

## Degree Description

This two year AAS degree teaches students introductory through advanced skills in networking, operating systems, and cybersecurity to prepare them to enter the industry. The students will have the opportunity to earn multiple industry certifications including the CompTia A+ (first exam), Security+, Linux+ (two exams), CompTia CySa+, CompTia PenTest+, CompTia CASP Advanced Cybersecurity Certification, CISCO CCENT, CISCO CCNA.

McLennan Community College is a CISCO Local Academy.

### Marketable Skills

1. Understand and apply computing terminology and concepts used in the workplace- Critical Thinking/Communication.
2. Apply fundamentals of computer programming in structured design concepts- Critical Thinking/Communication.
3. Configure, use, and troubleshoot computer operating systems and/or application software Critical Thinking.
4. Use the Internet to locate, transfer, research and publish information at a level appropriate for the academic and work environment. Critical Thinking/Communication.
5. Install and evaluate desktop and network security protocols and principles- Critical Thinking.

Semester I	Hours
<a href="#">BCIS 1305 Business Computer Applications</a>	3 hours
<a href="#">ITSY 1342 Information Tech Security</a> <sup>5</sup>	3 hours
<a href="#">ITCC 1314 CCNA 1: Introduction to Networks</a> <sup>2</sup>	3 hours
<a href="#">ITSE 1302 Computer Programming</a>	3 hours
<a href="#">ITSC 1305 Introduction to PC Operating Systems</a>	3 hours
	<b>15 hours</b>

Semester II	Hours
<a href="#">ITSC 1316 Linux Installation and Configuration</a> <sup>6</sup>	3 hours
<a href="#">ITCC 1344 CCNA 2: Switch/Rout/Wireless Essen</a> <sup>2</sup>	3 hours
<a href="#">Math elective</a> <i>or</i> <a href="#">Natural Sciences elective</a> <sup>4</sup>	3 hours
<a href="#">ITSC 1325 Personal Computer Hardware</a> <sup>8</sup>	3 hours
<a href="#">ITSY 2342 Incident Response and Handling</a> <sup>7</sup>	3 hours
	<b>15 hours</b>

Semester III	Hours
<a href="#">ITCC 2320 CCNA 3: Entrprse/Ntwrk/Secur/Autom</a> <sup>2</sup>	3 hours
<a href="#">ITNW 1354 Implementing and Support Servers</a> <sup>1</sup>	3 hours
<a href="#">ITSE 2309 Database Programming</a>	3 hours
<a href="#">ITSY 2359 Security Assessment &amp; Auditing</a> <sup>9</sup>	3 hours
<a href="#">ITSC 2325 Advanced Linux</a> <sup>6</sup>	3 hours
	<b>15 hours</b>

Semester IV	Hours
<a href="#">ENGL 1301 Composition I</a> <sup>4</sup> <i>or</i> <a href="#">ENGL 2311 Technical &amp; Business Writing</a> <sup>4</sup>	3 hours
<a href="#">Language, Philosophy, &amp; Culture elective</a> <i>or</i> <a href="#">Creative Arts elective</a> <sup>4</sup>	3 hours
<a href="#">ITSY 2341 Security Management Practices</a> <sup>10</sup>	3 hours
<a href="#">ITSC 2339 Personal Computer Help Desk Support</a> <i>or</i> <a href="#">ITSC 2386 Internship-Computer &amp; Information Scien</a> <sup>3</sup> <i>or</i> <a href="#">ITSY 2386 Int- Computer &amp; Information Systems Sec.</a> <sup>3</sup>	3 hours
<a href="#">Social/Behavioral Science elective</a> <sup>4</sup>	3 hours
	<b>15 hours</b>

