

## Degree Description

Successful completion of this program opens doors to employment or a better position in social welfare, governmental and community service agencies. Graduates can make significant contributions wherever people are employed to help others with social- and mental health-related situations.

This specialty emphasizes course work needed for employees or future employees in children/adolescent facilities. The curriculum addresses the needs and skills of persons in daily work with children/adolescents with emotional problems.

A grade of C or better is required for all mental health courses for graduation.

Semester I	Hours
<a href="#">PMHS 1291 Special Topics in Psychiatric/Mental Health Services</a>	2 hours
<a href="#">SCWK 1321 Orientation to Social Service</a>	3 hours
<a href="#">DAAC 1304 Pharmacology of Addiction</a>	3 hours
<a href="#">DAAC 1317 Basic Counseling Skills</a>	3 hours
<a href="#">Mathematics (college-level)</a>	3 hours
	<b>14 hours</b>

Semester II	Hours
<a href="#">PMHS 1267 Practicum - Psychiatric/Mental Health Services Tech</a>	2 hours
<a href="#">SCWK 2307 Human Behavior and Social Environment</a>	3 hours
<a href="#">CMSW 1353 Family Intervention Strategies</a>	3 hours
<a href="#">CMSW 1323 The Exceptional Person</a>	3 hours
<a href="#">PSYC 2301 General Psychology</a> <b>OR</b> <a href="#">SOC1 1301 Introduction to Sociology</a>	3 hours
	<b>14 hours</b>

Semester III	Hours
<a href="#">CMSW 1309 Problems of Children and Adolescents</a>	3 hours
<a href="#">DAAC 1311 Counseling Theories</a>	3 hours
<a href="#">ENGL 1301 Composition I</a>	3 hours
<a href="#">PMHS 2266 Practicum - Psychiatric/Mental Health Services Tech</a>	2 hours
<a href="#">DAAC 2354 Dynamics of Group Counseling</a>	3 hours
<a href="#">Language, Philosophy, &amp; Culture elective</a> <b>OR</b> <a href="#">Creative Arts elective</a>	3 hours
	<b>17 hours</b>

Semester IV	Hours
<a href="#">PSYT 2331 Abnormal Psychology</a>	3 hours
<a href="#">CMSW 1341 Behavior Modification &amp; Cognitive Disorders</a>	3 hours
<a href="#">SCWK 1303 Ethics for Social Service Professionals</a>	3 hours
<a href="#">SOCW 2361 Introduction to Social Work</a>	3 hours
<a href="#">ENGL 1302 Composition II</a> <b>OR</b> <a href="#">ENGL 2311 Technical &amp; Business Writing</a>	3 hours
	<b>15 hours</b>

**Total hours: 60 hours**

## Electives/General Education Courses

### 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 Introduction to Theater</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 1442 Elementary Statistical Methods</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

## Course Descriptions

### PMHS 1291 Special Topics in Psychiatric/Mental Health Services

Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. The student will participate in an orientation to the Mental Health program and practicum classes. Activities will be conducted and assignments will be made during orientation. Semester Hours 2 (2 lec/1 lab)

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### SCWK 1321 Orientation to Social Service

Introduction to the basic concepts, information, and practices within the field of social services. Topics include the historical development of social services, populations served by social service workers, and review of current treatment and/or services. Semester Hours 3 (3 lec)

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### DAAC 1304 Pharmacology of Addiction

Emphasizes pharmacological effects of addiction, tolerance, dependence, cross addiction, drug interaction, withdrawal, and recovery. Describes the psychological and physiological effects of substance use and behaviors. Semester Hours 3 (3 lec)

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### DAAC 1317 Basic Counseling Skills

An overview of basic counseling skills. Semester Hours 3 (3 lec)

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### PMHS 1267 Practicum - Psychiatric/Mental Health Services Tech

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. This course was designed to be repeated multiple times to improve student proficiency. Prerequisite: PMHS 1291 Semester Hours 2 (15 lab)

