS, ORAL LANGUAGE DEVELOPMENT, LISTENING COMPREHENSION DEVELOPMENT, AND ALPHABETIC KNOWLEDGE. THE COURSE EXPLORES WAYS EDUCATORS CAN ENHANCE LANGUAGE AND LITERACY CONCEPTS UTILIZING ART, MUSIC, AND DRAMA. READ 3310 EMPHASIZES DEVELOPMENT OF EMERGENT LITERACY SKILLS THAT LEAD TO LITERACY SKILLS TAUGHT IN READ 3320.

**READ 3320 Principles and Practices of Reading Instruction****3 Semester Credit Hours (3 Lecture Hours)**

THE PURPOSE OF THIS COURSE IS TO PROVIDE THE PRESERVICE TEACHER WITH A SOLID FOUNDATION FOR EFFECTIVE LITERACY INSTRUCTION. THIS COURSE WILL REVIEW RESEARCH-BASED TEACHING STRATEGIES, INSTRUCTIONAL MATERIALS FOR PHONICS, VOCABULARY, FLUENCY, AND COMPREHENSION WILL AS METHODS AND ASSESSMENTS FOR EFFICACIOUS LITERACY INSTRUCTION. THE PRIMARY FOCUS OF COURSE CONTENT WILL BE ON CORE (TIER 1) CLASSROOM INSTRUCTION WITH DISCUSSIONS OF DIFFERENTIATED INSTRUCTION AND FRAMEWORKS FOR RESPONSIVE INTERVENTION ALSO ADDRESSED. THE TARGETED GRADE LEVELS FOR THIS COURSE ARE THIRD THROUGH SIXTH GRADE.

**READ 3321 Principles and Practices of Reading Instruction, Grades 4 – 8****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE WILL EMPHASIZE MATERIALS, METHODS, AND BELIEFS FOR TEACHING READING IN GRADES 4-8. COMPONENTS OF THE COURSE WILL INCLUDE BUT NOT BE LIMITED TO THE FIVE PILLARS OF READING INSTRUCTION IDENTIFIED BY THE NATIONAL READING PANEL (2000): PHONEMIC AWARENESS, PHONICS, FLUENCY, VOCABULARY, AND COMPREHENSION.

**READ 3351 Reading Assessment and Intervention****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE IS AN INTRODUCTION TO UTILIZING FORMAL AND INFORMAL READING ASSESSMENTS AND INTERVENTION STRATEGIES IN A CLASSROOM SETTING. STUDENTS WILL ADMINISTER ASSESSMENTS IN THE AREAS OF PHONEMIC AWARENESS, PHONICS, FLUENCY, VOCABULARY, AND COMPREHENSION. STUDENTS WILL THEN SELECT AND ADAPT APPROPRIATE SCIENTIFICALLY PROVEN INSTRUCTIONAL STRATEGIES, BASED UPON ASSESSMENT RESULTS, FOR WORKING WITH READERS OF VARYING ABILITIES AND IMPLEMENT THESE THROUGH ACTUAL LESSONS.

**Prerequisite:** READ 3310 and 3320 or READ 3353.

**READ 3352 Content Area Reading for Elementary Students****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE FOCUSES ON RECENT ISSUES, MATERIALS, METHODS, AND STRATEGIES CONSIDERED ESSENTIAL FOR EFFECTIVE READING INSTRUCTION IN THE ELEMENTARY SCHOOL CONTENT AREAS. COMPONENTS OF THE COURSE WILL INCLUDE COMPREHENSION STRATEGIES, VOCABULARY DEVELOPMENT, READING-WRITING CONNECTIONS, AND WORD STUDY. THE COURSE WILL ALSO INCLUDE BUT NOT BE LIMITED TO THE FIVE PILLARS OF READING INSTRUCTION IDENTIFIED BY THE NATIONAL READING PANEL (2000): PHONEMIC AWARENESS, PHONICS, FLUENCY, VOCABULARY, AND COMPREHENSION.

