

G 599 Professional Project 1-2 cr. (R-2) Offered every term. Final Master's project related to internship; may be presented as a grant proposal, policy analysis, or portfolio.

G 698 Intercultural Internship 1-4 cr. (R-4) Offered every term. Supervised intercultural experience through Peace Corps, VISTA, or other organization approved by program faculty.

G 699 Thesis 1-2 cr. (R-2) Offered every term. Final master's thesis based on research related to internship placement.

Faculty

Lynne Sanford Koester, Ph.D., The University of Wisconsin, 1976

Otto Koester, M.A., The University of Wisconsin, 1974

Nancy Seldin, Ed.D., The University of Montana, 1992, MPH, 1973

Rita Sommers-Flanagan, Ph.D., The University of Montana, 1989

Kirsten Murray, Ph.D., Idaho State University, 2007

Lindsey Nichols, Ph.D.

Department of Applied Arts and Sciences

Cathy Corr, Chair

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The Department of Applied Arts and Sciences provides instruction in five disciplines: communication, mathematics, behavioral science and psychology, science, and writing. Most courses from these disciplines are general education core classes for the Associate of Arts Degree (AA) and compose the general education core of Associate of Applied Science Degrees (AAS).

Associate of Arts-A.A. Degree

The Department of Applied Arts and Sciences offer the Associate of Arts Degree. The Associate of Arts Degree is a general education transfer degree and does not include a major or minor course of study. To receive an Associate of Arts degree all students must successfully complete all the general education requirements as described by Montana Board of Regents policy 301.10, Appendix 1. Students preparing for a specific baccalaureate degree may decide to choose specific general education courses that meet the requirements for a major. Students seeking the AA are not required to sit for the upper-division writing proficiency assessment (WPA). The minimum grade average for the 60 credits required for graduation is 2.00 for all courses taken for the traditional letter grade (A-F) basis. To pass a general education course, students must earn a C- or better.

Students may begin coursework in the autumn or spring semester. Following is a suggested first year course of study. Courses numbered below 100 and courses with a "T" suffix on the course number do not count toward the 60 credit requirement or general education course requirements, but do meet financial aid requirements.

Course Choices:

First Semester

Writing course determined by writing placement score (3 cr)

Mathematics course determined by mathematics placement score (3 cr)

General education electives (9 cr)

Second Semester

Second writing course requirement (3 cr)

Second mathematics course requirement (3 cr)

General education groups (9 cr)

Areas of Emphasis within an Associate of Arts Degree

Although the AA does not include a major or minor course of study, students may elect to choose classes in a specific area of interest. Advisors within the departments guide this process. New areas of emphasis within the Associate of Arts Degree include Addiction Studies, pre-professional Social Work, and pre-professional Psychology, Communication Studies and Professional Communication. Other areas of emphasis will be announced as they become available.

Intended for Law Enforcement Personnel, the two year Associate of Arts Degree is a collaboration among the UM-M College of Technology (UM-COT), the UM-M baccalaureate campus (UM-M) and the Montana Law Enforcement Academy (MLEA) in Helena.

Courses

U = for undergraduate credit only. R after the credit indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Applied Arts and Sciences (AASC)

U 100 Introduction to the University Experience 3 cr. Offered autumn and Spring. Exploring the transition to college; introduction to campus resources, academic policies and expectations; general education and advising; study skills and time management; critical thinking; exploring majors and career choices; campus diversity and personal development. Offered as an elective for incoming AA students.

U 195T Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 196T Independent Study 1-6 cr. (R-6) Offered intermittently.

U 295T Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

Biology - Human (BIOH)

U 108 (SCN 115) Basic Anatomy 3 cr. Offered Intermittently. Structures of the human body and their basic functions.

U 201N (SCN 201N) Anatomy and Physiology I 4 cr. Offered autumn and spring. Prereq., introductory science course or college-prep high school biology course recommended. Comprehensive knowledge of human form and function necessary for students preparing for health-related professions. Emphasis on structure, function and homeostatic regulation of body systems with presentation of basic concepts in chemistry and microbiology as they relate to human anatomy and physiology. Covers tissues through nervous system. Required, integrated laboratory includes some dissection.

U 211N (SCN 202N) Anatomy and Physiology II 4 cr. Offered autumn and spring. Prereq., and continuation of BIOH 201N (SCN 201N). Comprehensive knowledge of human form and function necessary for students in health-related programs. Emphasis on structure function and homeostatic regulation of body systems with presentation of basic concepts in chemistry and microbiology as they relate to human anatomy and physiology. Covers endocrine through reproductive systems. Required integrated laboratory includes frequent dissection.

U 212N (SCN 202N) Human Anatomy and Physiology II Lab Variable cr. Offered autumn and spring. Prereq., BIOH 201N (SCN 201N). Continuation of 201N. Basic knowledge necessary for students in health-related programs. Emphasis on normal anatomy and physiology with presentation of basic concepts in chemistry and microbiology as they relate to human anatomy and physiology. Covers endocrine through reproductive systems. A cadaver lab is included.

U 220 (BIOH 260/261) Human Physiology 4 cr. Offered spring. Prereq., SCN 201N, 202N. In-depth exploration of principles and clinical consequences of the physiology of selected human organ systems. Building upon basic concepts covered in SCN 201N and 202N, students study membrane functions, neural physiology, endocrine and peripheral nervous system function and coordination, circulatory, respiratory, renal, and digestive physiology.

Communications (COM)

U 140L Introduction to Visual Rhetoric 3 cr. Offered autumn and spring. An introduction to the persuasive nature of visual symbols as texts. Readings will include historical to contemporary rhetorical criticisms on advertising, billboards, bodies, cartoons, memorials, and photography.

U 150S Interpersonal Communication 3 cr. Offered every term. Focus on communicating and listening more clearly to improve personal and professional relationships. Topics include forms of communication, communication and identity, emotion, conflict, climates, gender, and cultural diversity. Credit not allowed for both COM 150S and COMM 110S.

U 160A Oral Communications 3 cr. Offered every term. Introduction to techniques for preparing and delivering effective presentations as well as constructive criticism. Credit not allowed for both COM 160A and COMM 111A.

U 195T Special Topics Variable cr. (R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 196T Independent Study 1-6 cr. (R-6) Offered intermittently.

U 217A Oral Interpretation of Literature 3 cr. Offered spring. Introduction to orally presenting literature to an audience. Focus is on analyzing and performing prose, drama, poetry, and children's literature to express point of view.

U 242 Argumentation 3 cr. Offered intermittently. Prereq., COM 160A, or COMM 111A, or consent of instr. Focus on developing, presenting, evaluating, and responding to written and spoken arguments with an emphasis on critical decision-making. Credit not allowed for both COM 242 and COMM 242.

U 260S Survey of Children's Communication 3 cr. Offered autumn. Focus on communication processes and contemporary communication environments of children and adolescents. Topics include language development and the brain, nonverbal communication development, media, contracting, bullying, and gender.

U 295T Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 296T Independent Study 1-6 cr. (R-6) Offered intermittently.

Literature (LIT)

U 110L (WTS 120L) Introduction to Literature 3 cr. Offered each term. Study of how readers make meaning of texts and how texts influence readers. Emphasis on interpreting literary texts: close reading, critical analysis, and effective writing.

U 120L (WTS 121L) Poetry 3 cr. Offered every term. An introduction to the techniques of reading and writing about poetry with emphasis on the lyric and other shorter forms. Credit not allowed for both ENLT 121L, WTS 121L, and LIT 120L.

Mathematics (M)

U 065 (MAT 002D) Prealgebra 3 cr. Offered every term. Prereq., ALEKS placement ≥ 1 . Arithmetic and basic algebra skills needed for Introductory Algebra. Topics include integers and rational numbers, decimals and percentages with applications, ratios and proportions with applications, single variable linear equations with applications, introduction to graphing, exponents, factoring, and an introduction to polynomials. Credit does not count toward a certificate or degree. Credit does not count toward Associate of Arts, Associate of Applied Science, or Baccalaureate degrees.

U 090 (MAT 005D) Introductory Algebra 3 cr. Offered every term. Prereq., M 065 (M 002D) or ALEKS placement ≥ 2 . Review of arithmetic principles of integers and rational numbers, linear equations in one or two unknowns, systems of linear equations and operations with polynomials and rational expressions. Credit does not count toward an Associate of Arts, Associate of Applied Science, or Baccalaureate degree.

U 095 (MAT100D) Intermediate Algebra 3 cr. Offered autumn and spring. Prereq., M 090 (MAT 005D) or ALEKS placement ≥ 3 . Topics include linear equations, inequalities, applications and graphing; polynomials; radicals, rational exponents and complex numbers; quadratic equations. Graphing calculator required. Credit does not count toward Associate of Arts or Baccalaureate degrees.

U 105 (MATH 107) Contemporary Mathematics 3 cr. Offered every term. Prereq., M 090 (MAT 005) with a grade of B- or better, or M 095 (MAT 100D), or ALEKS placement ≥ 3 . An introduction to mathematical ideas and their impact on society. Intended for students wishing to satisfy the general education mathematics requirement. Graphing calculator required.

U 111 (MAT 110T) Technical Mathematics 3 cr. Offered autumn and spring. Prereq., ALEKS placement ≥ 2 . Designed to provide the mathematical background necessary for success in the industrial areas. Topics covered include percent, ratio proportion, formula evaluation, basic algebra and geometry concepts, trigonometry, measurement, statistics, and graphing. markdwns, inventory turnover, and other basic formulas. Credit does not count toward Associate of Arts or Baccalaureate degrees.

U 115 (MAT 117) Probability and Linear Math 3 cr. Offered every term. Prereq., M 090 (MAT 005D) with a grade of B- or better, M 095 (MAT 100D), or ALEKS placement ≥ 3 . Systems of linear equations and matrix algebra. Introduction to probability with emphasis on models and probabilistic reasoning. Examples of applications of the material in many fields. Graphing calculator required.

U 121 (MAT 118) College Algebra 3 cr. Offered autumn and spring. Prereq., M 095 (MAT 101/100/100D) or ALEKS placement ≥ 4 . Intended to strengthen algebra skills. The study of functions and their inverses: polynomial, rational, exponential, and logarithmic functions. Graphing calculator required.

