

## Degree Description

This program of study is intended to provide students a transferable pathway of courses leading to a bachelor's degree in Biology. Students who plan to transfer and continue their study at a four-year institution should refer to the catalog of the transfer institution and consult with a full-time advisor. This degree plan is based on the Field of Study curriculum established by the Texas Higher Education Coordination Board.

### Marketable Skills

1. Acquire knowledge and understanding of the cell, genetics, regulation, organismal structure & function, ecology, and evolution.
2. Develop essential professional interpersonal skills, oral and written communication skills, and problem solving skills.
3. Develop and conduct investigations involving experimental design and hypothesis testing using the scientific method and scientific inquiry.
4. Interpret and analyze data qualitatively and quantitatively from diverse scientific sources.
5. Present and communicate scientific findings to diverse audiences.
6. Work safely and effectively in a laboratory.
7. Understand and identify the relationship between science and society.

<b>Semester I</b>	<b>Hours</b>
<a href="#">EDUC 1100 Learning Framework</a> <sup>1</sup> <i>or</i> <a href="#">EDUC 1300 Learning Framework</a> <sup>1</sup>	1-3 hours
<a href="#">BIOL 1406 Biology for Science Majors I</a>	4 hours
<a href="#">CHEM 1411 General Chemistry I</a> <sup>2</sup>	4 hours
<a href="#">Mathematics (college-level)</a> <sup>3,4</sup>	4 hours
<a href="#">ENGL 1301 Composition I</a>	3 hours
	<b>16-18 hours</b>

<b>Semester II</b>	<b>Hours</b>
<a href="#">BIOL 1407 Biology for Science Majors II</a>	4 hours
<a href="#">CHEM 1412 General Chemistry II</a>	4 hours
<a href="#">Speech elective</a>	3 hours
<a href="#">Creative Arts elective</a>	3 hours
	<b>14 hours</b>

<b>Semester III</b>	<b>Hours</b>
<a href="#">CHEM 2423 Organic Chemistry I</a>	4 hours
<a href="#">GOVT 2305 Federal Government</a>	3 hours
<a href="#">HIST 1301 United States History I</a>	3 hours
<a href="#">PHYS 1401 College Physics I</a>	4 hours
<a href="#">Language, Philosophy, &amp; Culture elective</a>	3 hours
	<b>17 hours</b>

<b>Semester IV</b>	<b>Hours</b>
<a href="#">GOVT 2306 Texas Government</a>	3 hours
<a href="#">Social/Behavioral Science elective</a>	3 hours
<a href="#">HIST 1302 United States History II</a>	3 hours
<a href="#">Mathematics (college-level)</a> <sup>3,4</sup> <i>or</i> <a href="#">Chemistry (college-level)</a> <sup>3,5</sup> <i>or</i> <a href="#">Physics (college-level)</a> <sup>3,5</sup>	4 hours
	<b>13 hours</b>

**Total hours: 60-62 hours**

<sup>1</sup> All first-time-in college students are required to complete a Learning Framework course. Students who are TSI exempt or must complete one section of developmental education should enroll in EDUC 1100. All other first-time-in-college students should enroll in EDUC 1300. See your advisor for more information.

<sup>2</sup> CHEM 1411 requires MATH 1314 prerequisite with a minimum grade of C, or passing score on non-credit College Algebra equivalency exam.

<sup>3</sup> The student is advised to check with the school to which he or she intends to transfer for specific requirements and applicability of the course to the major at that institution.

<sup>4</sup> Math Options: MATH 2412, MATH 2413 or MATH 2414

<sup>5</sup> Science Options: CHEM 2425 or PHYS 1402

## Electives/General Education Courses

### Chemistry

<a href="#">CHEM 1405 Introductory Chemistry I</a>	4 hours
<a href="#">CHEM 1409 General Chemistry for Engineering Majors</a>	4 hours
<a href="#">CHEM 1411 General Chemistry I</a>	4 hours
<a href="#">CHEM 1412 General Chemistry II</a>	4 hours
<a href="#">CHEM 2389 Academic Cooperative</a>	3 hours
<a href="#">CHEM 2423 Organic Chemistry I</a>	4 hours
<a href="#">CHEM 2425 Organic Chemistry II</a>	4 hours

### Creative Arts

<a href="#">ARTS 1301 Art Appreciation</a>	3 hours
<a href="#">ARTS 1303 Art History I (Prehistoric to the 14th Century)</a>	3 hours
<a href="#">ARTS 1304 Art History II (14th Century to the Present)</a>	3 hours
<a href="#">DRAM 1310 Theater Appreciation</a>	3 hours
<a href="#">DRAM 2361 History of Theater I</a>	3 hours
<a href="#">DRAM 2362 History of Theater II</a>	3 hours
<a href="#">HUMA 1315 Fine Arts Appreciation</a>	3 hours
<a href="#">MUSI 1306 Music Appreciation</a>	3 hours
<a href="#">MUSI 1308 Music Literature I</a>	3 hours
<a href="#">MUSI 1309 Music Literature II</a>	3 hours
<a href="#">MUSI 1310 American Music</a>	3 hours