**Prerequisite:** READ 3310 and 3320.

**READ 3353 Content Area Reading for Secondary Students****3 Semester Credit Hours (3 Lecture Hours)**

THE SKILLS REQUIRED OF SECONDARY STUDENTS TO DEAL WITH SUBJECT MATTER IN THE VARIOUS CONTENT AREAS ARE PRESENTED. IN ADDITION, DEVELOPMENTAL AND CORRECTIVE PROCESSES THAT INCORPORATE THE IDENTIFICATION AND REMEDIATION OF DYSLEXIA AND OTHER READING DISORDERS ARE PRESENTED.

**READ 3355 Teaching Reading in the Secondary School****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE FOCUSES ON PLANNING, DEVELOPING, SELECTING, AND ORGANIZING READING MATERIALS FOR SECONDARY READING INSTRUCTION.

**Prerequisite:** READ 3353.

**READ 3356 Technology and Literacy****3 Semester Credit Hours (3 Lecture Hours)**

VARIOUS SOFTWARE PACKAGES THAT HAVE BEEN DEVELOPED FOR PROVIDING INITIAL AND TUTORIAL INSTRUCTION IN THE LANGUAGE ARTS ARE PRESENTED. IN ADDITION, INSTRUCTIONAL TECHNIQUES FOR USING THESE PACKAGES ARE COVERED.

**Prerequisite:** READ 3320 and 3321.

**READ 3380 Children's and Adolescents' Literature****3 Semester Credit Hours (3 Lecture Hours)**

PROVIDES STUDENTS WITH AN UNDERSTANDING OF CHILDREN'S AND ADOLESCENT LITERATURE. INCLUDED IN THE CLASS IS THE READING AND STUDY OF LITERATURE AND HOW TO PROMOTE READING OF LITERATURE IN THE SCHOOLS. EXTENSIVE READING IS REQUIRED.

**READ 4352 Advanced Practices in Reading/ Language Arts****3 Semester Credit Hours**

THE EMPHASIS IS ON INSTRUCTIONAL APPROACHES SUPPORTED BY CURRENT THEORY AND RESEARCH AND SUPERVISED IMPLEMENTATION IN A SCHOOL SETTING. ATTENTION IS GIVEN TO WORD STUDY, COMPREHENSION, CRITICAL READING AND REASONING, AND READING-WRITING CONNECTIONS. COMPONENTS OF THE COURSE WILL INCLUDE BUT NOT BE LIMITED TO THE FIVE PILLARS OF READING INSTRUCTION IDENTIFIED BY THE NATIONAL READING PANEL (2000): PHONEMIC AWARENESS, PHONICS, FLUENCY, VOCABULARY, AND COMPREHENSION.

**Prerequisite:** READ 3320, 3351, 4380 and 4394\*.

\* May be taken concurrently.

**READ 4394 Field Experiences in Reading****3 Semester Credit Hours (3 Lecture Hours)**

THE CULMINATING EXPERIENCE FOR THOSE STUDENTS WORKING TOWARD A SPECIALIZATION IN READING. STUDENTS ARE PROVIDED SUPERVISED EXPERIENCE IN FIELD-BASED ACTIVITIES, IN ADDITION TO ON-CAMPUS ACTIVITIES.

**Prerequisite:** READ 3310, 3320, 3351, 3352 and 4380.

**READ 4696 Directed Individual Study****1-6 Semester Credit Hours**

PROGRAMS WILL BE DESIGNED FOR INDIVIDUAL CASES THROUGH SPECIAL PERMISSION OF THE DEPARTMENT CHAIR AND DEAN. MAY BE REPEATED FOR CREDIT WHEN THE TOPIC VARIES.

**Science/Math and Tech Education Courses****SMTE 0091 Biological Laboratory Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0092 Biomedical Laboratory Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0093 Chemistry Laboratory Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0094 Geology Laboratory Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0095 Physics Laboratory Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0096 Environmental Science Laboratory Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0097 Art Student Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0098 Theatre Student Safety Seminar****0 Semester Credit Hours**

THIS NON-CREDIT COURSE IS DESIGNED AS AN ON-LINE OFFERING THAT MUST BE PASSED BY STUDENTS EACH SEMESTER AND AT A GRADE OF 100%. STUDENTS WILL BE RESPONSIBLE FOR TAKING SAFETY COURSES WITH DIFFERENT COURSE NUMBERS OF SMTE, AS EACH LAB MUST MEET DIFFERENT SAFETY REQUIREMENTS AS SPECIFIED BY THE A&M SYSTEM, DEPENDING ON THE TYPES OF HAZARDOUS MATERIALS USED IN EACH LAB. STUDENTS WILL NOT BE CHARGED A FEE FOR TAKING THESE COURSES.