**Total hours: 60 hours**

- <sup>1</sup> This course is designed to prepare students for the exams to receive the CompTIA Server+ certification.
- <sup>2</sup> MCC is a local CISCO Academy. This is one of four courses leading up to the CISCO Certified Network Administrator certification.
- <sup>3</sup> This course is a Capstone course, which brings together knowledge and skills learned in other courses and applies them in decision-making situations and in completing job tasks. Check course prerequisites.
- <sup>4</sup> See General Education Requirements. ECON recommended.
- <sup>5</sup> This course prepares students for the DoD Approved 8570 Baseline CompTIA CySA+ Certification.
- <sup>6</sup> This course prepares students for the CompTIA Linux+ Core Professional Certification (two exams).
- <sup>7</sup> This course prepares students for the DoD Approved 8570 Baseline CompTIA CySA+ Certification.
- <sup>8</sup> This course prepares students for the DoD Approved 8570 Baseline CompTIA A+ Hardware Certification.
- <sup>9</sup> This course prepares students for the CompTIA PenTest+ Intermediate Cybersecurity Certification.
- <sup>10</sup> This course prepares students for the DoD Approved 8570 Baseline CompTIA CASP Advanced Cybersecurity Certification.

## 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 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="#">DRAM 2366 Film Appreciation</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 1307 Music Literature</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</a>	3 hours
<a href="#">ENGL 2328 American Literature II</a>	3 hours
<a href="#">ENGL 2331 World Literature</a>	3 hours
<a href="#">ENGL 2332 World Literature I</a>	3 hours
<a href="#">ENGL 2333 World Literature II</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 2412 Pre-Calculus Mathematics</a>	4 hours
<a href="#">MATH 2413 Calculus I</a>	4 hours
<a href="#">PHIL 2303 Introduction to Formal Logic</a>	3 hours

## Natural Sciences

<a href="#">BIOL 1406 Biology for Science Majors I</a>	4 hours
<a href="#">BIOL 1407 Biology for Science Majors II</a>	4 hours
<a href="#">BIOL 1408 Biology for Non-Science Majors I</a>	4 hours
<a href="#">BIOL 1411 General Botany</a>	4 hours
<a href="#">BIOL 1413 General Zoology</a>	4 hours
<a href="#">BIOL 2401 Anatomy &amp; Physiology I</a>	4 hours
<a href="#">BIOL 2402 Anatomy &amp; Physiology II</a>	4 hours
<a href="#">BIOL 2404 Anatomy &amp; Physiology (specialized)</a>	4 hours
<a href="#">BIOL 2420 Microbiology for Non-Science Majors</a>	4 hours
<a href="#">CHEM 1405 Introductory Chemistry I</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="#">ENVR 1101 Environmental Science I (lab)</a>	1 hours
<a href="#">ENVR 1301 Environmental Science I (lecture)</a>	3 hours
<a href="#">ENVR 1102 Environmental Science II (lab)</a>	1 hours
<a href="#">ENVR 1302 Environmental Science II - Lecture</a>	3 hours
<a href="#">ENVR 1401 Environmental Science I (lecture + lab)</a>	4 hours
<a href="#">ENVR 1402 Environmental Science II</a>	4 hours
<a href="#">GEOL 1101 Earth Sciences I for Non-Science Majors (lab)</a>	1 hours
<a href="#">GEOL 1301 Earth Sciences I for Non-Science Majors (lecture)</a>	3 hours
<a href="#">GEOL 1401 Earth Sciences for Non-Science Majors I (lecture + lab)</a>	4 hours
<a href="#">GEOL 1403 Physical Geology (lecture + lab)</a>	4 hours
<a href="#">GEOL 1404 Historical Geology (lecture + lab)</a>	4 hours
<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 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

## Course Descriptions

### BCIS 1305 Business Computer Applications

Introduces and develops foundational skills in applying essential and emerging business productivity information technology tools. The focus of this course is on business productivity software applications, including word processing, spreadsheets, databases, presentation graphics, data analytics, and business-oriented utilization of the internet. (BCIS 1305 is included in the Business Field of Study.) Semester Hours 3 (2 lec/2 lab)

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### ITSY 1342 Information Tech Security

