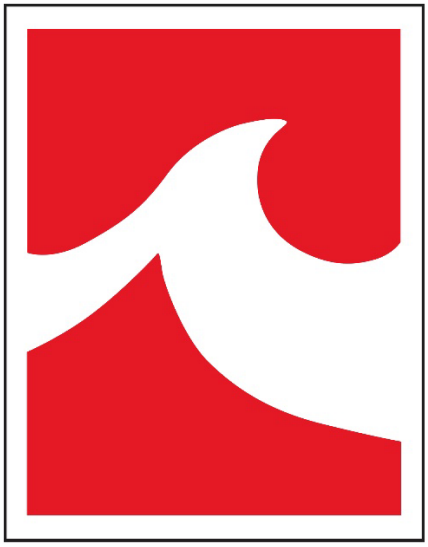

LAKE MICHIGAN COLLEGE®

COLLEGE CATALOG

2022-2023

Contents

ABOUT LAKE MICHIGAN COLLEGE

Lake Michigan College is a two-year community college offering associate degrees, certificates and a wide range of continuing education and workforce training. The College's district includes all of Berrien County, Covert Township, and the South Haven Public Schools district, all in southwest Michigan.

www.lakemichigancollege.edu
Phone: 1-800-252-1562

MISSION STATEMENT

Together we empower people and communities to thrive through education, innovation and experiences.

GUIDING PRINCIPLES

Accountability

We hold ourselves accountable to our students, communities, professional standards, and each other.

Culture

We ensure our actions support the whole person through compassion and kindness.

Diversity

We promote an inclusive environment by thoughtfully and intentionally engaging diversity in all its forms.

Integrity

We conduct ourselves with integrity in all matters.

Quality

We provide the highest quality education and experiences possible.

Service

We strive to meet the needs of our students, employees, and communities.

BOARD OF TRUSTEES

Mr. Jeff Curry, Chair, St. Joseph, Michigan
Mr. John Grover, Vice-Chair, Niles, Michigan
Ms. Mary Jo Tomasini, Secretary, Sodus, Michigan
Ms. Joan Smith, Treasurer, St. Joseph, Michigan
Ms. Debra Johnson, Trustee, Eau Claire, Michigan
Ms. Vicki Burghdoff, Trustee, St. Joseph, Michigan

Lake Michigan College President

Dr. Trevor Kubatzke

CAMPUSES AND LOCATIONS

Benton Harbor Campus
2755 E. Napier Avenue, Benton Harbor, Michigan 49022
(800) 252-1562

Niles Campus at Bertrand Crossing
1905 Foundation Drive, Niles, Michigan 49120
(269) 695-1391

South Haven Campus
125 Veterans Boulevard, South Haven, Michigan 49090
(269) 637-7500

Allegan County Area Technical & Education Center
2891 116th Avenue, Allegan, Michigan 49010
(269) 927-8170

Four Winds Casino
11111 Wilson Road New Buffalo, Michigan 49117

Lake Michigan College is an equal opportunity institution, affording enrollment, employment and services without distinction on the basis of race, color, religion, national origin, gender identity or expression, age, marital status, sexual orientation, sex, physical or mental disability, weight, height, creed, political affiliation, citizenship status, AIDS/HIV status, misdemeanor arrest record, genetic information or veteran status. The parties recognize the College's continuing commitment to equal employment opportunity and non-discrimination. Minorities and persons with a disability are encouraged to attend Lake Michigan College. Any questions regarding your rights under Title VI and Title IX should be directed to Executive Director, Human Resources, (269) 927-8102, Room A-305.

Any questions regarding your rights under Section 504 should be directed to the Student Outreach and Support Services Office, A-218, (269) 927-8866.

Lake Michigan College offers an open admission policy for individuals who are interested in and capable of extending their education beyond high school. Because of this open admission policy, diversity or goals is a non-issue regarding admissions.

Accreditation

To learn more about LMC's accreditations please visit **lakemichigancollege.edu/about/accreditation**.

Institutional Accreditation information
Lake Michigan College is accredited by the Higher Learning Commission (hlcommission.org), an institutional accreditation agency recognized by the U.S. Department of Education.