**SMTE 0099 ENGINEERING SAFETY SEMINAR****0 Semester Credit Hours****SMTE 1350 Fundamentals of Mathematics I****3 Semester Credit Hours (3 Lecture Hours)**

THE CONCEPTUAL FRAMEWORK FOR UNDERSTANDING AND APPLYING PROPERTIES, MODELS, AND OPERATIONS RELATED TO VARIOUS NUMBER SYSTEMS IN PROBLEM SOLVING SETTINGS.

**Prerequisite:** MATH 1314.

**TCCNS:** MATH 1350

**SMTE 1351 Fundamentals of Mathematics II****3 Semester Credit Hours (3 Lecture Hours)**

THE CONCEPTUAL FRAMEWORK FOR UNDERSTANDING AND APPLYING PROPERTIES, MODELS, AND OPERATIONS RELATED TO VARIOUS DATA SYSTEMS IN PROBLEM SOLVING SETTINGS.

**Prerequisite:** SMTE 1350.

**TCCNS:** MATH 1351

**SMTE 3315 Foundational Approaches to the Physical Sciences****3 Semester Credit Hours (2 Lecture Hours, 2 Lab Hours)**

PHYSICAL SCIENCE TOPICS SUCH AS SIMPLE MACHINES, ATOMS, MOLECULES, ELECTRICITY AND MAGNETISM, SOUND, AND LIGHT. LABORATORY INVOLVEMENT WILL EMPHASIZE TECHNIQUES OF PROBLEM SOLVING, DATA GATHERING, AND DATA APPLICATION. THE COURSE IS TAUGHT FOLLOWING AN INQUIRY BASED FORMAT AND IS RECOMMENDED FOR FUTURE K-8 LEVEL SCIENCE EDUCATORS.

**Co-requisite:** SMTE 0096.

**SMTE 3316 Foundational Approaches to the Life Sciences****3 Semester Credit Hours (2 Lecture Hours, 2 Lab Hours)**

EMPHASIS ON BIOLOGICAL CONCEPTS INCLUDING CELLS, PLANTS, INVERTEBRATE AND VERTEBRATE STRUCTURAL SYSTEMS. LABORATORY INVESTIGATIONS FOCUS ON TECHNIQUES OF PROBLEM SOLVING, DATA GATHERING, AND DATA APPLICATIONS. THE COURSE IS TAUGHT FOLLOWING AN INQUIRY BASED FORMAT AND IS RECOMMENDED FOR FUTURE K-8 LEVEL SCIENCE EDUCATORS.

**Co-requisite:** SMTE 0091.

**SMTE 3352 Fundamentals of Mathematics III****3 Semester Credit Hours (3 Lecture Hours)**

THE CONCEPTUAL FRAMEWORK FOR UNDERSTANDING AND APPLYING PROPERTIES, MODELS, AND OPERATIONS RELATED TO VARIOUS GEOMETRIC SYSTEMS IN PROBLEM SOLVING SETTINGS.

**Prerequisite:** SMTE 1351.

**SMTE 4217 Secondary Approaches to the Life Sciences****2 Semester Credit Hours (2 Lecture Hours)**

STUDY OF SECONDARY SCIENCE TEACHING AND LEARNING FROM THE STANDPOINTS OF THEORY AND PRACTICE, CURRICULUM OBJECTIVES, MATERIALS AND EVALUATION. THE COURSE WILL EMPHASIZE CONTEMPORARY ISSUES BY FOCUSING ON BIOLOGICAL CONTENT RANGING ACROSS THE SUB-DISCIPLINES OF MOLECULAR BIOLOGY, PHYSIOLOGY, EVOLUTION AND ENVIRONMENTAL SCIENCE WHILE TEACHING IN A RELEVANT AND ENGAGING CONTEXT THAT INCLUDES WEB SEARCHES, LABORATORY ACTIVITIES, AND STUDENT-CENTERED INQUIRY ACTIVITIES