U 122 (MAT 119) College Trigonometry 3 cr. Offered autumn and spring. Prereq., M 121 (MAT 118 or MATH 111) or ALEKS placement ≥ 4 . Preparation for calculus based on college algebra. Review of functions and their inverses, exponential and logarithmic functions. Trigonometric functions and identities, applications of trigonometric functions. An optional topic such as polar coordinates, conic sections or parametric functions.

U 151 (MAT 120) Precalculus 4 cr. Offered intermittently. Prereq., M 095 (MAT 101/100/100D) or ALEKS placement ≥ 4 . Algebraic, trigonometric, exponential/ logarithmic functions of one real variable and their graphs. Inverse functions, complex numbers and polar coordinates. Conic sections.

U 162 (MAT 145) Applied Calculus 4 cr. Offered spring. Prereq., M 121 (MAT 118), M 122 (MAT 119), M 151 (MAT 120) or ALEKS placement ≥ 5 . Introduction to differentiation and integration of elementary functions. Emphasis is on applications in technical fields including electronics technology. Graphing calculators used.

U 191 (MAT 195T) Special Topics Variable cr. (R-6) Offered autumn and spring. Prereq., consent of instr. Experimental offerings of visiting professors, experimental offerings of new courses, or one time offerings of current topics.

U 192 (MAT 196T) Independent Study Variable cr. (R-6) Offered intermittently.

Nutrition (NUTR)

U 221N (SCN 150) Nutrition 3 cr. Offered autumn and spring. Nutritional needs throughout the life cycle and measures to assist in the meeting of those needs in health or stress/disease. It is recommended that students have an introductory science course and college composition.

Psychology (PSYX)

U 100S (PSY 100S) Introduction to Psychology 4 cr. Offered every term. Introduction to the scientific study of behavior in humans and other animals. Credit not allowed for both PSYC 100S, PSY 100S and PSYX 100S.

U 161S (PSY 110S) Fundamentals of Organizational Psychology 3 cr. Offered autumn and spring. Foundation in the psychological processes that influence behavior of people in work settings.

U 191 (PSY 195T) Special Topics Variable cr. (R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 192 (PSY 196T) Independent Study 1-6 cr. (R-6) Offered intermittently.

U 230S (PSY 201) Developmental Psychology: Lifespan 3 cr. Offered every term. Prereq., PSYX 100S (PSY 100S). The study of human physical, cognitive and psychosocial development throughout the life span. Content covers major theories, the influence of genetics, and the environment from a chronological aspect.

U 238 Adolescent Psychology 3 cr. Offered every term. Pre-req. PSYX 100S (PSY 100S) or PSYX 230S (PSY 201) or consent of instructor. This course is designed to provide an introduction to the physical, social, emotional, and cognitive developmental changes that occur during adolescence, as well as their relationships and cultural influences.

U 290 (PSY 297) Undergraduate Research Variable credit (R-6) Prereq., consent of instructor, PSYX 100S (PSY 100S).

U 291 (PSY 295) Special Topics Variable cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 292 (PSY 296) Independent Study Variable cr. (R-6) Offered every term. Prereq., consent of instr.

U 294 (PSY 294) Seminar/Workshop (R-3) Offered intermittently.

U 298 (PSY 298) Internship Variable cr. (R-6) Offered every term. Prereq., consent of department. Extended classroom experience which provides practical application of classroom learning during placements off campus. Prior approval must be obtained from the Program department.

Science (SCN)

U 095T Special Topics 1-6 cr. Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 100N Issues in Biology 3 cr. Offered autumn and spring. An introductory course for students with little science background. This course explores several issues relating to human biology such as cancer, drug abuse, population growth, and genetic engineering. Also includes discussions of fundamental biological concepts such as evolution, biodiversity, and basic cell and molecular biology.

U 105N Montana Ecosystems 3 cr. Offered autumn and spring. An introduction to the landscapes and ecosystem diversity of Montana, with an emphasis on exploring the dominant habitats of western Montana. Required, integrated laboratory includes field trip investigations, classroom lab exercises, and presentations.

U 120T Technical Physics I 4 cr. Offered intermittently. Prereq., M 095 (MAT 101T/100/100D). Introduction to models, measurements, vectors, motion in a straight line, motion in a plane, Newton's laws of motion, application of Newton's laws, and circular motion and gravitation.

U 121T Technical Physics II 4 cr. Offered intermittently. Prereq., SCN 120T. Introduction to work and energy, impulse and momentum, rotational motion, equilibrium of a rigid body, elasticity, heat, and thermodynamics.

U 175N Integrated Physical Science I 3 cr. Offered every term. Prereq., or coreq., ~~M 090 (MAT 005D)~~, M 095 (MAT 101T/100/100D). An introduction to the basic principles of physics, chemistry, environmental and earth sciences with emphasis on the scientific method and process. (Suitable for students with little science background).

U 176 Integrated Physical Science II 3 cr. Offered every term. Prereq., or coreq., M 095 (MAT 101T/100/100D). An introduction to the basic principles of environmental and earth sciences, organic and biochemistry, the life sciences, and the theory of evolution. Course emphasizes the scientific method and process of science.

U 195T Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 196T Independent Study Variable cr. (R-6) Offered intermittently.

U 260N The Biology of Behavior 3 cr. Offered autumn and spring. Prereq., SCN 100N. An introduction to the biological basis of human behavior, including neuron function and the roles of hormones, heredity, and environmental influences. Behavioral topics include sensation, learning, emotion, and issues such as obesity, addiction, and stress. Intended for students to satisfy the science with a lab general education requirement.

U 295T Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

Writing Studies (WRIT)

U 095 (WTS 100D) Developmental Writing 3 cr. Offered every term. Prereq., placement or referral by WRIT 101 (WTS 101) instructor. Designed for students who need instruction and practice integrating critical thinking, reading and writing before entering the required first-year writing course. Grading A-F or NC (no credit). Credit does not count toward Associate of Arts or Baccalaureate degrees.

U 101 (WTS 101) College Writing I 3 cr. Offered every term. Prereq., WRIT 095 (WTS 100) or passing score on placement test. Instruction and practice in expository writing, argumentation and research processes. Emphasis on the use of specific writing strategies to develop style, unity, clarity, and force of ideas, and structure. Students are expected to write without major errors in sentence structure or mechanics. Grading A-F, or NC.

U 121 (WTS 115) Introduction to Technical Writing 3 cr. Offered every term. Course assumes a basic computer literacy. Appropriate score on placement test or consent of instructor. Introduction to technical writing situations with appropriate formats. Emphasis is on writing with document design and graphic placement introduced. Students are expected to write without major faults in grammar or usage.

U 184A (WTS 184A) Beginning Creative Writing: Multiple Genre 3 cr. Offered every term. Prereq., WRIT 101 (WTS 101 or ENEX 101) or consent of instr. Beginning writing workshop designed for students to explore genres of creative writing with opportunities for students to write, and revise using genre-specific writing techniques.

U 185A (WTS 185A) Beginning Creative Writing: Fiction 3 cr. Offered intermittently. Prereq., WRIT 101 (WTS 101 or ENEX 101) or consent of instr. This beginning writing workshop emphasizes the reading, discussion, and revision of students' short fiction. Students will be introduced to the technical elements of writing fiction. No prior experience in writing short fiction required.

U 186A (WTS 186A) Beginning Creative Writing: Poetry 3 cr. Offered intermittently. Prereq., WRIT 101 (WTS 101 or ENEX 101) or consent of instr. This beginning writing workshop focuses on the reading, discussion, and revision

of students' poems. Students will study and use models of poetic techniques. No prior experience in writing poetry required.

U 191T (WTS 195T) Special Topics Variable cr. (R-9) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 192T (WTS 196T) Independent Study 1-6 cr. (R-6) Offered intermittently.

U 221 (WTS 215) Intermediate Technical Writing 3 cr. Offered intermittently. Prereq., WRIT 121 (WTS 115), WRIT 101 (WTS 101 or ENEX 101), or consent of instr. Continuation of technical writing with emphasis on technical text including editing for technical content, graphic placement, and document design as seen through the eye of the audience. Current critical issues in technical writing are discussed.

U 240E (WTS 240E) Arguments and Contemporary Issues 3 cr. Offered every autumn and spring. Prereq., WRIT101 (WTS 101 or ENEX 101) . Writing-intensive course which examine contemporary issues from an ethical perspective. Emphasis on analysis, evaluation, and synthesis; students construct arguments in response to issues raised in class.

U 291T (WTS 295T) Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 292T (WTS 296T) Independent Study 1-6 cr. (R-6) Offered intermittently.

Department of Applied Computing and Electronics

Thomas Gallagher, Chairman

The Department of Applied Computing and Electronics of The University of Montana College of Technology collaborates with business and industry to prepare graduates to compete in and contribute to a diverse, dynamic global society. Students acquire the practical skills necessary to pursue entry-level careers in STEM-related (Science, Technology, Engineering, and Mathematics) occupations. Students engage in experiential learning embracing technical education, effective communication, problem solving, professionalism, and workplace skills. The department promotes life-long learning to empower students in an ever-changing world. More details on programs available through the department can be found on the web: <http://ace.cte.umt.edu>.

Preparation to Enter Programs

Students entering programs in Applied Computing & Electronics are expected to have basic computing skills and adequate preparation in mathematics. Completion of M90 Introductory Algebra or equivalent placement scores are required for the following first year courses: CADX 110 Intro to CAD, CSCI 110 Programming – VB I, CSCI 113 C++ Programming , CSCI 172 Intro to Computer Modeling, CRT 112 Operating System Fundamentals, ITS 150 CCNA I, NRG 101 Introduction to Energy Systems I, and EET 105 DC Circuit Analysis. Underprepared students should allocate an additional semester to the suggested four semester sequence in completing programs of study.