### Language, Philosophy, & Culture

<a href="#">ENGL 2321 British Literature</a>	3 hours
<a href="#">ENGL 2322 British Literature I</a>	3 hours
<a href="#">ENGL 2323 British Literature II</a>	3 hours
<a href="#">ENGL 2326 American Literature</a>	3 hours
<a href="#">ENGL 2327 American Literature I: Up to the Civil War</a>	3 hours
<a href="#">ENGL 2328 American Literature II: Civil War to the Present</a>	3 hours
<a href="#">ENGL 2331 World Literature</a>	3 hours
<a href="#">ENGL 2332 World Literature I: Up to the 17th Century</a>	3 hours
<a href="#">ENGL 2333 World Literature II: 17th Century to the Present</a>	3 hours
<a href="#">ENGL 2341 Forms of Literature</a>	3 hours
<a href="#">FREN 2311 Intermediate French I</a>	3 hours
<a href="#">GERM 2311 Intermediate German I</a>	3 hours
<a href="#">HUMA 1301 Introduction to Humanities I</a>	3 hours
<a href="#">HUMA 1302 Introduction to Humanities II</a>	3 hours
<a href="#">PHIL 1301 Introduction to Philosophy</a>	3 hours
<a href="#">PHIL 1304 Introduction to World Religions</a>	3 hours
<a href="#">PHIL 2306 Introduction to Ethics</a>	3 hours
<a href="#">SPAN 2311 Intermediate Spanish I</a>	3 hours
<a href="#">SGNL 2301 Intermediate ASL I</a>	3 hours

### Math

<a href="#">MATH 1314 College Algebra</a>	3 hours
<a href="#">MATH 1316 Plane Trigonometry</a>	3 hours
<a href="#">MATH 1324 Mathematics for Business &amp; Social Sciences</a>	3 hours
<a href="#">MATH 1325 Calculus for Business &amp; Social Sciences</a>	3 hours
<a href="#">MATH 1332 Contemporary Mathematics (Quantitative Reasoning)</a>	3 hours
<a href="#">MATH 1342 Elementary Statistical Methods</a>	3 hours
<a href="#">MATH 1350 Mathematics for Teachers I (Fundamentals of Mathematics I)</a>	3 hours
<a href="#">MATH 1351 Mathematics for Teachers II (Fundamentals of Mathematics II)</a>	3 hours
<a href="#">MATH 1414 College Algebra (Stem Intensive)</a>	4 hours
<a href="#">MATH 2305 Discrete Mathematics</a>	3 hours
<a href="#">MATH 2318 Linear Algebra</a>	3 hours
<a href="#">MATH 2320 Differential Equations</a>	3 hours
<a href="#">MATH 2412 Pre-Calculus Mathematics</a>	4 hours
<a href="#">MATH 2413 Calculus I</a>	4 hours
<a href="#">MATH 2414 Calculus II</a>	4 hours
<a href="#">MATH 2415 Calculus III</a>	4 hours

## Physics

<a href="#">PHYS 1401 College Physics I</a>	4 hours
<a href="#">PHYS 1402 College Physics II</a>	4 hours
<a href="#">PHYS 1403 Stars and Galaxies</a>	4 hours
<a href="#">PHYS 1404 Solar System</a>	4 hours
<a href="#">PHYS 1405 Elementary Physics I</a>	4 hours
<a href="#">PHYS 1407 Elementary Physics II</a>	4 hours
<a href="#">PHYS 2389 Academic Cooperative</a>	3 hours
<a href="#">PHYS 2425 University Physics I</a>	4 hours
<a href="#">PHYS 2426 University Physics II</a>	4 hours

## Social/Behavioral Science

<a href="#">ANTH 2351 Cultural Anthropology</a>	3 hours
<a href="#">CRIJ 1301 Introduction to Criminal Justice</a>	3 hours
<a href="#">ECON 2301 Principles of Macroeconomics</a>	3 hours
<a href="#">ECON 2302 Principles of Microeconomics</a>	3 hours
<a href="#">ENGR 2308 Engineering Economics</a>	3 hours
<a href="#">PSYC 2301 General Psychology</a>	3 hours
<a href="#">SOC1 1301 Introduction to Sociology</a>	3 hours
<a href="#">SOC1 1306 Social Problems</a>	3 hours
<a href="#">SOC1 2326 Social Psychology</a>	3 hours
<a href="#">SOCW 2361 Introduction to Social Work</a>	3 hours