Instruction in security for network computer hardware, software, virtualization, and data, including physical security; backup procedures; relevant tools; encryption; and protection from viruses. Topics may adapt to changes in industry practices. Students will learn to ensure the physical security of file servers and other network components using best practices; develop backup procedures to provide for data security; use network operating system features to implement network security; describe the nature of computer viruses, their methods of spreading, and means of protecting networks from viruses; use relevant tools to provide for network security; and use encryption techniques to protect network data. Semester Hours 3 (2 lec/2 lab)

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### ITCC 1314 CCNA 1: Introduction to Networks

Covers networking architecture, structure, and functions; introduces the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media and operations to provide a foundation for the curriculum. Semester Hours 3 (2 lec/3 lab)

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### ITSE 1302 Computer Programming

Introduces computer programming, including design, development, testing, implementation, and documentation. Semester Hours 3 (2 lec/2 lab)

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### ITSC 1305 Introduction to PC Operating Systems

Introduction to personal computer operating systems, including installation, configuration, file management, memory and storage management, control of peripheral devices and use of utilities. Semester Hours 3 (2 lec/2 lab)

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### ITSC 1316 Linux Installation and Configuration

Introduction to Linux operating system. Includes Linux installation, basic administration, utilities and commands, upgrading, networking, security, and application installation. Emphasizes hands-on setup, administration, and management of Linux. Semester Hours 3 (2 lec/2 lab)

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### ITCC 1344 CCNA 2: Switch/Rout/Wireless Essen

Describes the architecture, components, and operations of routers and switches in small networks and introduces wireless local area networks (WLAN) and security concepts; provides an in-depth understanding of how routers and switches operate and are implemented in the LAN environment. Prerequisite: ITCC 1314 Semester Hours: 3 (2 lec/ 3 lab)

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### ITSC 1325 Personal Computer Hardware

Studies current personal computer hardware including personal computer assembly and upgrading, setup and configuration, and troubleshooting. The student will assemble/set-up and upgrade personal computer systems, diagnose and isolate faulty components, optimize system performance, and install/connect peripherals. Semester Hours 3 (2 lec/2 lab)

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### ITSY 2342 Incident Response and Handling

In-depth coverage of incident response and, incident handling, including identifying sources, of attacks and security breaches; analyzing, security logs; recovering the system to normal; performing postmortem analysis; and implementing, and modifying and modifying security measures., , Prerequisites: Take ITSY 1342 with a minimum, grade of C or better., , Semester Hours 3 (2 lec/2 lab)

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### ITCC 2320 CCNA 3: Entrprse/Ntwrk/Secur/Autom

Describes the architecture, components, operations, and security to scale for large, complex networks, including wide area network (WAN) technologies. Emphasizes network security concepts and introduces network virtualization and automation. Prerequisites: ITCC 1344 Semester hours: 3 (2 lec/ 3 lab)

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### ITNW 1354 Implementing and Support Servers

Implement, administer, and troubleshoot information systems that incorporate servers in a networked computing environment. This course prepares students to earn the CompTIA Server+ Certification Prerequisite: ITSC 1305. Semester Hours 3 (2 lec/2 lab)

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### ITSE 2309 Database Programming

Database development using database programming techniques emphasizing database structures, modeling, and database access. Students develop database applications using a structured query language, create queries and reports from database tables, and create appropriate documentation. Semester Hours 3 (2 lec/2 lab)

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### ITSY 2359 Security Assessment & Auditing

Comprehensive experience for the security curriculum. Synthesizes technical material covered in prior courses to monitor, audit, analyze, and revise computer and network security systems that ensure appropriate levels of protection are in place to assure regulatory compliance. Semester hours 3 (2 lec/2 lab)

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### ITSC 2325 Advanced Linux

Provides instruction in advanced open-source Linux operating system. Develops directory services for clients, support users remotely, and install and configure network services. Prerequisites: Take ITSC 1316 with a minimum grade of C or better. Semester Hours 3 (2 lec/2 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. Note: ENGL 1301 is a pre-requisite for all 2000-level literature courses. Prerequisite: TSI complete in Writing or the equivalent. 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: TSI complete in Writing or the equivalent. Semester Hours 3 (3 lec)