Computer Aided Design - Certificate of Applied Science

Krisztian Varsa, Director

The Computer Aided Design (CAD) program offers graduates a pathway into professional careers as technicians in civil, mechanical, and architectural drafting. Other career opportunities exist in geographic information systems, mapping, surveying, and technical design. The one year program prepares students in all the following skills as well as training in mathematics, business, and writing: graphic communications; computer-aided design and modeling systems; geographic information systems; and surveying. Graduates emerge with an understanding of how to use computer aided design software to solve real-world graphic communications problems in a team-oriented environment.

Special Degree Requirements

The Certificate in Applied Science in Computer Aided Design requires completion of the following requirements with at least a "C-" in each course:

1. Mathematics. M121 (MAT 118/MATH 111)
2. Communications. WRIT 101 (ENEX 101/WTS 101)
3. Humanities. BGEN 105S (BUS 103S)
4. Computer Science/Programming. CSCI 105 (CS 111/CRT 111) and CSCI 172 (CS 172/CRT 172)
5. Computer Aided Design, CADX 110, CADX 131, CADX 142, CADX 156, CADX 234, CADX 212

Computer Aided Design - Suggested Schedule:

| First Year | A | S | Su |
|---|----|----|----|
| BGEN 105S (BUS 103S) Introduction to Business | - | - | 3 |
| CADX 110 (CRT 182T) Intro to Computer Aided Design | 3 | - | - |
| CADX 131 Technical Graphics | 3 | - | - |
| CADX 142 (CRT 175) Geospatial Technologies | - | 3 | - |
| CADX 156 Computer Aided Design II | 3 | - | - |
| CADX 234 Fundamentals of Surveying | - | 3 | - |
| CADX 212 (CRT 184) Civil Design Technologies | - | 4 | - |
| CSCI 105 (CS 111/CRT 111) Computer Fluency | 3 | - | - |
| CSCI 172 (CS 172/CRT 172) Introduction to Computer Modeling | - | 3 | - |
| M121 (MAT 118/MATH 111) College Algebra | 3 | - | - |
| WRIT 101 (ENEX 101/WTS 101) College Writing I | - | 3 | - |
| TOTAL | 15 | 16 | 3 |

Computer Support - Certificate of Applied Science

Thomas Gallagher, Director

Computer Support is a 31-credit certificate program preparing students for entry-level positions in the computing field. Required coursework includes programming, operating systems, networking, PC hardware, data modeling, and web technologies. Graduates pursue careers as help desk technicians, computer repair professionals, and computer support specialists. All students have the opportunity to complete the CompTIA A+ Computer Support Specialist industry certification. Coursework for the certificate program also leads to the A.A.S. degree in Information Technology.

Special Degree Requirements

The Certificate of Applied Science in Computer Support requires completion of the following requirements with at least a "C-" in each course:

1. Mathematics. M115 (MATH 117)
2. Communications. WRIT 101 (ENEX 101/WTS 101)
3. Humanities. BGEN 105S (BUS 103S)
4. Computer Science/Programming. CSCI 105 (CS 111), CSCI 110 (CRT 121), CSCI 172 (CS 172/CRT 172), and CRT 112
5. Information Technology Systems. ITS 150, ITS 210, ITS 280, and ITS 289

Computer Support - Suggested Schedule:

| First Year | S | A |
|---|---|---|
| BGEN 105S (BUS 103S) Introduction to Business | - | 3 |
| CRT 112 Operating Systems Fundamentals | 3 | - |
| CSCI 105 (CRT 111) Computer Fluency | 3 | - |
| CSCI 110 (CRT 121) Programming with Visual Basic I | - | 3 |
| CSCI 172 (CS 172/CRT 172) Introduction to Computer Modeling | - | 3 |
| ITS 150 (CRT 151) CCNA 1: Exploration | 3 | - |
| ITS 210 (CRT 210T) Network Operating Systems - Desktop | - | 3 |
| ITS 280 (CRT 285T) Computer Repair and Maintenance | - | 3 |
| ITS 289 Professional Certification | - | 1 |
| M 115 (MATH 117) Probability and Linear Math | 3 | - |

| | |
|---|-------|
| WRIT 101 (ENEX 101/WTS 101) College Writing I | 3 - |
| Total | 15 16 |

Electronics Technology - Associate of Applied Science

Students in the Electronics Technology program learn to troubleshoot, calibrate, test, and repair electronic components and circuit boards used in a wide range of electronic equipment including computers and communication equipment. Training includes working knowledge of direct and alternating current theory, semiconductor circuits, instrumentation, automatic controls, data communications, computerized communication links, and operational amplifiers. Students become familiar with robotics, electronic communications theory, and modes of RF communications.

Students are awarded the Associate of Applied Science degree upon successful completion of the program.

Special Degree Requirements

The A.A.S degree in Electronics Technology requires completion of the following requirements with at least a "C-" in each course:

1. Mathematics and Science. M 121 (MATH 111), M 122 (MATH 112/MAT 119), M 162 (MATH 150/MAT 145), and SCN 175N
2. Communications. WRIT 101 (or WRIT 121)
3. Humanities. PSYX 161S (PSY 110S)
4. Computer Science/Programming. CSCI 105 (CS 111/CRT 111) and CSCI 110 (CRT 121)
5. Electronics Technology, EET 105, EET 106, EET 113, EET 205, EET 206, EET 227, EET 234T, EET 237 (or EET 240), EET 241T, EET 242T, EET 260, EET 270T, and EET 280T

Electronics Technology - Suggested Schedule:

| First Year | | A | S |
|---|--|----|----|
| CSCI 105 (CRT 111) Computer Fluency | | 3 | - |
| CSCI 110 (CRT 121) Programming with Visual Basic I | | - | 3 |
| EET 105 DC Circuit Analysis | | 4 | - |
| EET 106 AC Circuit Analysis | | - | 3 |
| EET 113 Circuits Lab | | - | 1 |
| EET 205 Solid State Electronics I | | - | 4 |
| SCN 175N Integrated Physical Science I | | - | 3 |
| M 121 (MAT 118) College Algebra | | 3 | - |
| M 122 (MATH 112/MAT 119) College Trigonometry | | - | 3 |
| PSYX 161S (PSY 110S) Fund of Organizational Psychology | | 3 | - |
| WRIT 101 (ENEX/WTS 101) College Writing I or WRIT 121 (WTS 115) Introduction to Technical Writing | | 3 | - |
| TOTAL | | 16 | 17 |
| Second Year | | A | S |
| EET 206 Solid State Electronics II | | 3 | - |
| EET 227 Digital Electronics | | 4 | - |
| EET 234T Automatic Controls | | 4 | - |
| EET 237 Programmable Logic Controllers or EET 240 Robotics | | - | 3 |
| EET 241T Instrumentation | | - | 3 |
| EET 242T Electronics Lab III | | - | 3 |
| EET 260 Data Communications | | - | 3 |
| EET 270T Wireless Communications | | 4 | - |
| EET 280T Electronics Capstone | | - | 2 |
| M 162 (MATH 150) Applied Calculus | | - | 4 |
| Total | | 15 | 18 |

Energy Technology - Associate of Applied Science

Bradley Layton, Director

Students in the Energy Technology program are introduced to the full suite of energy sources and technologies. Graduates are general practitioners equipped with skills in design, installation, and maintenance of diverse energy technologies and systems; sales, operations, and management; regulatory compliance; basic electricity and power

systems; energy storage and distribution; site assessment; basic energy economics; efficiency and conservation strategies; and project management. Students may enter the program autumn or spring term. Further information can be found at <http://ace.cte.umt.edu/nrg/>.

Special Degree Requirements

The A.A.S degree in Energy Technology requires completion of the following requirements with at least a "C-" in each course:

1. Mathematics and Science. M 121 (MATH 111/MAT 118), M 122 (MATH 112/MAT 119), SCN 175N, and SCN 176 or ENSC 105N (EVST 105N).
2. Communications. WRIT 101(ENEX 101/WTS 101)
3. Humanities, BGEN 105S (BUS 103S) and BGEN 160S (TASK 160S (BUS 160S))
4. Complete the following Computer Science, Electronics, and Information Technology courses: CSCI 172 (CS 172/CRT 172), EET 105, EET 106, EET 113, and ITS 221
5. Complete the Energy Technology Core: NRG 101, NRG 102, NRG 191, NRG 213, NRG 214, NRG 235 and NRG 298
6. Complete five (5) Energy Technology Specialty Electives: GEO 151, NRG 241, NRG 242, NRG 243, NRG 244, NRG 245, NRG 246, NRG 295 OR four (4) Energy Technology Specialty Electives and one (1) approved general elective.

| First Year | A | S |
|---|----------------|-----------|
| BGEN 105S (BUS 103S) Introduction to Business | - | 3 |
| EET 105 DC Circuit Analysis | - | 4 |
| CSCI 172 (CRT 172) Introduction to Computer Modeling | 3 | - |
| M 121 (MATH 111/MAT 118) College Algebra | - | 3 |
| NRG 101 Introduction to Energy Systems I | 3 | - |
| NRG 102 Introduction to Energy Systems II | - | 3 |
| NRG 235 Building Energy Efficiency | - | 3 |
| SCN 175N Integrated Physical Science I | 3 | - |
| BGEN 160S (TASK 160S (BUS 160S)) Issues in Sustainability | 3 | - |
| WRIT 101 (ENEX 101/WTS 101) College Writing I | 3 | - |
| Total | 15 | 16 |
| Summer | Credits | |
| NRG 191 Energy Practicum (60 Hours) | 2 | |
| EET 113 Circuits Lab | 1 | |
| Total | 3 | |
| Second Year | A | S |
| EET 106 AC Circuits Analysis | 3 | - |
| SCN 176N or ENSC 105N (EVST 101N) Environmental Science | 3 | - |
| ITS 221 Project Management | 3 | - |
| M 122 (MATH 112/MAT 119) College Trigonometry | 3 | - |
| NRG 213 Power Systems Technology | - | 3 |
| NRG 214 Energy Storage and Distribution Systems | - | 3 |
| NRG 298 Energy Internship | - | 2 |
| Select 5 Energy Electives (see list below) | 6 | 9 |
| Total | 18 | 17 |

Information Technology - Associate of Applied Science

Thomas Gallagher, Director

The Information Technology degree program prepares students for entry-level technical support positions in the career field of Computing and Information Technology. The program provides students with a well-rounded technical background for computer support. Requirements include coursework in programming, operating systems, networking, PC hardware, data modeling, and web technologies. The "soft skills" of oral communications, written communications, and human relations required for success in the field are developed and refined through general education. All students gain work experience in their field of study through the completion of an internship. Students are also required to complete an industry certification process and a certification exam.