## Speech

<a href="#">COMM 1307 Introduction to Mass Communication</a>	3 hours
<a href="#">SPCH 1311 Introduction to Speech Communication</a>	3 hours
<a href="#">SPCH 1315 Public Speaking</a>	3 hours
<a href="#">SPCH 1318 Interpersonal Communication</a>	3 hours
<a href="#">SPCH 1321 Business &amp; Professional Communication</a>	3 hours

# Course Descriptions

## EDUC 1100 Learning Framework

A study of the: 1) research and theory in the psychology of learning, cognition, and motivation; 2) factors that impact learning; and 3) application of learning strategies. Theoretical models of strategic learning, cognition, and motivation serve as the conceptual basis for the introduction of college-level student academic strategies. Students use assessment instruments (e.g., learning inventories) to help them identify their own strengths and weaknesses as strategic learners. Students are ultimately expected to integrate and apply the learning skills discussed across their own academic programs and become effective and efficient learners. Students developing these skills should be able to continually draw from the theoretical models they have learned. (Cross-listed as PSYC 1100.) Semester Hour 1 (1 lec)

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## EDUC 1300 Learning Framework

A study of the: 1) research and theory in the psychology of learning, cognition, and motivation; 2) factors that impact learning; and 3) application of learning strategies. Theoretical models of strategic learning, cognition, and motivation serve as the conceptual basis for the introduction of college-level student academic strategies. Students use assessment instruments (e.g., learning inventories) to help them identify their own strengths and weaknesses as strategic learners. Students are ultimately expected to integrate and apply the learning skills discussed across their own academic programs and become effective and efficient learners. Students developing these skills should be able to continually draw from the theoretical models they have learned. (Cross-listed as PSYC 1300.) Prerequisite: Must have passed the reading portion of the TSI or concurrent enrollment in INRW 0402. Semester Hours 3 (3 lec)

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## BIOL 1406 Biology for Science Majors I

Fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included. NOTE: Must have passed the reading and writing portion of the TSI Assessment or have credit for INRW 0402. Semester Hours 4 (3 lec/3 lab)

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## CHEM 1411 General Chemistry I

Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Includes basic laboratory experiments supporting theoretical principles presented in CHEM 1411, as well as an introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. Prerequisite: MATH 1314 with a minimum grade of C, passing score on non-credit equivalency exam for MATH 1314, or consent of division chair. High school chemistry is strongly recommended. Semester Hours 4 (3 lec/3 lab)

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## ENGL 1301 Composition I

Intensive study of and practice in writing processes, from invention and researching to drafting, revising, and editing, both individually and collaboratively. Emphasis is on effective rhetorical choices, including audience, purpose, arrangement, and style. Focus is on writing the academic essay as a vehicle for learning, communication, and critical analysis. Prerequisite: TSI complete in Writing or the equivalent. Semester Hours 3 (3 lec)

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## BIOL 1407 Biology for Science Majors II

The diversity and classification of life will be studied, including animals, plants, protists, fungi, and prokaryotes. Special emphasis will be given to anatomy, physiology, ecology, and evolution of plants and animals. Prerequisite: BIOL 1406 with a minimum grade of C. Semester Hours 4 (3 lec/3 lab)

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## CHEM 1412 General Chemistry II

Chemical equilibrium, phase diagrams and spectrometry, acid-base concepts, thermodynamics, kinetics, electrochemistry, nuclear chemistry, an introduction to organic chemistry and descriptive inorganic chemistry. Includes basic laboratory experiments supporting theoretical principles presented in CHEM 1412, as well as an introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports. Prerequisite: CHEM 1411 with a grade of C or better. Semester Hours 4 (3 lec/4 lab)

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## CHEM 2423 Organic Chemistry I

Fundamental principles of organic chemistry will be studied, including the structure, bonding, properties, and reactivity of organic molecules, as well as properties and behavior of organic compounds and their derivatives. Emphasis is on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Methods of purification and identification of organic compounds will be examined. This course is intended for students in science or pre-professional programs. Prerequisite: CHEM 1411 and 1412 with a grade of C or better. Semester Hours 4 (3 lec/4 lab)

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## GOVT 2305 Federal Government

Origin and development of the U.S. Constitution; structure and powers of the national government including the legislative, executive, and judicial branches; federalism; political participation; the national election process; public policy; civil liberties; and civil rights. NOTE: Must have passed the reading portion of the TSI Assessment or have credit for INRW 0402. Semester Hours 3 (3 lec)

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## HIST 1301 United States History I