The Higher Learning Commission
230 South LaSalle Street, Suite 7-500
Chicago, Illinois 60604-1411
(800) 621-7440
hlcommission.org

Program Accreditation Information
Dental Assisting
The program in Dental Assisting is accredited by the Commission on Dental Accreditation of the American Dental Association, (CODA), 2111 East Chicago Avenue, Chicago, IL 60611, Phone: 312-440-4653 a specialized accrediting body recognized by the Council on Postsecondary Accreditation and by the U.S. Department of Education. The program is also accredited by the Michigan State Board of Dentistry. (These program accreditations end on December 31, 2022. A program modification will take place in January 2023.)

Diagnostic Medical Sonography
Accredited by the Joint Review Committee on Education in Diagnostic Medical Sonography, located at 6021 University Boulevard, suite 500, Ellicott City, MD 21043; Phone 443-973-3251; jrcdms.org.

The program is also accredited by the Commission on Accreditation of Allied Health Education Programs, located at 1361 Park Street, Clearwater, FL 33756; Phone 727-210-2350; caahep.org.

Nursing
The Associate in Applied Science (AAS) nursing program located at the Benton Harbor Campus is accredited by the Accreditation Commission for Education in Nursing, Inc., (ACEN), 3390 Peachtree Road NE, Suite 1400 Atlanta, GA 30326, Phone: 404-975-5000. The most recent accreditation decision made by the ACEN Board of Commissioners for the AAS nursing program is Continuing Accreditation. View the public information disclosed by the ACEN regarding the program at acenursing.us/accredited programs/programSearch.htm.

Medical Assisting
The certificate in Medical Assisting is approved by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 25400 U.S. Highway 19 North, Suite 158, Clearwater, FL 33763, Phone: 727-210-2350. caahep.org

Radiologic Technology
This program is accredited by the Joint Review Committee on Education in Radiologic Technology, 20 N. Wacker Dr., Suite 2850, Chicago, IL 60606-3182; Phone 312-704-5300. jrcert.org and email@jrcert.org.

Programs and Areas of Study

Accounting
Art
Automation Engineering
Biology
Bookkeeping*
Business – Associate in Applied Science
Business Administration – Associate in Business Administration
Business Certificates
- Computer Information Systems
- Hospitality Management
- Risk Management and Insurance
- Sales and Customer Service
- Small Business Management
- Supervisory Skills

Casino Management – Four Winds*
Certified Nursing Assistant (CNA)**
Chemistry
Child Development*
Chocolate and Confections*
Communication
Computer Information Systems Certificates
- CISCO
- Geospatial Information Systems Technology
- Information Technology
- Web Development

Computer Information Systems Degrees
- Applications Development
- Cybersecurity
- Networking

Criminal Justice
Culinary Management
Dental Assisting*
Diagnostic Medical Sonography
Electrical Distribution
Emergency Medical Services**
Engineering
Engineering Technology
English
Foreign Language
Liberal Arts*
General – Associate in Applied Science
General Studies
General Technology
Graphic Design*
Health Science
History
Hospitality Management*
Machine Tool Technology*
Manufacturing Production*
Mathematics
Mechatronics Technology*
Medical Assisting*
Music – Associate in Applied Science
Music – Associate in Arts
Nursing
Pharmacy Technician*
Philosophy
Phlebotomy Technician*
Physical Education & Wellness
Physical Science
Physics
Political Science
Psychology
Radiologic Technology
Registered Behavior Technician*
Skilled Trades Technology*
Sociology
Spanish Certification
Sterile Processing Technician*
Surgical Technology
Teacher Education – Associate in Applied Science
Teacher Education – Associate in Arts
Theatre
Trucking**
Undecided/Transfer
Welding Production Technology*

Wine & Viticulture Technology

*Certificate Options Available

** Non-Degree, Specialty Certificate

Accounting

Associate in Applied Science Degree *Program Code ACCT*

Advisor: Danny Langston, **(269) 927-8968**, dlangston@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
Communication 215, Professional Communications 3
Humanities/ Fine Arts 3
Math 122, Intermediate Algebra, or
Math 123, Quantitative Reasoning 4
Natural Sciences 3
Social Science 3

Major Requirements

Business 130, Professionalism in the Workplace 1
Business 201, Principles of Accounting I 4
Business 202, Principles of Accounting II 4
Business 203, Principles of Economics (Macro) 3
Business 204, Principles of Economics (Micro) 3
Business 205, Business Law I 3
Business 212, Accounting Applications on Computers 3
Business 213, Cost Accounting I 3
Business 218, Intermediate Accounting I 3
Business 219, Intermediate Accounting II 3
Business 224, Income Tax Accounting 3
Computer Information Systems 108, Office Information Systems 3