Information Systems Management Option

The Information Systems Management option emphasizes application development and business process. Students learn to write software using an object-oriented programming paradigm for deployment to the web and the desktop. Relational database design, structured query language (SQL), and the ability to create applications which push and pull information from databases are highlighted. Graduates seek careers as computer support specialists, help desk technicians, web developers, software developers, and database administrators.

Network Management Option

Network administrator has become a common job title across all career fields. The Network Management option provides students with a background in network administration for supporting users and computing in a networked environment. Coursework in network operating systems, server administration, routers, switches, security, and IP telephony are all embedded in the Network Management option.

The University of Montana is a Cisco Networking Academy, a CompTIA Authorized Academy, and a member of the Microsoft Developers Network Academic Alliance. Opportunities exist for professional certification from Cisco (CCNA), Microsoft and Comp TIA (A+, Network+ and Security+).

Students entering the program should be prepared with basic computing skills (keyboarding, word processing, file management, and Internet applications) and adequate preparation in mathematics (completion of M090 or equivalent placement scores). Underprepared students should allocate an additional semester to the suggested four semester sequence.

Special Degree Requirements

The A.A.S degree in Information Technology requires completion of the following requirements with at least a "C-" in each course:

1. Mathematics. M115 (MATH 117)
2. Communications. WRIT 101 (ENEX 101, WTS 101) and COM 160A
3. Humanities. BGEN 105S (BUS 103S) and CSCI 215E (CRT 122E)
4. Computer Science/Programming. CSCI 105 (CRT 111), CSCI 110 (CRT 121), CSCI 172 (CS 172/CRT 172)
5. Information Technology Systems. ITS 150, ITS 210, ITS 280, ITS 289, and ITS 298
6. Complete the requirements of the **Information Systems Management Option**: ACTG 101(ACT 132T), CSCI 120, CSCI 221, CSCI 240, (CRT 231, CRT 203, CRT 275), CRT 263 and 6 credits of approved electives from the ACTG, BUS, COM, CSCI, ITS, or WRIT rubrics; or the **Network Management Option**: ITS 152, ITS 212, ITS 214, ITS 222, ITS 250, ITS 252, and ITS 255

Information Systems Management Option - Suggested Schedule:

| First Year | A | S |
|---|----|----|
| BGEN 105S (BUS 103S) Introduction to Business | 3 | - |
| COM 160A Oral Communications | 3 | - |
| CRT 112 Operating Systems Fundamentals | - | 3 |
| CSCI 105 (CRT 111) Computer Fluency | 3 | - |
| CSCI 110 (CRT 121) Programming with Visual Basic I | - | 3 |
| CSCI 172 (CS 172/CRT 172) Introduction to Computer Modeling | - | 3 |
| CSCI 215E (CRT 122E) Social and Ethical Issues in CS | - | 3 |
| ITS 150 (CRT 151) CCNA 1: Exploration | - | 3 |
| M 115 (MAT 117) Probability and Linear Mathematics | 3 | - |
| WRIT 101 (ENEX 101/WTS 101) College Writing I | 3 | - |
| Total | 15 | 15 |
| Second Year | A | S |
| ACTG 101 (ACC 132T) Accounting Procedures I | 4 | - |
| CRT 263 Web Design and Development | - | 3 |
| CSCI 120 (CRT 231) Programming with Visual Basic II | 3 | - |
| CSCI 221 (CRT 203) Systems Analysis and Design | - | 3 |
| CSCI 240 (CRT 275) Databases and SQL | 3 | - |
| ITS 210 (CRT 210T) Network Operating System - Desktop | 3 | - |
| ITS 280 (CRT 285T) Computer Repair and Maintenance | 3 | - |
| ITS 289 Professional Certification | - | 1 |

| | |
|---|-------|
| ITS 298 (CRT 290T) Internship/Cooperative Education | - 2 |
| Directed Electives | - 6 |
| Total | 16 15 |

Network Management Option - Suggested Schedule:

| First Year | A S |
|--|-------|
| BGEN 105S (BUS 103S) Introduction to Business | 3 - |
| CRT 112 Operating Systems Fundamentals | - 3 |
| CSCI 105 (CRT 111) Computer Fluency | 3 - |
| CSCI 110 (CRT 121) Programming with Visual Basic I | - 3 |
| CSCI 172 (CS 172/CRT 172) Introduction to Computer Modeling | - 3 |
| CSCI 215E (CRT 122E) Social and Ethical Issue in CS | - 3 |
| ITS 150 (CRT 151) CCNA 1: Exploration | 3 - |
| ITS 152 (CRT 152T) CCNA 2: Exploration | - 3 |
| M 115 (MAT 117) Probability and Linear Mathematics | 3 - |
| WRIT 101 (ENEX101/WTS 101) College Writing I | 3 - |
| Total | 15 15 |
| Second Year | A S |
| COM 160A Oral Communications | - 3 |
| ITS 210 (CRT 210T) Network Operating System - Desktop | 3 - |
| ITS 212 (CRT 215T) Network Operating System - Server Admin | 3 - |
| ITS 214 (CRT 216T) Network Operating System - Infrastructure | - 3 |
| ITS 222 (CRT 222T) Enterprise Security Seminar | - 3 |
| ITS 250 (CRT 251T) CCNA 3: Exploration | 3 - |
| ITS 252 (CRT 252T) CCNA 4: Exploration | - 3 |
| ITS 225 IP Telephony | 3 - |
| ITS 280 (CRT 285T) Computer Repair and Maintenance | 3 - |
| ITS 289 Professional Certification | - 1 |
| ITS 298 (CRT 290T) Internship/Cooperative Education | - 2 |
| Total | 15 15 |

Directed Electives for the Information Systems Option: A student may request substitution of other courses to fulfill the directed elective requirement provided a clear connection can be made between a course, a student's career objective, and the degree program. All substitution requests require departmental approval.

Accounting Technology-A.A.S. degree

Computer Support Option

Students interested in a career which prepares them to work as accounting technicians with a specialty in information technology may select the Accounting Technology, Computer Support option. This program is detailed in the Business Technology Department section of this catalog.

Courses

Computer Aided Design (CADX)

U 110 (CRT 182T) Intro to Computer Aided Design 3 cr. Offered autumn. Prereq./coreq. M 090 or M 111(MATH 005 or MAT 110). An introduction to computer aided design and drafting software for production of drawings and plans for architecture and engineering systems. Fundamentals of two dimensional drafting and drawing management for professional design.

U 131 Technical Graphics 3 cr. Offered autumn. An introduction to the techniques and standard practices of communicating technical graphics. The class studies and practices drawing skills and learns the drawing standards that support the needs of the design team in advancing ideas. It also provides the foundation for successful drawing communication in the CAD environment. Topics covered include; drawing media and tools, hand drawing skills, perspectives, views, sketching, standard scales, geometric construction, sections, dimensioning, and tolerances.

U 142 (CRT 175) Geospatial Technologies 3 cr. Offered Spring. Basics of geospatial technologies; remotely sensed imagery, GIS, and GPS and how each of the individual areas can be used together to analyze spatial datasets. Students will explore a wide range of spatial data and will learn to apply these data sets to real-world solutions.

U 156 Computer Aided Design II 3 cr. Offered autumn. Prereq. CADX 110 (CRT 182T). CAD II provides a project-based, in-depth study of the skills and concepts involved in Computer Aided Design and Drafting. Topics covered include object grouping and sharing; three dimensional modeling; animation; and interoperability with other software. This course is the second in a two-part series covering the core AutoCAD application.

U 195 Special Topics (1-6) cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 212 (CRT 184) Civil Design Technologies 4 cr. Offered spring. Prereq. CADX 110 (CRT 182T). Introduces students to computer aided design software for common survey and engineering design and drafting applications. Topics include collection of survey data; the coordinate geometry system; surfaces; subdivision and land planning; road design and corridor modeling; utilities; site grading and drainage; mapping; and 3D visualization.

U 234 Fundamentals of Surveying 3 cr. Offered spring. Prereq., M 090. Basic principles of civil surveying and the use of surveying equipment. Surveying introduces students to the link between field (construction) and office (design) practices. Students will become familiar with Global Positioning Systems (GPS), levels, level rods, total stations, basic survey computations, and their relationship to Computer Design Systems.

Computer Applications (CAPP)

U 091 Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics. Credit does not count toward an Associate of Arts, Associate of Applied Science, or Baccalaureate degree.

U 120 (CRT 100) Introduction to Computers 3 cr. Offered autumn and spring. Introduction to computer terminology, hardware, and software, including wire/wireless communications and multimedia devices. Students utilize word processing, spread sheet, database, and presentation applications to create projects common to business and industry in a networked computing environment. Internet research, email usage, and keyboarding proficiency are integrated.

U 154 (CRT 108) MS Word 3 cr. Offered autumn and spring. Prereq., CAPP 120 (CRT 100) or basic computer experience and consent of instr. Preparation of business forms, correspondence, mail merges, columnar projects, and reports using up-to-date software. Business related application projects, graphics, and printer operation are included.

U 156 (CRT 180T) MS Excel 3 cr. Offered autumn and spring. Prereq., CAPP 120 (CRT 100); and M 090 (MAT 005D) or M 095 (MAT 100D). Emphasis on the use of workbooks and sheets to solve business problems. Includes projects relating to data and graphs/charts.

U 254 (CRT 115T) Advanced MS Word 3 cr. Offered autumn and spring. Prereq., CAPP 154 (CRT 108). Analysis of the concepts of advanced work processing document production underlying mastery of the software. Business-related application projects utilizing critical thinking included. Speed and timing component to increase skills essential for employment.

Computer Science/Programming (CSCI)

U 105 (CRT 111) Computer Fluency 3 cr. Offered autumn and spring. Introduces the skills and concepts of information technology, both from practical and a more theoretical point of view. During lectures and interactive computer labs, students will explore a wide range of digital and information technologies, including common PC applications, networking, databases, privacy, and security. Credit not allowed for both CSCI 105 and CRT 111 and CS 111.