A survey of the social, political, economic, cultural, and intellectual history of the United States from the pre-Columbian era to the Civil War/Reconstruction period. United States History I includes the study of pre-Columbian, colonial, revolutionary, early national, slavery and sectionalism, and the Civil War/Reconstruction eras. Themes that may be addressed in United States History I include: American settlement and diversity, American culture, religion, civil and human rights, technological change, economic change, immigration and migration, and creation of the federal government. NOTE: Must have passed the reading portion of the TSI Assessment or have credit for INRW 0402. Semester Hours 3 (3 lec)

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## PHYS 1401 College Physics I

Fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces; with emphasis on problem solving. Prerequisite: MATH 1316, 2412 or 2413 with a grade of C or better. Semester Hours 4 (3 lec/3 lab)

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## GOVT 2306 Texas Government

Origin and development of the Texas constitution, structure and powers of state and local government, federalism and inter-governmental relations, political participation, the election process, public policy, and the political culture of Texas. NOTE: Must have passed the reading portion of the TSI Assessment or have credit for INRW 0402. Semester Hours 3 (3 lec)

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## HIST 1302 United States History II

A survey of the social, political, economic, cultural, and intellectual history of the United States from the Civil War/Reconstruction era to the present. United States History II examines industrialization, immigration, world wars, the Great Depression, Cold War and post-Cold War eras. Themes that may be addressed in United States History II include: American culture, religion, civil and human rights, technological change, economic change, immigration and migration, urbanization and suburbanization, the expansion of the federal government, and the study of U.S. foreign policy. NOTE: Must have passed the reading portion of the TSI Assessment or have credit for INRW 0402. Semester Hours 3 (3 lec)

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## CHEM 1405 Introductory Chemistry I

Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for allied health students and for students who are not science majors. Semester Hours 4 (3 lec/3 lab)

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## **CHEM 1409 General Chemistry for Engineering Majors**

Fundamental principles of chemistry for engineering majors; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, acid-base concepts, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, phase-diagrams, introduction to chemical equilibrium, chemical thermodynamics, electrochemistry, and an introduction to descriptive inorganic chemistry and organic chemistry. Basic laboratory experiments supporting theoretical principles presented in CHEM 1309; introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports. Prerequisites: MATH 1314 with a minimum grade of C or equivalent preparation. Semester Hours 4 (3 lec/4 lab)

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## **CHEM 1411 General Chemistry I**

Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Includes basic laboratory experiments supporting theoretical principles presented in CHEM 1411, as well as an introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. Prerequisite: MATH 1314 with a minimum grade of C, passing score on non-credit equivalency exam for MATH 1314, or consent of division chair. High school chemistry is strongly recommended. Semester Hours 4 (3 lec/3 lab)

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## **CHEM 1412 General Chemistry II**

Chemical equilibrium, phase diagrams and spectrometry, acid-base concepts, thermodynamics, kinetics, electrochemistry, nuclear chemistry, an introduction to organic chemistry and descriptive inorganic chemistry. Includes basic laboratory experiments supporting theoretical principles presented in CHEM 1412, as well as an introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports. Prerequisite: CHEM 1411 with a grade of C or better. Semester Hours 4 (3 lec/4 lab)

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## **CHEM 2389 Academic Cooperative**

An instructional program designed to integrate on-campus study with practical hands-on work experience in the physical sciences. In conjunction with class seminars, the students will set specific individual goals and objectives in the scientific study of inanimate objects, processes of matter and energy, and associated phenomena. Prerequisite: CHEM 2423. Semester Hours 3 (2 lec/3 lab)

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## **CHEM 2423 Organic Chemistry I**

Fundamental principles of organic chemistry will be studied, including the structure, bonding, properties, and reactivity of organic molecules, as well as properties and behavior of organic compounds and their derivatives. Emphasis is on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Methods of purification and identification of organic compounds will be examined. This course is intended for students in science or pre-professional programs. Prerequisite: CHEM 1411 and 1412 with a grade of C or better. Semester Hours 4 (3 lec/4 lab)

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## **CHEM 2425 Organic Chemistry II**

Advanced principles of organic chemistry will be studied, including the structure, properties, and reactivity of aliphatic and aromatic organic molecules, as well as properties and behavior of organic compounds and their derivatives. Emphasis is on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. This course is intended for students in science or pre-professional programs. Prerequisite: CHEM 2423 with a grade of C or better. Semester Hours 4 (3 lec/4 lab)

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## **ARTS 1301 Art Appreciation**

A general introduction to the visual arts designed to create an appreciation of the vocabulary, media, techniques, and purposes of the creative process. Students will critically interpret and evaluate works of art within formal, cultural, and historical contexts. Semester Hours 3 (3 lec)