Program Electives (Select 6 Credit Hours)

Business 103, Introduction to Business 3
Business 206, Business Law II 3
Business 211, Principles of Management 3
Business 214, Cost Accounting II 3
Business 222, Data Reporting & Analysis 3
Business 223, Payroll Accounting 3
Business 265, Accounting Co-Op I 3
Computer Information Systems 100,
Foundations of Information Technology 3

You should notify your advisor of your intention to take BUSA 265 before beginning your second-year classes.

About the Area of Study

With a two-year degree in accounting, you will be prepared for entry-level accounting positions including bookkeeper, accounts payable, payroll clerk, or assistant to an accountant. You will compute, classify, record, and verify financial data, and develop and maintain financial records.

Associate Degree

Upon completion of the 61-credit Accounting program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Program Sequences

An advisor will help you make necessary changes to these recommended sequences.

Associate Degree Program

Semester 1

BUSA 103, CIS 108, ENGL 101, BUSA 222, BUSA 130

Semester 2

MATH 123, COMM 215, BUSA 201, BUSA 203, PHIL 101

Semester 3

BUSA 218, BUSA 202, BUSA 204, BIOL109, BUSA 212

Semester 4

BUSA 219, BUSA 213, POSC 101, BUSA 205, BUSA 224

Applications Development - CIS

Associate in Applied Science Degree – Applications Development *Program Code APDV*

Advisors: Jay Keeler, **(269) 927-8772**, jkeeler@lakemichigancollege.edu
Shawn Hisle, **(269) 927-8166**, shisle@lakemichigancollege.edu
Kyle Kelly, (**269) 927-4568**, kkelly@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
English 103, Technical Writing 3
Humanities/ Fine Arts 3
Mathematics 128, Pre-Calculus Algebra, or Higher,
excluding MATH 200, MATH 210 and MATH 265 3
Natural Sciences 3
Social Sciences 3

Major Requirements

Business 130, Professionalism in the Workplace 1
Computer Information Systems 100, Foundations of Information
Technology 3
Computer Information Systems 106, Operating System Foundations 3
Computer Information Systems 118, Web Dev. & Design Foundations
..... 3
Computer Information Systems 119, Programming Logic and Design 3
Computer Information Systems 140, Network Foundations 3
Computer Information Systems 156, Computer Security 3
Computer Information Systems 164, C++ Programming 3
Computer Information Systems 167, Python Programming 3
Computer Information Systems 240, Systems Analysis & Design 3
Computer Information Systems 264, Advanced C++ Programming ... 3
Computer Information Systems 266, Java Programming or
267, Advanced Python Programming 3
Computer Information Systems 268, C# Programming 3
Computer Information Systems 291, Software Engineering 3

Electives (Select 3 Credit Hours)

Computer Information Systems 111, Database Systems 3
Computer Information Systems 155, Comparative Operating Systems
..... 3
Computer Information Systems 158, Geospatial Technologies 3
Computer Information Systems 170, Unix/Linux Operating Systems 3
Computer Information Systems 200, IT Support 3
Computer Information Systems 202, Data Reporting & Analysis 3
Computer Information Systems 208, Adv. Microcomputing Apps 3
Computer Information Systems 215, Digital Forensics 3
Computer Information Systems 219, Client-Side Web Development . 3
Computer Information Systems 220, Web Programming 3
Computer Information Systems 221, Server-Side Scripting 3
Computer Information Systems 226, Routing & Switching 3
Computer Information Systems 227, Connecting Networks 3
Computer Information Systems 228, Scaling Networks 3
Computer Information Systems 237, Geographic Information
Systems 3
Computer Information Systems 238, Remote Systems 3
Computer Information Systems 239, Field Methods in GIS 3
Computer Information Systems 242, Windows Server 3
Computer Information Systems 250, Adv. Topics/Comp. Info. Syst. ... 3
Computer Information Systems 255, Structured Query Language 3
Computer Information Systems 261, Co-Op I 3
Computer Information Systems 262, Co-Op II 3
Computer Information Systems 267, Advanced Python Programming
..... 3
Computer Information Systems 275, Disaster Recovery 3
Computer Information Systems 277, Advanced GIS Application 3
Computer Information Systems 278, Web GIS/GeoDatabase Design .. 3
Computer Information Systems 279, GIS Customization &
Programming 3
Computer Information Systems 295, Project Management 3

Computer Information Systems, continued

About the Area of Study
Information technology (IT) professionals are in consistently high demand, and those who can apply their technical and problem-solving skills in Application Development (programming) can look forward to some of the highest entry-level and median incomes among all career areas.