**SMTE 4270 Science Education Topics I****2 Semester Credit Hours (2 Lecture Hours)**

PRESENTATION OF THE CONCEPTUAL FRAMEWORK FOR UNDERSTANDING AND APPLYING SCIENCE CONTENT IN LIFE SCIENCES INCLUDING BIOLOGY, ECOLOGY AND EVOLUTION USING THE NATIONAL STANDARDS FOR SCIENCE EDUCATION AND TEXAS ESSENTIAL KNOWLEDGE AND SKILLS (TEKS). THE COURSE IS TAUGHT USING SCIENTIFICALLY RESEARCHED LITERATURE AND CONTENT KNOWLEDGE IN AN INQUIRY BASED FORMAT AND IS RECOMMENDED FOR FUTURE 4-8 AND 7-12 LEVEL SCIENCE EDUCATORS.

**SMTE 4273 Historical Development of the Sciences****2 Semester Credit Hours (2 Lecture Hours)**

STUDY OF HUMAN ENDEAVORS LEADING TO THE PRESENT BODY OF SCIENTIFIC KNOWLEDGE PLACED IN A HISTORICAL AND PHILOSOPHICAL CONTEXT. PORTIONS OF THE MATERIALS WILL BE PRESENTED IN A FORMAT CONDUCIVE TO ADAPTATION FOR MIDDLE SCHOOL AND HIGH SCHOOL.

**Prerequisite:** BIOL 1407, CHEM 1412 and EDUC 3311.

**SMTE 4320 Secondary Science Laboratory Techniques****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE IS DESIGNED TO ASSIST THE 4-8 AND 7-12 FUTURE SCIENCE TEACHER IN DEVELOPING CONTENT KNOWLEDGE, SKILLS AND MASTERY OF DESIGNATED LABORATORY AND RESEARCH TECHNIQUES THROUGH SCIENTIFIC EXPERIMENTATION IN AREAS SUCH AS CHEMISTRY, BIOLOGY AND PHYSICS. STATE AND NATIONAL LABORATORY SAFETY MANDATES WILL ALSO BE ADDRESSED.

**Prerequisite:** BIOL 1407, CHEM 1412 and EDUC 3311.

**Co-requisite:** SMTE 0091.

**SMTE 4370 Mathematics Education Topics I****3 Semester Credit Hours (3 Lecture Hours)**

PRESENTATIONS OF CONTEMPORARY ISSUES IN MATHEMATICS EDUCATION. TOPICS INCLUDE HISTORY OF MATHEMATICS EDUCATION, STATE AND NATIONAL STANDARDS FOR MATHEMATICS EDUCATION, COGNITIVE DEVELOPMENT, THE IMPORTANCE OF CULTURE, LANGUAGE AND GENDER IN LEARNING MATHEMATICS, AUTHENTIC ASSESSMENT, AND INTERDISCIPLINARY CURRICULUM.

**SMTE 4382 Basic Mathematics From An Advanced Viewpoint****3 Semester Credit Hours (3 Lecture Hours)**

CAPSTONE COURSE FOR STUDENTS PURSUING GRADES 4-8 CERTIFICATION IN MATHEMATICS. PRESENTS BASIC MATHEMATICAL CONCEPTS IN THE CONTEXT OF ADVANCED MATHEMATICS COURSES. THE COURSE INCLUDES HISTORICAL DEVELOPMENT OF SIGNIFICANT IDEAS IN MATHEMATICS AND SCIENCE, INTERPRETATIONS OF MATHEMATICAL TOPICS AT MULTIPLE LEVELS, AND THE USE OF TECHNOLOGY TO GENERATE AND CONVEY UNDERSTANDING OF MATHEMATICAL IDEAS.

**Prerequisite:** MATH 2305 and 3312.

**SMTE 4490 Selected Topics****1-4 Semester Credit Hours (1-4 Lecture Hours)**

SUBJECT MATERIALS VARIABLE. MAY BE REPEATED FOR CREDIT WHEN TOPICS ARE SIGNIFICANTLY DIFFERENT.

**SMTE 4496 Directed Independent Study****1-4 Semester Credit Hours**

REQUIRES A FORMAL PROPOSAL OF STUDY TO BE COMPLETED IN ADVANCE OF REGISTRATION AND TO BE APPROVED BY THE SUPERVISING FACULTY, THE CHAIRPERSON, AND THE DEAN OF THE COLLEGE.