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## **ARTS 1303 Art History I (Prehistoric to the 14th Century)**

A chronological analysis of the historical and cultural contexts of the visual arts from prehistoric times to the 14th century. Semester Hours 3 (3 lec)

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## **ARTS 1304 Art History II (14th Century to the Present)**

A chronological analysis of the historical and cultural contexts of the visual arts from the 14th century to the present day. Semester Hours 3 (3 lec)

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## **DRAM 1310 Theater Appreciation**

Survey of theater including its history, dramatic works, stage techniques, production procedures, and relation to other art forms. Participation in major productions may be required. Applies as a required Humanities or Visual & Performing Arts course for all students. Semester Hours 3 (3 lec)

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## **DRAM 2361 History of Theater I**

Study of the history of the theater from primitive times through the Renaissance. Required of theatre majors; open to non-theatre majors. Semester Hours 3 (3 lec)

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## **DRAM 2362 History of Theater II**

Study of the history of the theater from the Renaissance through today. Required of theatre majors; open to non-theatre majors. Semester Hours 3 (3 lec)

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## **HUMA 1315 Fine Arts Appreciation**

This course is an exploration of the purposes and processes in the visual and performing arts (such as music, painting, architecture, drama, and dance) and the ways in which they express the values of cultures and human experience. Semester Hours 3 (3 lec)

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## **MUSI 1306 Music Appreciation**

Understanding music through the study of cultural periods, major composers, and musical elements. Illustrated with audio recordings and live performances. (Does not apply to a music major degree.) Applies as a required humanities or fine arts course for all students. Semester Hours 3 (3 lec)

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## **MUSI 1308 Music Literature I**

Survey of the principal musical forms and cultural periods as illustrated in the literature of major composers. Surveys music literature from Gregorian chant to the early classical period. Emphasis is on music materials and listening skills through recorded music and scores. Required for music majors and minors. Semester Hours 3 (3 lec)

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## **MUSI 1309 Music Literature II**

Survey of the principal musical forms and cultural periods as illustrated in the literature of major composers. Surveys music literature from the classical period to the present. Emphasis is on music materials and listening skills through recorded music and scores. Required for music majors and minors. Semester Hours 3 (3 lec)

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## **MUSI 1310 American Music**

General survey of various styles of music in America. Topics may include jazz, ragtime, folk, rock, and contemporary art music. Satisfies general humanities elective requirements. Semester Hours 3 (3 lec)

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## **ENGL 2321 British Literature**

A survey of the development of British literature from the Anglo-Saxon period to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical, linguistic, and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2322 British Literature I**

A survey of the development of British literature from the Anglo-Saxon period to the Eighteenth Century. Students will study works of prose, poetry, drama, and fiction in relation to their historical, linguistic, and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2323 British Literature II**

A survey of the development of British literature from the Romantic period to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2326 American Literature**

A survey of American literature from the period of exploration and settlement to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2327 American Literature I: Up to the Civil War**

A survey of American literature from the period of exploration and settlement through the Civil War. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2328 American Literature II: Civil War to the Present**

A survey of American literature from the Civil War to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2331 World Literature**

A survey of world literature from the ancient world to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2332 World Literature I: Up to the 17th Century**

A survey of world literature from the ancient world through the 16th century. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2333 World Literature II: 17th Century to the Present**

A survey of world literature from the 17th century to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **ENGL 2341 Forms of Literature**

The study of one or more literary genres including, but not limited to, poetry, fiction, drama, and film. Prerequisite: ENGL 1301 or ENGL 2311. Semester Hours 3 (3 lec)

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### **FREN 2311 Intermediate French I**

Review and application of skills in listening comprehension, speaking, reading, and writing. Emphasizes conversation, vocabulary acquisition, reading, composition, and culture. Prerequisite: FREN 1412, three years of high school French, or consent of instructor or division chair. Students with three years of high school French are encouraged to see a French instructor prior to enrolling. Semester Hours 3 (3 lec)

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### **GERM 2311 Intermediate German I**

Review and application of skills in listening comprehension, speaking, reading, and writing. Emphasizes conversation, vocabulary acquisition, reading, composition, and culture. Prerequisite: GERM 1412, three years of high school German, or consent of instructor or division chair. Students with three years of high school German are encouraged to see a German instructor prior to enrolling. Semester Hours 3 (3 lec)

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### **HUMA 1301 Introduction to Humanities I**

This stand-alone course is an interdisciplinary survey of cultures focusing on the philosophical and aesthetic factors in human values with an emphasis on the historical development of the individual and society and the need to create. Team taught by faculty from diverse departments as a colloquium (academic seminar led by a different lecturer and on a different topic at each session). Works may include studies, journals, novels, poems, treatises, graphic novels, films, plays, paintings, musical compositions, etc. Semester Hours 3 (3 lec)