Hands-on learning opportunities are provided in computer labs using state-of-the-art equipment, and commercial development tools. Students learn how to read and write code, the elements of program design, prototyping, debugging, revision control, compliance, quality assurance, and project management.

The curriculum is grounded in current technology, based on market demand, and aligned with third-party certification. The core program establishes a solid theoretical foundation yet provides room for electives that allow the student to focus on areas such as Databases, Geospatial Information Science, Networking, Operating Systems, or Web Development.

Associate Degree
When you complete the 61-credit program, you may apply for an Associate in Applied Science degree.

Transfer Resources
If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your CIS Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Program Sequence
A CIS advisor will help you make necessary changes to these recommended sequences.

Associate Degree Program
Semester 1
CIS 100, CIS 106, CIS 119, CIS 140, ENGL 101, BUSA 130

Semester 2
CIS 118, CIS 156, CIS 164, ENGL 102 or 103, MATH 123 or higher

Semester 3
CIS 264, CIS 266, CIS Elective, CIS 291, Social Science, Natural Science

Semester 4
CIS 240, CIS 268, CIS Elective, Humanities/Fine Arts

Art

Associate in Art Degree – TRANSFER PROGRAM *Program Code 031*

Advisor: Brandon Pierce, **(269) 927-8767**, pierce@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
**Mathematics	4
*Natural Sciences	8
*Social Sciences	6
Major Requirements	
At least 15 credits in ART or approved course of study***	15
General Electives	15
The following Art courses are offered at LMC:	
Art 101, Art Appreciation I	3
Art 102, Art Appreciation II	3
Art 109, Basic Design (2-D)	3
Art 110, Basic Design (3-D)	3
Art 111, Art Education	3
Art 115, Painting I	3
Art 116, Painting II	3
Art 120, Ceramics I	3
Art 121, Ceramics II	3
Art 122, Drawing I	3
Art 123, Drawing II	3
Art 200, History of Art I	3
Art 201, History of Art II	3
Art 203, 20th Century Art History: 1900-1945	3
Art 204, 20th Century Art History 1945-present	3
Art 212, Sculpture I	3
Art 213, Sculpture II	3
Art 251, Studio Problems: Painting	3
Art 252, Studio Problems: Ceramics	3
Art 253, Studio Problems: Sculpture	3
Art 260, Studio Problems: Drawing	3

*From at least two academic disciplines.
**Credit hours listed are based on minimum earned. For example, MATH courses have 3, 4, or 5 credits.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

Study and courses in art and design can help you develop an appreciation for the visual arts as well as expand your expertise and understanding in an extremely varied and entrepreneurial field. You will study art theory and history, and work directly with a varied media in a studio environment in coursework such as design and photography (through our Graphic Design Department, see that page for details,) drawing, painting, ceramics, and sculpture.

Also of great importance will be building your portfolio that represents all of your work prior to transfer. Students who complete this program will receive an Associate in Art degree. Courses are open to all students.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Please see catalog for courses that have honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Program Sequence

Students are strongly encouraged to take the following studio classes plus 2 additional elective studios in their first year:

ART 109, Basic Design 1, 2D (Fall)
ART 110, Basic Design 2, 3D (Spring)
ART 122, Drawing 1 (Fall, ideally)
ART 123, Drawing 2 (Spring, ideally)