U 110 (CRT 121) Programming with Visual Basic I 3 cr. Offered autumn and spring. Prereq., M 090 (MAT 005). An introduction to object-oriented programming using an even-driven paradigm. Basic concepts of control structures, data handling, documentation, and error control. Fundamentals of algorithm design and structured software

development.

U 113 (CRT 270) Programming with C++ I 3 cr. Offered intermittently. Prereq., M 090 (MAT 005). Object oriented programming using C++. Implementation of structured programming concepts along with construction of classes to create data types for defining objects.

U 120 (CRT 231) Programming with Visual Basic II 3 cr. Offered autumn. Prereq., CSCI 110 (CRT 121). Design and implementation of software using object-oriented programming practices. The class framework is used to apply the object-oriented techniques of encapsulation, polymorphism, and inheritance.

U 172 (CRT 172) Introduction to Computer Modeling 3 cr. Offered autumn and spring. Prereq., M 090 (MAT 005). Problem solving and data modeling using computer productivity software. Emphasis using spreadsheets and database for data analysis. Credit not allowed for CSCI 172, CRT 172, and CS 172.

U 191 (CRT 195T) Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 192 (CRT 196T) Independent Study Variable cr. (R-6)

U 215E (CRT 122E) Social and Ethical Issues in CS 3 cr. Offered autumn and spring. Prereq., WRIT 101 (WTS 101). Exploration of ethical issues in the field of computing. Skills needed to identify and analyze various ethical concerns. Standard ethical concepts and theories, methods of ethical analysis. Strong emphasis on practical application of the ethical process.

U 221 (CRT 203) Systems Analysis and Design 3 cr. Offered spring. Prereq., CSCI 240 (CRT 275). Analysis of the system development life cycle. Emphasis on planning, analyzing, designing, implementing and supporting information systems to meet business requirements. Covers feasibility studies, time and cost estimates, modeling tools, design tools, implementation and support strategies. A simulated business design project will be developed.

U 240 (CRT 275) Database and SQL 3 cr. Offered autumn. Prereq., CSCI 172 (CRT 172) or consent of instr. Relational database design including: requirements analysis, data structure, entity relationships, normalization, relational algebra and integrity. Physical implementation focusing on data storage; retrieval and modification; concurrency; optimization; security; SQL; and XML.

Computer Technology CRT

U 112 Operating System Fundamentals 3 cr. Offered spring. Prereq. M 090 (MAT 005) or demonstrated computing experience. Introduction to operating system concepts through the use of contemporary software. Emphasizes file system management, networking, installation, maintenance, management, and disaster recovery practices using both the command interpreter and graphical user interface.

U 188T Computers and Law 3 cr. Offered autumn. Prereq., CAPP 120 (CRT 100) and LEG 185T. Intermediate concepts of computer systems, operating systems, graphical environments, electronic mail, Internet, and file management. A variety of applications including word processing, spreadsheet, database, presentation, and law-related software are included.

U 205T Food Service Management Computer Applications 2 cr. Offered spring. Prereq., CAPP 120 (CRT 100). Introduction to computerized applications relevant to the food service industry. Includes spreadsheet, recipe management and word processing software; appropriate industry reports, create menus and fliers; import, export and scale recipes; analyze nutrition; and calculate food cost.

U 260 Digital Publishing and Design 3 cr. Offered autumn and spring. Prereq., CAPP 120 (CRT 100) or consent of instr. A comprehensive foundation of layout and design principles to integrate digital media essential for effective print-based and web-based business publications.

U 263 Web Design and Development 3 cr. Offered autumn and spring. Prereq., CAPP 120 (CRT 100) or consent of instr. Provides a background and foundation skills required for designing and implementing Web sites for public and private organizations. Marketing and design techniques are applied using state-of-the-art software.

Electronics Technology (EET)

U 105 DC Circuit Analysis 4 cr. Offered autumn and spring. Prereq. M 090. An introduction to direct current (DC) and analysis of series, parallel, and series-parallel circuits. Topics include electrical quantities, units of measurement, measurement instruments, resistors, current, voltage, power, energy, network theorems, equivalent circuits, magnetism, and electromagnetism. Laboratory experiments include circuit analysis; the proper use of measurement equipment and techniques; and troubleshooting.

U 106 AC Circuit Analysis 3 cr. Offered autumn and spring. Prereq. EET 105. Analysis of alternating current (AC) circuits and the behavior of capacitors, inductors, reactance, impedance, transformers, and signal filters. Laboratory experiments include circuit analysis, the use of proper measurement equipment, and troubleshooting.

U 113 Circuits Lab 1 cr. Offered autumn. Prereq/coreq., EET 105. Covers proper techniques of soldering and tool usage. Electronic technical language, hands on troubleshooting skills and basic electronic measurements are involved.

U 195T Special Topics 1-6 cr. (R-6) Offered Intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 205 Solid State Electronics I 4 cr. Offered spring. Prereq. EET 105. An introduction to semiconductor technologies used in solid state electronics with an emphasis on diodes and transistors. Classroom concepts are reinforced through lab-based experiments.

U 206 Solid State Electronics II 3 cr. Offered autumn. Prereq. EET 205. An introduction to semiconductor technologies used in solid state electronics with an emphasis on amplifier circuits, field effect transistors, thyristors, and operational amplifiers. Classroom concepts are reinforced through lab-based experiments.

U 227 Digital Electronics 4 cr. Offered autumn. Prereq., EET 105. Explores digital electronic circuits and devices that make up a computer system. Topics include binary and hexadecimal number systems, Boolean algebra and digital logic theory, simple logic circuits, combinational logic, and sequential logic. Also covered is the analog-to-digital and digital-to-analog interfaces between a digital system and the real (analog) world. Includes hands-on labs.

U 232 Microprocessors 4 cr. Offered spring. Prereq., EET 227. Explores microprocessor architecture, design, and operations; machine language and assembly language programming; hardware input/output interfacing; and design applications. Includes hands-on labs incorporating an individual student trainer based on the Intel 8085A microprocessor.

U 234T Automatic Controls 4 cr. Offered autumn. Prereq., EET 205. Explores the theory, terminology and components used in automatic control of industrial machines and processes. Uses the servomechanism as a representative control system to analyze open-loop, closed-loop, proportional, integral, and differential control strategies. The use of transducers and computers in automatic control systems in the industrial control setting is emphasized.

U 237 Programmable Logic Controllers 3 cr. Offered spring. Prereq., M 090 (MAT 005). Introduces the concepts involving programmable logic controllers (PLCs). Provides an overview of PLC operation and hardware; number systems, codes and Boolean logic. Covers aspects of PLC system programming and design, including control structures, data acquisition and manipulation, troubleshooting, and real-world applications.

U 240T Robotics 3 cr. Offered spring. Prereq. or coreq., EET 205. Explores physical and operating characteristics of a robot. Topics include robot configurations, power supplies, control systems, end effectors, sensors, stepper motors and stepper controls. Robot programming also is covered and a typical robot is programmed to perform repetitive

actions. Includes hands-on labs.

U 241T Instrumentation 3 cr. Offered spring. Prereq., EET 227. The study and analysis of industrial measuring and process control instrumentation in both analog and digital form. Proper selection, use and interpretation of measurement equipment and data.

U 242T Electronics Lab III 3 cr. Offered spring. Coreq., EET 241T Bread-boarding, building, repairing and troubleshooting electronic circuits using the equipment normally found in an electronic shop. Correlating measurement information in solving electronic problems.

U 260 Data Communications 3 cr. Offered autumn. Prereq., EET 205. Explores the principles, applications, and theory of data communication systems. Topics include communication concepts and terminology, analog and digital channel characteristics, signaling techniques for analog and digital data, communication codes, transmission media, and standards and protocols for various data communication systems including computer networks, and the public switched telephone network. Includes hands-on labs.

U 270T Wireless Communications 4 cr. Offered autumn. Prereq., EET 205. Explores audio and radio frequency (RF) circuits. Topics include AM and FM signal modulation and demodulation, RF transmitters, RF receivers, RF amplifiers, audio amplifiers, oscillators, mixers, and antennas. Includes hands-on labs.

U 280T Electronics Capstone 2 cr. Offered spring. Prereq., EET 227. Completion of project prototypes. Includes comprehensive final project from conception to market.

U 295T Special Topics 1-6 cr. (R-6) Offered Intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 298 Internship 2 cr. Offered intermittently. Consent of instructor required. Extended classroom experience providing practical application of classroom learning through on the job training in a student's field of study. This experience increases student skills, prepares them for initial employment, and increases occupational awareness and professionalism.

Energy Technology (NRG)

U 101 Introduction to Energy Systems I 3 cr. Offered autumn and spring. Prereq. M 090 (MAT 005). A survey of traditional energy systems and technologies. Introduces conventional primary energy sources--coal, oil, gas, nuclear--and examines the technologies used to capture, convert, distribute, store, and utilize these energy sources. Consideration is given to physical and engineering aspects, as well as economic, social environmental, and political factors that determine the sustainability of these sources.

U 102 Introduction to Energy Systems II 3 cr. Offered autumn and spring. Prereq., NRG 101 or consent of instructor. Same as CCS 102. A survey of renewable energy systems and technologies. Addresses physical and technical aspects of wind, solar, geothermal, hydro, tidal, biological, and wave energy systems. Consideration is given to engineering, economic, social, environmental, and political factors that determine implementation and sustainability. Credit not allowed for both NRG 102 and CCS 102.

U 191 Practicum 2 cr. Offered summer only. Prereq., NRG 101 or consent of instructor. Same as CCS 191. The practicum provides students with a supervised field experience. Students will gain hands-on experience with energy specific technologies. This opportunity increases students' occupational awareness and professionalism.

U 195 Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 196 Independent Study 1-6 cr. (R-6) Offered intermittently.

U 213 Power Systems Technology 3 cr. Offered spring. Prereq., EET 106. A review of the principles of electricity, magnetism, and transformer action; the application of these principles in the operation of single-phase and three-

phase ac/dc motors, alternators, and generators; and the control methods for these electrical devices.