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### **HUMA 1302 Introduction to Humanities II**

This stand-alone course is an interdisciplinary survey of cultures focusing on the philosophical and aesthetic factors in human values with an emphasis on the historical development of the individual and society and the need to create. Team taught by faculty from diverse departments as a colloquium (academic seminar led by a different lecturer and on a different topic at each session). Works may include studies, journals, novels, poems, treatises, graphic novel films, plays, paintings, musical compositions, etc. Semester Hours 3 (3 lec)

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### **PHIL 1301 Introduction to Philosophy**

A study of major issues in philosophy and/or the work of major philosophical figures in philosophy. Topics in philosophy may include theories of reality, theories of knowledge, theories of value, and their practical applications. Semester Hours 3 (3 lec)

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### **PHIL 1304 Introduction to World Religions**

A comparative study of world religions, including but not limited to Hinduism, Buddhism, Judaism, Christianity, and Islam. Semester hours 3

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### **PHIL 2306 Introduction to Ethics**

The systematic evaluation of classical and/or contemporary ethical theories concerning the good life, human conduct in society, morals, and standards of value. Semester Hours 3 (3 lec)

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### **SPAN 2311 Intermediate Spanish I**

The consolidation of skills acquired at the introductory level. Further development of proficiency in listening, speaking, reading and writing. Emphasis is on comprehension, appreciation, and interpretation of the cultures of the Spanish-speaking world. Prerequisite: SPAN 1412, three years of high school Spanish, or consent of instructor or division chair. Students with three years of high school Spanish are encouraged to see a Spanish instructor prior to enrolling. Semester Hours 3 (3 lec)

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### **SGNL 2301 Intermediate ASL I**

Review and application of conversational skills in American Sign Language and interpreting from signing to voice as well as from voice to signing. Introduction to American Sign Language literature and folklore. Prerequisite: SGNL 1402 with a grade of C or better or consent of the program director. Semester Hours 3 (3 lec)

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### **MATH 1314 College Algebra**

In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. Graphing calculator required. Prerequisite: TSI math complete or MATH 0311. Semester Hours 3 (3 lec)

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### **MATH 1316 Plane Trigonometry**

In-depth study and applications of trigonometry including definitions, identities, inverse functions, solutions of equations, graphing, and solving triangles. Additional topics such as vectors, polar coordinates and parametric equations may be included. Graphing calculator required. Prerequisite: MATH 1314 with a minimum grade of C, or passing score on non-credit equivalency exam for MATH 1314, or consent of division chair. Semester Hours 3 (3 lec)

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### **MATH 1324 Mathematics for Business & Social Sciences**

The application of common algebraic functions, including polynomial, exponential, logarithmic and rational, to problems in business, economics and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices, linear programming; and probability, including expected value. Prerequisite: TSI math complete or MATH 0311. Semester Hours 3 (3 lec)

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### **MATH 1325 Calculus for Business & Social Sciences**

This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics and social sciences. This course is not a substitute for MATH 2313 or 2413 - Calculus I. Prerequisite: MATH 1314 or MATH 1324, minimum grade C. Semester Hours 3 (3 lec)

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### **MATH 1332 Contemporary Mathematics (Quantitative Reasoning)**

Intended for Non-STEM (Science, Technology, Engineering, and Mathematics) majors. Topics include introductory treatments of sets and logic, financial mathematics, probability and statistics with appropriate applications. Number sense, proportional reasoning, estimation, technology, and communication should be embedded throughout the course. Additional topics may be covered. Graphing calculator required. Prerequisite: TSI math complete or MATH 0308 or consent of division chair. Semester Hours 3 (3 lec)

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### **MATH 1342 Elementary Statistical Methods**

Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended. Graphing calculator required. Prerequisite: TSI math complete or MATH 0308 or completion of college-level math course or consent of division chair. Semester Hours 3 (3 lec)

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### **MATH 1350 Mathematics for Teachers I (Fundamentals of Mathematics I)**

This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the conceptual development of the following: sets, functions, numeration systems, number theory, and properties of the various number systems with an emphasis on problem solving and critical thinking. Prerequisite: MATH 1314/1414 College Algebra or the equivalent or consent of division chair. Semester Hours 3 (3 lec)

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### **MATH 1351 Mathematics for Teachers II (Fundamentals of Mathematics II)**

This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the concepts of geometry, measurement, probability, and statistics with an emphasis on problem solving and critical thinking. Prerequisite: MATH 1314/1414 College Algebra Semester Hours 3 (3 lec)