Automation Engineering

Associate in Applied Science Degree *Program Code AENG*

Advisor: Kevin Kreitner, **(269) 927-1000, ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
Business 203, Macro Economics	3
English 101, English Composition	3
English 103, Technical Writing	3
Mathematics 100, Applied Mathematics	4
Philosophy 102, Introduction to Logic	3
Physics 110, Technical Physics	4
Major Requirements	
Electronics 100, DC Electricity	4
Electronics 106, AC Electricity	3
Electronics 110, General Electricity	3
Engineering 113, Engineering Design & Graphics	4
Engineering 210, Advanced CAD Techniques	3
Industrial Maintenance 204, Basic Hydraulics & Pneumatics	2
Manufacturing Technology 120, Fundamentals of Programmable Controllers	2
Manufacturing Technology 122, Introduction to Robotics	2
Manufacturing Technology 260, Automation for Manufacturing	3
Manufacturing Technology 261, Automation for Manufacturing II	3
Mathematics 110, Technical Mathematics	4
Choose One Track:	
Electrical Controls Track	
Computer Information Systems 140, Networking Foundations	3
Electronics 151, Transformers and Motor Controls	2
Electronics 152, Transformers and Motor Controls II	2
Manufacturing Technology 123, Advanced Programmable Controller	2
Manufacturing Technology 222, Industrial Robotics	4
Mechanical Track	
Drafting and Design 102, Machine Drawing	3
Drafting and Design 211, Machine Design	3
Machine Tool Technology 110, Machine Tool I	3
Machine Tool Technology 120, Machine Tool II	3
Trade Related Instruction 134, Metallurgy and Heat Treatment	3

About the Area of Study

The purpose of the Automation Engineering program is to prepare individuals to apply basic engineering principles and technical skills to support engineers engaged in a wide variety of projects. Includes instruction in various engineering support functions for research, production and operations, and applications to specific engineering specialties.

The Automation Engineering program concentrates on product design principles, materials, and manufacturing processes. The primary program objective is to prepare students to assist and support engineers with projects and research and development. Students will be trained in skills and techniques related to branches of engineering, with practical understanding of general engineering concepts.

Associate Degree

When you complete the Automation Engineering program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Program Sequences

An advisor will help you make necessary changes to these recommended sequences.

Associate Degree Program

Semester 1

MANU 122, BUSA 203, MATH 100, PHIL 102, ELEC 110

Semester 2

ELEC 100, MATH 110, ENGR 103, ENGL 101, INMT 204

Semester 3

ELEC 106, ENGL 103, ENGR 210, MANU 120, MANU 260

Semester 5

TRACK ELECTIVE, TRACK ELECTIVE

Semester 4,

PHYS 110, MANU 261, TRACK ELECTIVE, TRACK ELECTIVE, TRACK ELECTIVE

Biology

Associate in Science Degree – TRANSFER PROGRAM *Program Code 061*

Advisors: Dr. Jessica Beachy, **(269) 927-8878,** jbeachy@lakemichigancollege.edu
Dr. Melissa Howse-Kurtz, **(269) 927-8623**, mhowse@lakemichigancollege.edu
Dr. Susan Balmes, **(269) 927-8624**, sbalmes@lakemichigancollege.edu
Dr. Fran Miles, **(269) 927-1000 ext. 7157**, miles@lakemichigancollege.edu
Frank Stijnman, **(269) 927-8862**, stijnman@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
Biology 111, Principles of Biology I	4
Chemistry 111, General Chemistry I	4
English 101, English Composition	3
English 102, English Composition	3
*Humanities/Fine Arts	6
Mathematics 151, Calculus I	5
*Social Sciences	6
Major Requirements	
Biology 112, Principles of Biology II	4
Chemistry 112, General Chemistry II	4
Students are required to take 2 out of the 4 following Biology classes:	
Biology 205, Human Anatomy, or	
Biology 206, Human Physiology, or	
Biology 210, Microbiology, or	
Biology 212, Genetics	8
BIOL elective or approved course of study***	3
General Electives	10

*From at least two academic disciplines.
**Credit hours listed are based on minimum earned. For example, Mathematics courses have 3, 4 or 5 credits.
*****An approved course of study can be developed with an advisor to align with a specific transfer school or career need.**

About the Area of Study
Biology deals with living organisms and vital processes, including microbial, plant, and animal life. Your study in biology may include coursework in areas such as environmental biology, plant biology, ecology, evolution, human anatomy, human physiology, cell biology, molecular biology, biotechnology, microbiology and genetics.

A biology concentration consists of a minimum of 16 hours of coursework in the discipline.

There is a 60-credit degree requirement needed for graduation.