**Special Education Courses****SPED 2397 Special Education Field Experience****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE REQUIRES STUDENTS TO PARTICIPATE IN SCHOOLS AND PROGRAMS THAT SERVE INDIVIDUALS WITH DISABILITIES ON AND OFF CAMPUS. STUDENTS WILL BE ACTIVELY INVOLVED IN THE LEARNING SITUATION.

**SPED 3325 Strategic Instruction for Students with High-Incidence Disabilities****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE PROVIDES AN INTRODUCTION AND DEMONSTRATION OF SPECIFIC SKILLS NECESSARY FOR TEACHING STUDENTS WITH HIGH-INCIDENCE DISABILITIES.

**SPED 3330 Individualized Education Programs for Students with Disabilities****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE EMPHASIZES THE DESIGN AND IMPLEMENTATION OF INDIVIDUALIZED EDUCATIONAL PROGRAMS (IEP) FOR STUDENTS WITH DISABILITIES.

**SPED 3335 Applied Learning Theory****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE IS DESIGNED TO DEVELOP AND EXTEND THE STUDENT'S KNOWLEDGE OF THE PRINCIPLES OF APPLIED LEARNING THEORY AS IT RELATES TO STUDENTS WITH EXTENSIVE AND PERVASIVE SUPPORT NEEDS.

**SPED 3340 Individuals with Severe Disabilities****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE IS AN INTRODUCTORY STUDY OF THE ADAPTATIONS, APPROACHES, AND SUPPORTS NECESSARY TO MEET THE EDUCATIONAL NEEDS OF STUDENTS WHO HAVE COMMUNICATION, INTELLECTUAL, MOTOR, SENSORY, MEDICAL IMPAIRMENTS, AND/OR OTHER EXTENSIVE AND PERVASIVE SUPPORT NEEDS. THERE ARE NO PREREQUISITE COURSES REQUIRED TO ENROLL IN THIS COURSE.

**SPED 4310 Students with Exceptionalities****3 Semester Credit Hours (3 Lecture Hours)**

THIS COURSE IS DESIGNED TO FAMILIARIZE THE STUDENT WITH THE VARIOUS CONDITIONS OF INDIVIDUALS WITH DISABILITIES.

**SPED 4315 Motor Development for Students with Exceptional Needs****3 Semester Credit Hours (3 Lecture Hours)**

A COMPARATIVE OVERVIEW OF THE PHYSICAL DEVELOPMENT AND MOTOR-ACTIVITY NEEDS OF STUDENTS WITH DISABILITIES.

**SPED 4320 Community-based Instruction for the Students with Exceptionalities****3 Semester Credit Hours (3 Lecture Hours)**

STRATEGIES AND PROCEDURES FOR TEACHING COMMUNITY-BASED INSTRUCTION TO INDIVIDUALS WITH DISABILITIES, INCLUDING INDEPENDENT LIVING AND SOCIALIZATION SKILLS, ARE DISCUSSED.

**SPED 4345 Behavioral Supports and Interventions for Students with Disabilities****3 Semester Credit Hours (3 Lecture Hours)**

THIS INTRODUCTORY COURSE WILL FOCUS ON POSITIVE BEHAVIORAL SUPPORTS AND BEHAVIOR INTERVENTION TECHNIQUES. COURSE CONTENT INCLUDES INFORMATION ON: DEFINITIONS, CHARACTERISTICS, PREVALENCE, CAUSES, ASSESSMENT, PREVENTION OF BEHAVIORAL DIFFICULTIES, FUNCTIONAL BEHAVIOR ASSESSMENT, APPLIED BEHAVIOR ANALYSIS, EDUCATION SERVICE DELIVERY, ADVOCACY, AND OTHER CURRENT ISSUES IN THE FIELD.

**SPED 4696 Directed Individual Study****1-6 Semester Credit Hours**

PROGRAMS WILL BE DESIGNED FOR INDIVIDUAL CASES THROUGH SPECIAL PERMISSION OF THE DEPARTMENT CHAIR AND DEAN. MAY BE REPEATED FOR CREDIT WHEN THE TOPIC VARIES.