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### **MATH 1414 College Algebra (Stem Intensive)**

In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. Semester hours 4 (4 lec)

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### **MATH 2305 Discrete Mathematics**

A course designed to prepare math, computer science, and engineering majors for a background in abstraction, notation, and critical thinking for the mathematics most directly related to computer science. Topics include: logic, relations, functions, basic set theory, countability and counting arguments, proof techniques, mathematical induction, combinatorics, discrete probability, recursion, sequence and recurrence, elementary number theory, graph theory, and mathematical proof techniques. Prerequisite: MATH 2413 with a grade of C or better. Semester Hours 3 (3 lec)

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### **MATH 2318 Linear Algebra**

Introduces and provides models for application of the concepts of vector algebra. Topics include finite dimensional vector spaces and their geometric significance; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; matrices; determinants; linear transformations; quadratic forms; eigenvalues and eigenvector; and applications in science and engineering. Graphing calculator required. Prerequisite or corequisite: MATH 2414 or consent of division chair. Semester Hours 3 (3 lec)

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### **MATH 2320 Differential Equations**

Ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods, and boundary value problems; application of differential equations to real-world problems. Graphing calculator required. Prerequisite or corequisite: MATH 2414 minimum grade of C. Semester Hours 3 (3 lec)

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### **MATH 2412 Pre-Calculus Mathematics**

In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Prerequisite: MATH 1314 with a minimum grade of C, or passing score on non-credit equivalency exam for MATH 1314, or consent of division chair. Semester Hours 4 (4 lec)

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### **MATH 2413 Calculus I**

Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas. Graphing calculator required. Prerequisite: MATH 2412 with a minimum grade of C, or both MATH 1314 and MATH 1316 with minimum grades of C, or passing score on non-credit equivalency exam for MATH 2412, or consent of division chair. Semester Hours 4 (4 lec)

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### **MATH 2414 Calculus II**

Differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals. Graphing calculator required. Prerequisite: MATH 2413 with a grade of C or better or consent of division chair. Semester Hours 4 (4 lec)

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### **MATH 2415 Calculus III**

Advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral, including Green's Theorem, the Divergence Theorem, and Stokes' Theorem. Graphing calculator required. Prerequisite: MATH 2414 with a grade of C or better or consent of division chair. Semester Hours 4 (4 lec)

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### **PHYS 1401 College Physics I**

Fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces; with emphasis on problem solving. Prerequisite: MATH 1316, 2412 or 2413 with a grade of C or better. Semester Hours 4 (3 lec/3 lab)

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## **PHYS 1402 College Physics II**

Fundamental principles of physics, using algebra and trigonometry; the principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics, and modern physics topics; with emphasis on problem solving. Prerequisite: PHYS 1401. Semester Hours 4 (3 lec/3 lab)

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## **PHYS 1403 Stars and Galaxies**

Study of stars, galaxies, and the universe outside our solar system. Semester Hours 4 (3 lec/3 lab)

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## **PHYS 1404 Solar System**

Study of the sun and its solar system, including its origin. Semester Hours 4 (3 lec/3 lab)

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## **PHYS 1405 Elementary Physics I**

Conceptual level survey of topics in physics intended for liberal arts and other non-science majors. Semester Hours 4 (3 lec/3 lab)

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## **PHYS 1407 Elementary Physics II**

Conceptual level survey of topics in physics intended for liberal arts and other non-science majors. Semester Hours 4 (3 lec/3 lab)

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## **PHYS 2389 Academic Cooperative**

An instructional program designed to integrate on-campus study with practical hands-on work experience in physical sciences. In conjunction with class seminars, the students will set specific individual goals and objectives in the study of inanimate objects, processes of matter and energy, and associated phenomena. Semester Hours 3 (3 lec)

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## **PHYS 2425 University Physics I**

Fundamental principles of physics, using calculus, for science, computer science, and engineering majors; the principles and applications of classical mechanics, including harmonic motion, physical systems and thermodynamics; and emphasis on problem solving. Basic laboratory experiments supporting theoretical principles involving the principles and applications of classical mechanics, including harmonic motion and physical systems; experimental design, data collection and analysis, and preparation of laboratory reports. Prerequisite: MATH 2413 with a grade of C or better. Semester Hours 4 (3 lec/3 lab)

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## **PHYS 2426 University Physics II**

Principles of physics for science, computer science, and engineering majors, using calculus, involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics. Laboratory experiments supporting theoretical principles involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics; experimental design, data collection and analysis, and preparation of laboratory reports. Prerequisites: PHYS 2425 and MATH 2414 with a grade of C or better. Semester Hours 4 (3 lec/3 lab)