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### ITSY 2341 Security Management Practices

In-depth coverage of security management, practices, including asset evaluation and risk, management; cyber law and ethics issues; policies, and procedures; business recovery and business, continuity planning; network security design; and, developing and maintaining a security plan., Capstone course., , Prerequisites: Take ITSY 2359 with a minimum grade, of C or better., , Semester Hours 3 (2 lec/2 lab)

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### **ITSC 2339 Personal Computer Help Desk Support**

Covers diagnosis and solution of user hardware and software related problems with on-the-job projects in either a Help Desk Lab or short-term assignments for local businesses. Students will establish rapport with users in problem-solving situations, analyze user problems and lead them through solutions, maintain problem logs, and formulate problem-solving methodologies. This is a Capstone course that will integrate skills and knowledge from previous courses. This course should be taken in the last two semesters before graduation. Semester Hours 3 (2 lec/2 lab)

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### **ITSC 2386 Internship-Computer & Information Scien**

Provides a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Prerequisite: An approved workstation and consent of program director. Semester Hours 3 (15 lab)

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### **ITSY 2386 Int- Computer & Information Systems Sec.**

A work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Prerequisites: Approval of instructor. Semester Hours: 3 (16 lec/240 int)

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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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### **DRAM 2366 Film Appreciation**

Survey and analyze cinema including history, film techniques, production procedures, selected motion pictures, and cinemas impact on and reflection of society. (Cross - listed as COMM 2366) 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 1307 Music Literature**

A survey of the styles and forms of music as it developed from the middle ages to the present. This course will familiarize the student with cultural context, terminology, genres, and notation. Semester hours: 3

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### **MUSI 1310 American Music**

A general survey of various styles of music of the Americas, including but not limited to jazz, folk, rock, and contemporary 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**

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**

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**

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**

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. 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. 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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## **PHIL 2303 Introduction to Formal Logic**

The purpose of the course is to introduce the student to symbolic logic, including syllogisms, propositional and predicate logic, and logical proofs in a system of rules. 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 0302 or INRW 0402. Semester Hours 4 (3 lec/3 lab)

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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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## **BIOL 1408 Biology for Non-Science Majors I**

Provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Semester Hours 4 (3 lec/3 lab)

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## **BIOL 1411 General Botany**

Fundamental biological concepts relevant to plant physiology, life cycle, growth and development, structure and function, and cellular and molecular metabolism. Includes the role of plants in the environment, evolution, and phylogeny of major plant groups, algae, and fungi. This course is intended for science majors. Semester Hours 4 (3 lec/3 lab)

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## **BIOL 1413 General Zoology**

Fundamental biological concepts relevant to animals, including systematics, evolution, structure and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology. This course is intended for science majors. Semester Hours 4 (3 lec/3 lab)

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## **BIOL 2401 Anatomy & Physiology I**

Anatomy and Physiology I is the first part of a two-course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, and nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. NOTE: Must have passed the reading and writing portion of the TSI Assessment or have credit for INRW 0302 or INRW 0402. Semester Hours 4 (3 lec/3 lab)

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## **BIOL 2402 Anatomy & Physiology II**

Anatomy and Physiology II is the second part of a two-course sequence. It is a study of the structure and function of the human body including the following systems: endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics). Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. Prerequisite: BIOL 2401 with a grade of C or better. Semester Hours 4(3 lec/3 lab)

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## **BIOL 2404 Anatomy & Physiology (specialized)**

Study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content may be either integrated or specialized. Semester Hours 4 (3 lec/3 lab)

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## **BIOL 2420 Microbiology for Non-Science Majors**