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### SCWK 2307 Human Behavior and Social Environment

Comprehensive analysis of human behavior and the social environment. Semester Hours 3 (3 lec)

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### CMSW 1353 Family Intervention Strategies

Study of family dynamics and current intervention strategies. Semester Hours 3 (3 lec)

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### CMSW 1323 The Exceptional Person

Study of physical, intellectual, and learning disabilities, sensory deficits, and the exceptionally gifted individual throughout the lifespan. Includes educational approaches and an introduction to the continuum of service delivery systems for various disabilities and conditions. 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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### CMSW 1309 Problems of Children and Adolescents

Examine common problems and evaluate effective intervention models of at-risk children and youth. Topics include: social, family, educational systems impact, juvenile delinquency, teen sexuality, and addictive behaviors. Semester Hours 3 (3 lec)

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### DAAC 1311 Counseling Theories

An examination of the major theories and current treatment modalities used in the field of counseling. Semester Hours 3 (3 lec)

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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 Reading and Writing or the equivalent. Semester Hours 3 (3 lec)

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### PMHS 2266 Practicum - Psychiatric/Mental Health Services Tech

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. This may be a paid or unpaid experience. This course may be repeated if topics and learning outcomes vary. This course serves as the Capstone for all Mental Health certificate programs. Prerequisite: PMHS 1267 Semester Hours 2 (16 clinical hrs/wk)

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### DAAC 2354 Dynamics of Group Counseling

Exploration of group counseling skills, techniques, stages of group development, confidentiality, and ethics. Semester Hours 3 (3 lec)

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### PSYT 2331 Abnormal Psychology

Examination and assessment of the symptoms, etiology, and treatment procedures of mental, emotional, and behavioral disorders. Semester Hours 3 (3 lec)

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### CMSW 1341 Behavior Modification & Cognitive Disorders

In-depth study of the theories and principles of behavioral science and the methods of modifying and controlling behavior in clients with cognitive disorders. Semester Hours 3 (3 lec)

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### SCWK 1303 Ethics for Social Service Professionals

Ethical considerations based on social and human services standards. Includes comparison of ethical codes, confidentiality, dual relationships, guidelines for web counseling, ethical considerations dealing with broadcast media, diversity, and multiculturalism. 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. Semester Hours 3 (3 lec)

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## **ENGL 1302 Composition II**

Intensive study of and practice in the strategies and techniques for developing research-based expository and persuasive texts. Emphasis is on effective and ethical rhetorical inquiry, including primary and secondary research methods; critical reading of verbal, visual and multimedia texts; systematic evaluation, synthesis, and documentation of information sources; and critical thinking about evidence and conclusions. Prerequisite: ENGL 1301 or its equivalent with a grade of C or better or consent of division chair. Semester Hours 3 (3 lec)

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## **ENGL 2311 Technical & Business Writing**

Intensive study of and practice in professional settings. Focus on the types of documents necessary to make decisions and take action on the job, such as proposals, reports, instructions, policies and procedures, e-mail messages, letters, and descriptions of products and services. Practice of individual and collaborative processes involved in the creation of ethical and efficient documents. Prerequisite: Passing score on writing portion of TSI Assessment or credit for ENGL 0301. Semester Hours 3 (3 lec)

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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 Introduction to Theater**

Survey of all phases of theater including its history, dramatic works, stage techniques, production procedures, and relation to the fine arts. 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. Recommended Prerequisite: TSI complete. Prerequisite: MATH 0311 or consent of division chair. 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: MATH 0311 or consent of division chair. 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 2413, Calculus I. Prerequisite: MATH 1324 or equivalent or consent of division chair. 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 1442 Elementary Statistical Methods**

Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. The course will include application problems and projects using real world data. Use of appropriate technology is recommended. Prerequisites: MATH 1442 or consent of the division chair. Semester Hours 4 (3 lec/2 lab)

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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 2415 or consent of division chair. 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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