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## **ANTH 2351 Cultural Anthropology**

The study of human cultures. Topics may include social organization, institutions, diversity, interactions between human groups, and ethics in the discipline. Prerequisite: Must have passed the reading portion of the TSI Assessment or have credit for INRW 0402. Semester Hours 3 (3 Lec)

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## **CRIJ 1301 Introduction to Criminal Justice**

This course provides a historical and philosophical overview of the American criminal justice system, including the nature, extent, and impact of crime; criminal law; and justice agencies and processes, and an overview of the criminal justice system, including law enforcement and court procedures. Semester Hours 3 (3 lec)

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## **ECON 2301 Principles of Macroeconomics**

Analyzes the economy as a whole including measurement and determination of aggregate demand and aggregate supply, national income, inflation, and unemployment. Other topics include international trade, economic growth, business cycles, fiscal policy and monetary policy. Prerequisite: Must have passed the TSI Assessment or be concurrently enrolled in INRW 0402. Semester Hours 3 (3 lec)

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## **ECON 2302 Principles of Microeconomics**

Analyzes the behavior of individual economic agents, including consumer behavior and demand, producer behavior and supply, price and output decisions by firms under various market structures, factor markets, market failures, and international trade. Prerequisite: Must have passed the TSI Assessment or be concurrently enrolled in INRW 0402. Semester Hours 3 (3 lec)

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## **ENGR 2308 Engineering Economics**

Methods used for determining the comparative financial desirability of engineering alternatives. Provides the student with the basic tools required to analyze engineering alternatives in terms of their worth and cost, an essential element of engineering practice. The student is introduced to the concept of the time value of money and the methodology of basic engineering economy techniques. The course will address some aspects of sustainability and will provide the student with the background to enable them to pass the Engineering Economy portion of the Fundamentals of Engineering exam. Prerequisite: MATH 2413 with a grade of C or better. Semester Hours 3 (3 lec)

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## **PSYC 2301 General Psychology**

General Psychology is a survey of the major psychological topics, theories and approaches to the scientific study of behavior and mental processes. NOTE: Must have passed the reading portion of the TSI Assessment or have credit for INRW 0402. Semester Hours 3 (3 lec)

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## **SOCI 1301 Introduction to Sociology**

The scientific study of human society, including ways in which groups, social institutions, and individuals affect each other. Causes of social stability and social change are explored through the application of various theoretical perspectives, key concepts, and related research methods of sociology. Analysis of social issues in their institutional context may include topics such as social stratification, gender, race/ethnicity, and deviance. Semester Hours 3 (3 lec)

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## **SOCI 1306 Social Problems**

Application of sociological principles and theoretical perspectives to major social problems in contemporary society such as inequality, crime and violence, substance abuse, environmental issues, deviance, or family problems. Semester Hours 3 (3 lec)

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## **SOCI 2326 Social Psychology**

Study of individual behavior within the social environment. May include topics such as the socio-psychological process, attitude formation and change, interpersonal relations, and group processes. Cross-listed as PSYC 2319. NOTE: Credit will not be given for both PSYC 2319 and SOCI 2326. Prerequisite: PSYC 2301 or SOCI 1301. Semester Hours 3 (3 lec)

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## **SOCW 2361 Introduction to Social Work**

An overview of the history and development of social work as a profession. The course is designed to foster a philosophical, historical, and critical understanding of the social work profession, including social work values, ethics, and areas of practice utilized under a Generalist Intervention Model. Prerequisite: TSI complete in Writing or have credit for INRW 0402. Semester Hours 3 (3 lec)

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**COMM 1307 Introduction to Mass Communication**

Survey of basic content and structural elements of mass media and their functions and influences on society. Semester Hours 3 (3 lec)

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**SPCH 1311 Introduction to Speech Communication**

Introduces basic human communication principles and theories embedded in a variety of contexts, including interpersonal, small group, and public speaking. Semester Hours 3 (3 lec)

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**SPCH 1315 Public Speaking**

Application of communication theory and practice to the public speaking context, with emphasis on audience analysis, speaker delivery, ethics of communication, cultural diversity, and speech organizational techniques to develop students' speaking abilities, as well as ability to effectively evaluate oral presentations. Semester Hours 3 (3 lec)

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**SPCH 1318 Interpersonal Communication**

Application of communication theory to interpersonal relationship development, maintenance, and termination in relationship contexts, including friendships, romantic partners, families, and relationships with co-workers and supervisors. Semester Hours 3 (3 lec)

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**SPCH 1321 Business & Professional Communication**

Study and application of communication within the business and professional context. Special emphasis will be given to communication competencies in presentations, dyads, teams, and technologically mediated formats. Semester Hours 3 (3 lec)

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