U 214 Energy Storage and Distribution Systems 3 cr. Offered spring. Prereq., EET 106 or consent of instructor. Studies storage and transport methods of different types of energy. Explores emergent technologies and mechanisms designed to enhance efficiency and safety, including 'smart grid' technologies; assesses relative social, economic and environmental merits of each type of energy system in terms of its storage and distribution.

U 235 Building Energy Efficiency 3 cr. Offered spring. Prereq., NRG 101. Provides an overview of energy efficiency opportunities in residential buildings and prepares the student to take the National RESNET Home Energy Rater Exam. Familiarity with residential construction and basic energy terminology is useful though not required.

U 241 Alternative Fuels 3 cr. Offered autumn. Prereq., NRG 101. Identifies alternative fuel sources; explores fuel characteristics; identifies and evaluates the infrastructure required to produce, store, distribute, and use them; discusses emission and conversion efficiencies; assesses social, environmental, and economic impacts.

U 242 Solar and Wind Systems 3 cr. Offered autumn. Prereq., NRG 101. Same as CCS 242. Introduction to the fundamentals of solar and wind energy for the design and installation of solar and wind systems. Includes an overview of the physics and chemistry of the resource and the technology, and will prepare students for a career in renewable energy or for installing a renewable energy system on their own home. Credit not given for NRG 242 and CCS 242.

U 243 Fundamentals of Photovoltaic Design and Installation 3 cr. Offered spring. Prereq./coreq., EET 105. An introduction to the fundamental principles and technologies of solar photovoltaic energy systems. Emphasis on system design and installation, including site and resource assessment, load analysis, trouble shooting, and cost analysis. The material covered prepares students for a career in renewable energy or for installing a renewable energy system on their own home.

U 244 Bioenergy 3 cr. Offered spring. Prereqs., SCN 175N and NRG 102, or consent of instructor. Investigates the physical nature of various biorenewable resources and the technologies currently employed to produce, harvest, refine and convert these into useable energy, feedstocks and products.

U 245 Fuel Cells 3 cr. Offered spring. Prereq., NRG 101. An introduction to the different types of fuel cells (hydrogen, biological, metal/air, proton exchange membrane, etc.) accompanied by a critical examination of their applications, operation, efficiencies, advantages and disadvantages.

U 246 Introduction to Geothermal Energy Technology 3 cr. Offered Autumn. Prereqs., NRG 101 and NRG 102. An introduction to the physical and technical aspects of geothermal energy systems. Topics covered include the fundamental principles of geology and hydrology, heat flow mechanisms, and a consideration of heat exchange systems including: dry steam, flash, binary systems, heat pumps, passive systems. The course also surveys political, economic, ecological, and social aspects of geothermal energy development.

U 290 Internship 2 cr. Offered spring. Consent of instructor required. Same as CCS 290. Students complete a field experience at an energy-related site or in an energy-related industry. A series of career development seminars and activities related to the field experience are completed in parallel.

U 295 Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of Energy Technology faculty and visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

U 296 Independent Study 1-6 cr. (R-6) Offered intermittently.

U 298 Internship 2 cr. Offered every term. Consent of instructor required. Same as CCS 298. Extended classroom experience providing practical application of classroom learning through on the job training in a student's field of study. This experience increases student skills, prepares them for initial employment, and increases occupational awareness and professionalism.

Information Technology Systems (ITS)

U 150 (CRT 151) CCNA 1: Exploration 3 cr. Offered autumn and spring. Prereq., M 090 (MAT 100). Introduction to networking field including terminology; protocols; local-area and wide-area networks; the OSI model; topologies; IP addressing; cabling and cabling tools; routers and router programming. Ethernet and network standards; and wireless technologies.

U 152 (CRT 152T) CCNA 2: Exploration 3 cr. Offered spring. Prereq., ITS 150 (CRT 151). Covers router theory and technologies including configurations, IOS software management, routine protocol configuration, TCP/IP, access-lists and introduction to LAN switching.

U 210 (CR 210T) Network Operating System - Desktop 3 cr. Offered autumn. Prereq., ITS 150 (CRT 151). In-depth study of a secure, multi-user, client-based network operating system. Topics include installation, administration of resources, performance, network services, and security.

U 212 (CRT 215T) Network Operating System – Server Admin 3 cr. Offered autumn. Prereq., ITS 150 (CRT 151). Server technologies commonly used in local area networking. Topics include installation, administration, storage, application services, network services, security, reliability, and availability.

U 214 (CRT 216T) Network Operating System – Infrastructure 3 cr. Offered spring. Prereq., ITS 210 (CRT 210T), ITS 212 (CRT 215T). Principles and implementation of enterprise networking services. Topics include Protocol Binding, DNS, DHCP, WINS, Remote Access, IP Routing, IP Security, Network Address Translation, and Certificate Services.

U 221 (CRT 209T) Project Management 3 cr. Offered autumn. Prereq., CSCI 172 (CRT 172). Investigation of topics in project management including scope, definition, risk, procurement and the RFP. Management of time, cost, quality, and human resources. Concepts are reinforced with PM software.

U 222 (CRT 222T) Enterprise Security 3 cr. Offered spring. Prereq., ITS 210 (CRT 210T). Examination of general information technology security concepts. Topics include access control, authentication, attack methods, remote access, web security, wireless networks, cryptography, internal infrastructure security, and external attacks. Security procedures, organizational policies, risk management and disaster recovery addressed.

U 250 (CRT 251T) CCNA 3: Exploration 3 cr. Offered autumn. Prereq., ITS 152 (CRT 152T). Covers router configurations including advanced IP addressing techniques, variable length subnet masking, intermediate routing protocols, Ethernet switching, virtual LANs, spanning-tree protocol, and VLAN trucking protocol.

U 252 (CRT 252T) CCNA 4: Exploration 3 cr. Offered spring. Prereq., ITS 250 (CRT 251T). Project-based course in wide-area networking including advanced IP addressing techniques, network address translation, port address translation, DHCP, WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, network management, and introduction to optical networking.

U 255 IP Telephony 3 cr. Offered autumn. Prereq./coreq. ITS 150 (CRT 151). Provides an introduction to converged voice and data networks as well as challenges faced by the various technologies. Presents solutions and implementation considerations for signaling, quality of service, security, call control, dial plans, gateway protocols, messaging, congestion, and connecting to a PSTN network.

U 280 (CRT 285T) Computer Repair and Maintenance 3 cr. Offered autumn. Prereq., ITS 150 (CRT 151). In-depth study of personal computer hardware. Focus on field replaceable components. Topics include: storage devices, processors, system boards, memory, ports, cabling, power supplies, multimedia devices, printers, and troubleshooting.

U 289 (CRT 289T) Professional Certification 1 cr. Offered autumn and spring. Prereq., consent of instr. Review objectives of an information technology industry-based professional certification. Certification objectives, preparation strategies, and exam strategies included. Course can be repeated for different industry-based professional

certifications.

U 291 (CRT 295T) Special Topics 1-6 cr. (R-6) Offered intermittently. Experimental offerings of visiting professors, experimental offerings of new courses, or one time offerings of current topics.

U 298 (CRT 290T) Internship/Cooperative Education 2 cr. Offered autumn and spring. Not open to non-majors. On-the-job training in positions requiring information technology competencies. This experience increases students' skills, prepares them for initial employment, and increases occupational awareness and professionalism. Students work a minimum of six hours each week at an approved site and attend a weekly one-hour seminar.

Department of Business Technology

- . Special Degree Requirements
- . Courses

Brian Larson, Chair

The Business Technology Department of The University of Montana College of Technology collaborates with business and industry to prepare graduates to compete in and contribute to a dynamic global society. The department attracts and retains skilled faculty with the professional experience and theoretical background to utilize diverse instruction which reflects current and emerging business practices. Faculty actively engage student in the learning process by integrating experiential technical education and empowering students to adapt to an ever-changing world.

Students may choose from six Associate of Applied Science degree programs and four Certificate of Applied Science programs. Degree programs include Accounting Technology with an option in Computer Support; Administrative Management; Food Service Management; Medical Information Technology with options in Health Information Coding Specialty, and Medical Administrative Assisting; Paralegal Studies; and Management with options in Entrepreneurship, and Sales and Marketing. Certificate of Applied Science programs include Culinary Arts, Customer Relations, Medical Reception, and Sales and Marketing.

Students may attend classes on U of M College of Technology East and UM Mountain campuses. Programs may contain day, evening and weekend classes.

Special Degree and Certificate Requirements

General education requirements are integrated into the following programs. Refer to the Academic Policies and Procedures section of this catalog for the specific requirements.

Accounting Technology-A.A.S. Degree

Donna Bakke, Interim Director

Almost all organizations need either in-house financial staff or outside bookkeeping/accounting services to aid with financial data compilation and reporting. Bookkeepers and accountants maintain financial records and often participate in strategic planning and other fiscal decisions. Graduates work in small businesses as full charge bookkeepers or large businesses as members of accounting staffs. They are required to communicate extensively with vendors, clients, and employees and are often key players in business projections, cash forecasting, and budgeting. This program provides students the marketable skills for employability in a variety of organizations including service, retail, non-profit, governmental, and accounting firms. Program graduates use technology to gather, compile and analyze data. They communicate budgetary and accounting information to non-financial colleagues and managers. Students considering this program should be analytical, detail-oriented, and enjoy using current technology.

Students entering autumn semester may complete the program in four semesters as outlined below. Students entering spring should meet with advisor prior to selecting courses.