This course covers basic microbiology and immunology and is primarily directed at pre-nursing, pre-allied health, and non-science majors. It provides an introduction to historical concepts of the nature of microorganisms, microbial diversity, the importance of microorganisms and acellular agents in the biosphere, and their roles in human and animal diseases. Major topics include bacterial structure as well as growth, physiology, genetics, and biochemistry of microorganisms. Emphasis is on medical microbiology, infectious diseases, and public health. Prerequisite: BIOL 1406, 1408, 1409, 2401 or 2404 with a grade of C or better. Semester Hours 4 (3 lec/3 lab)

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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 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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### **ENVR 1101 Environmental Science I (lab)**

This laboratory-based course accompanies ENVR 1301 Environmental Science (lecture). Activities will cover methods used to collect and analyze environmental data. Prerequisite: Credit for or concurrent enrollment in ENVR 1301. Semester Hour 1 (3 lab)

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### **ENVR 1301 Environmental Science I (lecture)**

A survey of the forces, including humans, that shape our physical and biologic environment, and how they affect life on Earth. Introduction to the science and policy of global and regional environmental issues, including pollution, climate change, and sustainability of land, water, and energy resources. Semester Hours 3 (3 lec)

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### **ENVR 1102 Environmental Science II (lab)**

General interest course requiring a minimum of previous science background and relating scientific knowledge to problems involving energy and the environment. Lab exercises relate scientific knowledge to problems involving energy and the environment. Includes research projects related to the historical development of current environmental practices and concerns. May include other research projects dealing with current or potential environmental concerns. Prerequisite: Credit for or concurrent enrollment in ENVR 1302. Semester Hour 1 (3 lab)

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### **ENVR 1302 Environmental Science II - Lecture**

General interest course requiring a minimum of previous science background and relating scientific knowledge to problems involving energy and the environment. Semester Hours 3 (3 lec)

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### **ENVR 1401 Environmental Science I (lecture + lab)**

A survey of the forces, including humans, that shape our physical and biologic environment, and how they affect life on Earth. Introduction to the science and policy of global and regional environmental issues, including pollution, climate change, and sustainability of land, water, and energy resources. The laboratory activities will cover methods used to collect and analyze environmental data. Semester Hours 4 (3 lec/3 lab)

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### **ENVR 1402 Environmental Science II**

General interest course requiring a minimum of previous science background and relating scientific knowledge to problems involving energy and the environment. Lab exercises relate scientific knowledge to problems involving energy and the environment. Includes research projects related to the historical development of current environmental practices and concerns. May include other research projects dealing with current or potential environmental concerns. Semester Hours 4 (3 lec/3 lab)

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### **GEOL 1101 Earth Sciences I for Non-Science Majors (lab)**

This laboratory-based course accompanies GEOL 1301 Earth Sciences I. Activities will cover methods used to collect and analyze data in geology, meteorology, oceanography and astronomy. Prerequisite: GEOL 1301. Semester Hours 1 (3 lab)

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### **GEOL 1301 Earth Sciences I for Non-Science Majors (lecture)**

Survey of geology, meteorology, oceanography and astronomy. Semester Hours 3 (3 lec)

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### **GEOL 1401 Earth Sciences for Non-Science Majors I (lecture + lab)**

Survey of geology, meteorology, oceanography, and astronomy. The lab activities will cover methods used to collect and analyze data in geology, meteorology, oceanography and astronomy. Semester Hours 4 (3 lec/3 lab)

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### **GEOL 1403 Physical Geology (lecture + lab)**

Introduction to the study of the materials and processes that have modified and shaped the surface and interior of Earth over time. These processes are described by theories based on experimental data and geologic data gathered from field observations. Laboratory activities will cover methods used to collect and analyze earth science data. Semester Hours 4 (3 lec/3 lab)

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### **GEOL 1404 Historical Geology (lecture + lab)**

A comprehensive survey of the history of life and major events in the physical development of Earth as interpreted from rocks and fossils. Laboratory activities will introduce methods used by scientists to interpret the history of life and major events in the physical development of earth from rocks and fossils. Prerequisite: GEOL 1303 or 1403. Semester Hours 4 (3 lec/3 lab)

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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 1314 and 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 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 0302 or 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 0302 or 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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