Transfer Resources
If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Bookkeeping

Certificate of Achievement *Program Code BKKG*

Advisor: Danny Langston, **(269) 927-8968**, dlangston@lakemichigancollege.edu

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Certificate Requirements	**Credit Hours**
Business 103, Introduction to Business	3
Business 130, Professionalism in the Workplace	1
Business 201, Principles of Accounting I	4
Business 212, Accounting Applications on Computers	3
Business 223, Payroll Accounting	3
Business 226, Bookkeeping Skills	4
Computer Information Systems 108, Office Information Systems	3

About the Area of Study

With a certificate in bookkeeping, you will be prepared for an entry-level bookkeeping position. You will compute, record, and verify financial data, and develop and maintain financial records.

Certificate

Upon completion of the 21-credit program, you may apply for a Certificate of Achievement.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Program Sequence

An advisor will help you make necessary changes to this recommended sequence.

Certificate Program

Semester 1

BUSA 201, BUSA 223, BUSA 103, BUSA 130

Semester 2

CIS 108, BUSA 212, BUSA 226

Business

Associate in Applied Science Degree *Program Code BUSI*

Advisors: Joe Zwiller, **(269) 927-1000 ext. 5003**, jzwiller@lakemichigancollege.edu
Kristi Lafrenz, **(269) 927-8766**, klafrenz@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

Communication 215, Professional Communications 3
English 101, English Composition 3
Humanities/Fine Arts 3
Mathematics 122, Intermediate Algebra or
Mathematics 123, Quantitative Reasoning 4
Natural Science 3
Social Science 3

Major Requirements

Business 101, Business Accounting I, or
Business 201, Principles of Accounting I 3-4
Business 103, Introduction to Business 3
Business 203, Principles of Economics (Macro) or
Business 200, Introduction to Economics 3
Business 209, Principles of Marketing 3
Business 216, Business Statistics 3
Business 222, Data Reporting & Analysis 3
Computer Information Systems 108, Office Information Systems 3
Mathematics 128 Pre-Calculus Algebra or
Mathematics 129, Finite Mathematics 4

Program Electives (16 credits)

Hospitality Management Track

Business 130, Professionalism in the Workplace 1
Hospitality 150, Introduction to Hospitality Careers 3
Hospitality 200, Hospitality Management Internship 3
Hospitality 201, Restaurant Operations 3
Hospitality 253, Tourism 3
Hospitality 255, Hotel Management and Operations 3

Risk Management and Insurance (RMI)

Business 130, Professionalism in the Workplace 1
Insurance, 100R, Insurance Industry Profession 3
Insurance, 200R, Principles of Property and Liability 3
Insurance, 205R, Personal Insurance 3
Insurance, 210 R, Commercial Insurance 3
Insurance, 220R, Claim Handling Principles and Practices 3

Sales & Customer Service Track

Business 104, Professional Sales 3
Business 115, Principles of Customer Service 3
Business 130, Professionalism in the Workplace 1
Business 152, Digital Marketing 3
Business 208, Advertising and Sales Promotion 3
Business 261, Distributive Ed Co-op I, or
Business 262, Distributive Education Co-op II, or
Business 211, Principles of Management 3

Small Business Management Track

Business 104, Professional Sales or
Business 115, Principles of Customer Service or 3
Business 130, Professionalism in the Workplace 1
Business 152, Digital Marketing 3
Business 205, Business Law I 3
Business 207, Small Business Management 3
Business 212, Accounting Applications on Computers 3

Supervisory Skills Track

Business 108, Supervisory Skills 3
Business 115, Principles of Customer Service 3
Business 130, Professionalism in the Workplace 1
Business 220, Organizational Behavior 3
Business 261, Distributive Ed Co-op I, or
Business 262, Distributive Education Co-op II, or
Business 211, Principles of Management 3
Psychology 201, Introduction to Psychology 3

Computer Information Systems

Business 130, Professionalism in the Workplace 1
Business 152, Digital Marketing 3
Computer Information Systems 118,
Web Dev. & Design Foundations 3
Computer Information Systems 140, Network Foundation 3
Computer Information Systems 156, Computer Security 3
Computer Information Systems 200, IT Support 3

Business, continued

About the Area of Study
The A.A.S. in Business program prepares graduates for entry-level and managerial positions in business. The emphasis is on preparing professionals who will contribute immediately in an office environment. For those students currently employed, the degree can provide the foundation for future growth in their business careers. The program is designed to help students develop functional business knowledge, apply professional and effective business communication, develop analytical and problem-solving skills, understand and use computer-based information systems, recognize and analyze ethical problems, exhibit professional behaviors and acquire an appreciation for diverse perspectives. Students find employment across a wide spectrum of industries in entry-level and managerial positions that can represent customer service, sales, administration and executive assistants.