Autumn Entry:

| First Year | A S |
|---|--------------|
| ACTG 101 (ACC 132T) Accounting Procedures I | 4 |
| ACTG 102 (ACC 133T) Accounting Procedures II | 4 |
| ACTG 180 (ACC 134T) Payroll Accounting | - 3 |
| BGEN 105S (BUS 103S) Introduction to Business | - 3 |
| BGEN 235 (BUS 135T) Business Law | - 3 |
| CAPP 120 (CRT 100) Introduction to Computers | 3 - |
| CAPP 156 (CRT 180T) MS Excel | - 3 |
| M 115 (MAT 117) Probability & Linear Math | 3 - |
| BGEN 160S (TASK 160S/BUS 160S) Issues in Sustainability | 3 - |
| WRIT 101 (WTS 101) College Writing I | 3 - |
| Total | 16 16 |
| Second Year | A S |
| ACTG 215 (ACC 232T) Foundations of Government and Not for Profit Accounting | - 3 |
| ACTG 202 (ACC 234T) Principles of Managerial Accounting | 3 - |
| ACTG 211 (ACC 236T) Income Tax Fundamentals | 4 - |
| ACTG 250 (ACC 250T) Accounting Capstone | - 4 |
| ACTG 298 (ACC 290T) Accounting Internship | - 2 |
| BUS 210 Critical Analysis for Business | - 3 |
| BUS 238T Financial Planning | 3 - |
| COM 160A Oral Communications | - 3 |
| CSCI 172 (CRT 172) Introduction to Computer Modeling | 3 - |
| ECNS 201S (ECON 111S) Principles of Microeconomics | 3 - |
| Total | 16 15 |

Computer Support Option

In addition to accounting technician training, students selecting this option will be prepared to manage and maintain LAN and/or WAN system, install, maintain and troubleshoot software, and train and support system users. They also will be trained to configure and diagnose workstation hardware, administer system security and upgrade, update and expand network systems.

Students entering autumn semester may complete the program in four semesters as outlined below. Students entering spring should meet with advisor prior to selecting courses.

Autumn Entry:

| First Year | A S |
|--|--------------|
| ACTG 101 (ACC 132T) Accounting Procedures I | 4 |
| ACTG 102 (ACC 133T) Accounting Procedures II | - 4 |
| ACTG 180 (ACC 134T) Payroll Accounting | - 3 |
| BGEN 105S (BUS 103S) Introduction to Business | 3 - |
| CAPP 156 MS Excel | - 3 |
| CRT 112 Operating System Fundamentals | - 3 |
| CSCI 105 (CRT 111) Computer Fluency | 3 - |
| ITS 150 (CRT 151T) CCNA 1: Exploration | - 3 |
| M 115 (MAT 117) Probability and Linear Math | 3 - |
| WRIT 101 (WTS 101) College Writing I | 3 - |
| Total | 16 16 |
| Second Year | A S |
| ACTG 202 (ACC 234T) Principles of Managerial Accounting | 3 - |
| ACTG 211 (ACC 236T) Income Tax Fundamentals | 4 - |
| ACTG 250 Accounting Capstone | - 4 |
| ACTG 298 (ACC 290T) Accounting Internship | - 2 |
| COM 160A Oral Communications | 3 - |
| CSCI 110 (CRT 121) Programming with Visual Basic I | - 3 |
| CSCI 172 Introduction to Computer Modeling | - 3 |
| CSCI 215E (CRT 122E) Social and Ethical Issues in CS | - 3 |
| ITS 210 (CRT 210T) Network Operating System - Desktop | 3 - |
| ITS 280 (CRT 285T) Computer Repair and Maintenance | 3 - |
| ITS 291 (CRT 289T) Special Topics: Professional Certification A+ | - 1 |
| Total | 16 16 |

Administrative Management-A.A.S. Degree

Cheryl Galipeau, Director

The Administrative Management Program allows students to advance the career proficiencies acquired in the Customer Relations certificate program by earning an Associate of Applied Science Degree. The Administrative Management program prepares graduates to meet the administrative and information needs of business and industry. Students gain proficiency in computer, management, and information technologies. They complete an academic component to gain an understanding of professional responsibilities in our global society. Graduates of this program become vital members of executive teams with the ability to assume supervisory, organizational, and communication roles in the coordination of administrative services. Students are encouraged to earn Microsoft Office Specialist (MOS) certification on Microsoft Office programs. Earning a Microsoft Office Specialist certification increases job opportunities by demonstrating technical proficiency in advanced skills to potential and current employers. Interested students should discuss this opportunity with the Administrative Management Program Director. An Associate of Applied Science Degree in Administrative Management opens opportunities for graduates in a variety of business settings.

Students entering autumn semester may complete the program in four semesters as outlined below. Students entering spring should meet with an advisor prior to selecting courses.

Autumn Entry:

| | First Year | A S |
|--|--------------------|------------|
| BGEN 105S (BUS 103S) Introduction to Business | 3 | - |
| BGEN 235 (BUS 135T) Business Law | - | 3 |
| BUS 140T Customer Service | - | 4 |
| CAPP 120 (CRT 100) Introduction to Computers | 3 | - |
| CAPP 154* MS Word | - | 3 |
| CAPP 156* (CRT 180T) MS Excel | - | 3 |
| COM 150S Interpersonal Communications | - | 3 |
| HMR 110 Introduction to Public Relations | 3 | - |
| M 115** (MAT 117) Probability and Linear Math or M 105** (MAT 107T) Contemporary Mathematics | 3 | - |
| TASK 145 (BUS 106T) Records Management | 2 | - |
| WRIT 121** (WTS 115) Introduction to Technical Writing or WRIT 101** (WTS 101) College Writing I | 3 | - |
| Total | 17 | 16 |
| | Second Year | A S |
| ACTG 100 (ACC 131T) Essentials of Accounting or ACTG 101 (ACC 132T) Accounting Procedures I | 4 | - |
| BUS 210* Critical Analysis for Business | - | 3 |
| BMGT 216 (BUS 243T) Psychology of Management and Supervision | 4 | - |
| CAPP 254* (CRT 115T) Advanced MS Word | 3 | - |
| COM 160A Oral Communications | - | 3 |
| CRT 260* Digital Publishing and Design | - | 3 |
| CRT 263* Web Design and Development | - | 3 |
| CSCI 172* Introduction to Computer Modeling | 3 | - |
| HMR 298 Administrative Management Internship | - | 2 |
| TASK 240* (BUS 240T) Administrative Support for the Office | 2 | - |
| Total | 16 | 14 |

* Indicates prerequisite needed

** Placement in course(s) determined by placement assessment

Customer Relations-Certificate of Applied Science

Cheryl Galipeau, Director

The Customer Relations program provides students with the skills to promote excellent customer relations in business settings. Courses related to the service mix, service-level decisions, formulation of service policies, customer service management, and the development of staff is included. Students gain knowledge of customer care, effective communication, and the importance of public relations to promote a positive company image. Students develop an understanding of challenges and conflicts while servicing both internal and external customers. Emphasis in business, computers, and communications provide a solid background for customer relations positions in the current business environment.

A Certificate of Applied Science is awarded for successful completion of the program.

Students entering autumn semester may complete the program in two semesters as outlined below. Students entering spring should meet with advisor prior to selecting courses.

Autumn Entry:

| First Year | A | S |
|--|-----------|-----------|
| BGEN 105S (BUS 103S) Introduction to Business | 3 | - |
| BGEN 235 (BUS 135T) Business Law | - | 3 |
| BUS 140T Customer Service | - | 4 |
| CAPP 120 (CRT 100) Introduction to Computers | 3 | - |
| CAPP 154* MS Word | - | 3 |
| CAPP 156* (CRT 180T) MS Excel | - | 3 |
| COM 150S Interpersonal Communications | - | 3 |
| HMR 110 Introduction to Public Relations | 3 | - |
| M 115** (MAT 117) Probability and Linear Math or M 105** (MAT 107T) Contemporary Math | 3 | - |
| TASK 145 (BUS 106T) Records Management | 2 | - |
| WRIT 121** (WTS 115) Introduction to Technical Writing or WRIT 101** (WTS 101) College Writing I | 3 | - |
| Total | 17 | 16 |

* Indicates Prerequisite Needed

** Placement in course(s) determined by placement assessment

Culinary Arts-Certificate of Applied Science

Tom Campbell, Director

The Bureau of Labor Statistics indicates the hospitality field is America's number one retail employer and predicts its growth will increase 30 percent over the next two years. Students entering the Culinary Arts Certificate program or Food Service Management degree program prepare for careers in the hospitality industry. Students develop skills to seek employment in hotels, restaurants, resorts, casinos, clubs, catering, and corporate dining. Culinary careers encompass hospitality management, sales, product development, or entrepreneurship. To meet the growing demand of the hospitality industry, two program options are available.

Students may earn a Culinary Arts Certificate of Applied Science or a Food Service Management Associate of Applied Science degree.

The Culinary Arts certificate program is three semesters and provides an introduction to the field of culinary arts. Students prepare for an entry-level position in the expanding and challenging food service industry. This program incorporates comprehensive hands-on learning experiences complemented by supportive courses designed to prepare students for a wide range of career opportunities. This program allows a seamless transition into the Food Service Management degree.

Students are awarded a Certificate of Applied Science after successfully completing the program.

Students may enter the Culinary Arts certificate program autumn semester and early application is encouraged.

Autumn Entry:

| First Year | A | S |
|--|----------|----------|
| CAPP 120 (CRT 100) Introduction to Computers | - | 3 |
| COM 150S Interpersonal Communication | 3 | - |
| CULA 101 (CUL 151T) Introduction to Food Service | 5 | - |
| CULA 105 (CUL 175T) Food Service Sanitation | 2 | - |
| CULA 210 (FSM 180T) Nutritional Cooking | - | 3 |
| M 105 (MAT 107T) Contemporary Mathematics | 3 | - |
| PSYX 161S (PSY 110S) Fundamentals of Organizational Psychology | - | 3 |
| WRIT 121 (WTS 115) Introduction to Technical Writing | 3 | - |
| Food Station Experience from following courses: | | |
| CULA 156 (CUL 156T) Dining Room Procedures | | |
| CULA 157 (CUL 157T) Pantry and Garde-Manger | | |
| CULA 158 (CUL 158T) Short Order Cookery | | |
| CULA 160 (CUL 160T) Soups, Stocks, and Sauces | | |
| CULA 161 (CUL 161T) Meats and Vegetables | | |
| CULA 165 (CUL 165T) Baking and Pastry | - | 10 |

Total 16 19

Food Service Management-A.A.S. Degree

Tom Campbell, Director

The Food Service Management program culminates in an Associate of Applied Science Degree. This program combines theory, practical training, and industry experience to prepare students for entry-level and management positions in the diverse and dynamic hospitality industry. The degree program is designed to continue principles taught in the Culinary Arts certificate program. The spectrum of learning is expanded to include more in-depth professional studies thereby enhancing employment options. Accreditation by the American Culinary Federation ensures graduates' eligibility for certification as an ACF "Certified Culinarian".