Degree Options
By completing the 60-credit program in Business, you may apply for an Associate in Applied Science degree.

Transfer Resources
If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Program Sequences
An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program
Semester 1
BUSA 103, CIS108, ENGL 101, BUSA 222, BUSA 130

Semester 2
MATH 123, COMM 215, BUSA 201, PHIL 101

Semester 3
MATH 129, TRACK ELECTIVE, BUSA 203, TRACK ELECTIVE, TRACK ELECTIVE

Semester 4
BUSA 209, BUSA 216, BIOL 109, POSC 101, TRACK ELECTIVE

NOTE: You should notify your program advisor and the co-op coordinator of your intention to take BUSA 261 or 262 before beginning your second-year classes.

Business Administration

Associate in Business Administration Degree – TRANSFER PROGRAM *Program Code 150*

Advisors: Lisa Augustyniak, **(269) 927-8171**, augustyn@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
Business 203, Principles of Economics (Macro)	3
English 101, English Composition	3
Communication 215, Professional Communications	3
Humanities/Fine Arts	6
Mathematics 128, Pre-Calculus Algebra, or Mathematics 129, Finite Mathematics	4
Natural Sciences	8
Social Science	3
Major Requirements	
Business 103, Introduction to Business	3
Business 130, Professionalism in the Workplace	1
Business 201, Principles of Accounting I	4
Business 202, Principles of Accounting II	4
Business 204, Principles of Economics (Micro)	3
Business 205, Business Law I	3
Business 209, Principles of Marketing	3
Business 216, Business Statistics	3
Business 220, Organizational Behavior	3
Business 222, Data Reporting and Analysis	3
Computer Information Systems 108, Office Information Systems	3

About the Area of Study

The Business Administration program is a transfer program that will help you learn business and communication principles that can lead to careers in accounting, economics, finance, general business, management, marketing, human resource administration, and public relations.

Associate Degree

Upon completion of the 63-credit hour Business Administration program, you may apply for an Associate in Business Administration degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Program Sequence

An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program

Semester 1

BUSA 103, CIS 108, ENGL 101, BUSA 222, BUSA 130

Semester 2

MATH 123, COMM 215, BUSA 201, BUSA 203, PHIL 101

Semester 3

MATH 129, BUSA 202, BUSA 204, PHYS 101

Semester 4

BUSA 205, BUSA 220, BUSA 216, CHEM 101, ART 101

Business Certificates

Certificate of Achievement – Computer Information Systems *Program Code COIS*

Certificate of Achievement – Hospitality Management *Program Code HOSP*

Certificate of Achievement – Risk Management and Insurance *Program Code RMI*

Certificate of Achievement – Sales and Customer Service *Program Code SACS*

Certificate of Achievement – Small Business Management *Program Code SMBU*

Certificate of Achievement – Supervisory Skills *Program Code SUSK*

Advisors: Joe Zwiller, **(269) 927-8100, ext. 5003,** jzwiller@lakemichigancollege.edu
Kristi Lafrenz**, (269) 927-8766,** klafrenz@lakemichigancollege.edu

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Certificate Requirements **Credit Hours**

Computer Information Systems

Business Administration 130, Professionalism in the Workplace 1
Computer Information Systems 118, Web Dev. & Design Foundations 3
Computer Information Systems 140, Network Foundations 3
Computer Information Systems 156, Computer Security 3
Computer Information Systems 200, IT Support.....3
Business 152, Digital Marketing 3

Hospitality Management Track

Business Administration 130, Professionalism in the Workplace 1
Hospitality 150, Introduction to Hospitality Careers 3
Hospitality 201, Restaurant Operations 3
Hospitality 253, Tourism 3
Hospitality 255, Hotel Management and Operations 3

Risk Management and Insurance (RMI)

Business Administration 130, Professionalism in the Workplace 1
Insurance, 100R, Insurance Industry Profession.....3
Insurance, 200R, Principles of Property and Liability.....3
Insurance, 205R, Personal Insurance 3
Insurance, 210 R, Commercial Insurance.....3
Insurance, 220R, Claim Handling Principles and Practices.....3