Technical subject areas include introduction to the industry, basic baking, patisserie, cost control, dining room service, Garde manger, nutritional cooking, fundamental cooking principles, short order cookery, a la carte stations, menu planning, supervised internship, and the recognized sanitation certificate awarded by the National Restaurant Association Educational Foundation.

The Associate of Applied Science degree is awarded upon successful completion of the program.

Students entering autumn semester may complete the program in four semesters as outlined below. Students entering spring should meet with advisor prior to selecting courses.

Autumn Entry :

| First Year | A S |
|--|------------|
| CAPP 120 (CRT 100) Introduction to Computers | - 3 |
| COM 150S Interpersonal Communication | 3 - |
| CULA 101 (CUL 151T) Introduction to Food Service | 5 - |
| CULA 105 (CUL 175T) Food Service Sanitation | 2 - |
| CULA 210 (FSM 180T) Nutritional Cooking | - 3 |
| M 105 (MAT 107T) Contemporary Mathematics | 3 - |
| PSYX 161S (PSY 110S) Fundamentals of Organizational Psychology | - 3 |
| WRIT 121 (WTS 115) Introduction to Technical Writing | 3 - |
| Food Station Experience from following courses: | |
| CULA 156 (CUL 156T) Dining Room Procedures | |
| CULA 157 (CUL 157T) Pantry and Garde-Manger | |
| CULA 158 (CUL 158T) Short Order Cookery | |
| CULA 160 (CUL 160T) Soups, Stocks, and Sauces | |
| CULA 161 (CUL 161T) Meats and Vegetables | |
| CULA 165 (CUL 165T) Baking and Pastry | - 10 |
| Total | 16 19 |
| Second Year | A S |
| BMGT 216 (BUS 234T) Psychology of Management and Supervision | - 4 |
| CRT 205T Food Service Management Computer Applications | - 2 |
| CULA 270 (FSM 270) Purchasing and Cost Controls | 5 - |
| CULA 299 (FSM 271) Culinary Arts Capstone | - 4 |
| CULA 275 (FSM 275T) Patisserie | - 2 |
| CULA 298 (FSM 290T) FSM Internship | - 4 |
| Food Station Experience from following courses: | |
| CULA 156 (CUL 156T) Dining Room Procedures | |
| CULA 157 (CUL 157T) Pantry and Garde-Manger | |
| CULA 158 (CUL 158T) Short Order Cookery | |
| CULA 160 (CUL 160T) Soups, Stocks, and Sauces | |
| CULA 161 (CUL 161T) Meats and Vegetables | |
| CULA 165 (CUL 165T) Baking and Pastry | 10 - |
| Total | 15 16 |

Management-A.A.S. Degree

Brian Larson, Director

The Management program provides graduates with the skills required to own and operate their own businesses or become sales representatives and managers of retail organizations.

Entrepreneurship Option

Students selecting the Entrepreneurship option will focus on venture initiation, constructing business plans, generating financing, and beginning operations. Areas of study focus on the critical factors involved in accounting, sales strategy, advertising and marketing issues complemented with supervisory skills. Students gain knowledge of basic disciplines of business through both classroom and hands-on training. Computer technology and web development are added components to assist students to compete in today's changing business climate. Applications of the elements learned are included where practical. Successful graduates will depart with a comprehensive business plan and presentation skills required to approach financiers.

The Associate of Applied Science degree is awarded upon successfully completing the program.

Students entering autumn semester may complete the program in four semesters as outlined below. Students entering spring should meet with advisor prior to selecting courses.

Autumn Entry:

| First Year | | A | S |
|--|--|----------|----------|
| ACTG 101 (ACC 132T) Accounting Procedures I | | 4 | - |
| ACTG 102 (ACC 133T) Accounting Procedures II | | - | 4 |
| BMKT 112 (BUS 112T) Applied Sales | | 2 | - |
| BMKT 114 (BUS 113T) Psychology of Selling | | - | 3 |
| BMKT 225 (BUS 125T) Marketing | | 3 | - |
| BGEN 235 (BUS 135T) Business Law | | - | 3 |
| CAPP 120 (CRT 100) Introduction to Computers | | 3 | - |
| CSCI 172 (CRT 172) Introduction to Computer Modeling | | - | 3 |
| M 115 (MAT 117) Probability and Linear Math | | 3 | - |
| PSYX 161S (PSY 110S) Fundamentals of Organizational Psychology | | - | 3 |
| WRIT 101 (WTS 101) College Writing I | | 3 | - |
| Total | | 18 | 16 |
| Second Year | | A | S |
| ACTG 180 (ACC 134T) Payroll Accounting | | 3 | - |
| BUS 210 Critical Analysis for Business | | - | 3 |
| BMKT 240 (BUS 224T) Advertising | | - | 3 |
| BUS 238T Financial Planning | | - | 3 |
| BMGT 216 (BUS 243T) Psychology of Management and Supervision | | 4 | - |
| BMGT 299 (BUS 250T) Capstone: Entrepreneurship | | - | 3 |
| BMGT 298 (BUS 290T) Management Internship | | 2 | - |
| COM 160A Oral Communications | | - | 3 |
| CRT 260 Digital Publishing and Design | | 3 | - |
| CRT 263 Web Design and Development | | - | 3 |
| ECNS 201S (ECON 111S) Principles of Microeconomics | | 3 | - |
| Total | | 15 | 18 |

Sales and Marketing Option

Students selecting the Sales and Marketing option combine the technical sales and promotional related courses as a foundation for seeking middle to advanced positions in the sales and marketing field. Students will be required to complete sales presentations using appropriate techniques applying consultative and negotiation selling skills. Students will study and demonstrate effective sales techniques, plan and implement effective visual displays and presentations, and develop strong record keeping skills and management of accounts. Additional emphasis in computer skills, accounting, and technical writing provide students the needed edge for this competitive career.

An Associate of Applied Science degree is awarded to students successfully completing the program.

Students entering autumn semester may complete the program in four semesters as outlined below. Students entering spring should meet with advisor prior to selecting courses.

Autumn Entry:

| First Year | | A | S |
|--|--|----------|----------|
| ACTG 101 (ACC 132T) Accounting Procedures I | | 4 | |
| ACTG 102 (ACC 133T) Accounting Procedures II | | | 4 |

| | |
|--|-------|
| BMKT 109 (BUS 109T) Visual Merchandising and Display | - 3 |
| BMKT 112 (BUS 112T) Applied Sales | 2 - |
| BMKT 114 (BUS 113T) Psychology of Selling | - 3 |
| BMKT 225 (BUS 125T) Marketing | 3 - |
| CAPP 120 (CRT 100) Introduction to Computers | 3 - |
| CSCI 172 (CRT 172) Introduction to Computer Modeling | - 3 |
| HMR 110 Introduction to Public Relations | - 3 |
| M 115 (MAT 117) Probability and Linear Math | 3 - |
| WRIT 101 (WTS 101) College Writing I | 3 - |
| Total | 18 16 |
| Second Year | |
| A S | |
| ACTG 180 (ACC 134T) Payroll Accounting | 3 - |
| BGEN 235 (BUS 135T) Business Law | - 3 |
| BMKT 240 (BUS 224T) Advertising | - 3 |
| BMGT 216 (BUS 243T) Psychology of Management and Supervision | - 4 |
| BMGT 298 (BUS 290T) Management Internship | 2 - |
| COM 160A Oral Communications | 3 - |
| CRT 260 Digital Publishing and Design | 3 - |
| CRT 263 Web Design and Development | - 3 |
| ECNS 201S (ECON 111S) Principles of Microeconomics | 3 - |
| PSYX 161S (PSY 110S) Fundamentals of Organizational Psychology | 3 - |
| Total | 17 16 |

Sales and Marketing-Certificate of Applied Science

Brian Larson, Director

Students in the Sales and Marketing program are trained in sales and supportive tasks relating to retail or wholesale organizations. They study the application of the latest counselor selling techniques to assist clients in meeting needs. The curriculum also involves marketing activities, bookkeeping functions, and merchandising skills.

Students are awarded a Certificate of Applied Science after successfully completing the program.

The Sales and Marketing program satisfies the requirements for the first year of the Management degree, Sales and Marketing option.

Students entering autumn semester may complete the program in two semesters as outlined below. Students entering spring should meet with advisor prior to selecting courses.

Autumn Entry:

| | | |
|--|-------|------------|
| First Year | | A S |
| ACTG 101 (ACC 132T) Accounting Procedures I | 4 - | |
| ACTG 102 (ACC 133T) Accounting Procedures II | - 4 | |
| BMKT 109 (BUS 109T) Visual Merchandising and Display | - 3 | |
| BMKT 112 (BUS 112T) Applied Sales | 2 - | |
| BMKT 114 (BUS 113T) Psychology of Selling | - 3 | |
| BMKT 225 (BUS 125T) Marketing | 3 - | |
| CAPP 120 (CRT 100) Introduction to Computers | 3 - | |
| CSCI 172 (CRT 172) Introduction to Computer Modeling | - 3 | |
| HMR 110 Introduction to Public Relations | - 3 | |
| M 115 (MAT 117) Probability and Linear Math | 3 - | |
| WRIT 101 (WTS 101) College Writing I | 3 - | |
| Total | 18 16 | |

Medical Information Technology- A.A.S. Degree

Michelle Boller, Interim Director

The Medical Information Technology program provides three options for students with the flexibility of choosing a career in health information coding specialty, medical administrative assisting or medical reception certificate. The course of study includes general as well as administrative duties of a medical facility. These duties involve scheduling appointments, interacting with patients, submitting patient insurance claims using current coding procedures, and maintaining medical and financial records. Additionally, students are exposed to the principles of medical ethics and medical legal issues facing health providers. All Students in the Medical Information Technology degree options