Sales & Customer Service Track

Business Administration 104, Professional Sales 3
Business Administration 152 Digital Marketing 3
Business Administration 115, Principles of Customer Service 3
Business Administration 130, Professionalism in the Workplace 1
Business Administration 208 Sales and Advertising Promotion 3
Business Administration 261, Distributive Ed Co-op I, or
Business Administration 262, Distributive Education Co-op II, or
Business Administration 211, Principles of Management.....3

Small Business Management Track

Business Administration 104, Professional Sales or
Business Administration 115 Principles of Customer Service. 3
Business Administration 115, Principles of Customer Service 3
Business Administration 130, Professionalism in the Workplace 1
Business Administration 152, Digital Marketing .....
Business Administration 205, Business Law I 3
Business Administration 207, Small Business Management or 3
Business Administration 212, Accounting on Computers

Supervisory Skills Track

Business Administration 108, Supervisory Skills.....3
Business Administration 115, Principles of Customer Service 3
Business Administration 130, Professionalism in the Workplace 1
Business Administration 211, Management.....3
Business Administration 261, Distributive Ed Co-op I, or
Business Administration 262, Distributive Education Co-op II, or
Business Administration 211, Principles of Management.....3
Psychology 201, Introduction to Psychology 3

Casino Management – Four Winds

Associate in Applied Science Degree *Program Code 314*

Advisor: Chris Woodruff, **(269) 927-8868**, woodruff@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 103, Technical Writing, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	3
Mathematics 123, Quantitative Reasoning	4
Natural Sciences	3
Psychology 201, Introduction to Psychology, or Sociology 101, Introduction to Sociology	3
Major Requirements	
Business 103, Introduction to Business	3
Business 115, Principles of Customer Service	3
Business 201, Principles of Accounting I	4
Business 203, Principles of Economics (Macro)	3
Business 211, Principles of Management	3
Business 220, Organizational Behavior	3
Hospitality Management 201, Restaurant Operations	3
Hospitality Management 202, Introduction to Casino Management	3
Hospitality Management 251, Marketing of Hospitality Services	3
Hospitality Management 252, Supervisory Skills & Human Relations	3
Hospitality Management 253, Tourism	3
Hospitality Management 254, Hospitality Cost Control Systems	3
Hospitality Management 255, Hotel Management & Operations	3
General Elective	1

About the Area of Study

Graduates of the Casino Management program may select from a variety of management careers in gaming, marketing, security and surveillance, hotels, resorts, restaurants and event planning.

Some careers include assistant casino manager, table games manager, slot machines manager, director of security, director of surveillance, and convention services manager. In all of these positions, strong guest service, leadership, human resources, problem solving, and math skills are required.

This degree is currently offered exclusively to Four Winds Casino employees. Please see the program advisor for any questions concerning this degree.

Associate Degree

Upon completion of the 60-credit program, you may apply for an Associate in Applied Science degree. Certificate requirements may be applied to the degree program.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Program Sequence

An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program

Semester 1

BUSA 103, BUSA 115, ENGL 101, HOSP 202, BUSA 130

Semester 2

COMM 101, PHSC 205, MATH 123, BUSA 220, HOSP 201

Semester 3

DRAM 101, BUSA 201, HOSP 251, HOSP 252, HOSP 255

Semester 4

BUSA 211, HOSP 254, BUSA 203, HOSP 253, PSYC 201

Casino Management – Four Winds

Advanced Certificate *Program Code 313*

Advisor: Chris Woodruff, **(269) 927-8868**, woodruff@lakemichigancollege.edu

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Certificate Requirements	**Credit Hours**
General Education Requirements	
Communication 101, Introduction to Public Speaking	3
CIS 108, Office Information Systems	3
Major Requirements	
Business 103, Introduction to Business	3
Business 201, Principles of Accounting I	4
Business 211, Principles of Management	3
Business 220, Organizational Behavior	3
Hospitality Management 201, Restaurant Operations	3
Hospitality Management 202, Introduction to Casino Management	3
Hospitality Management 253, Tourism	3
Hospitality Management 255, Hotel Management & Operations	3

About the Area of Study

Graduates of the Casino Management program may select from a variety of management careers in gaming, marketing, security and surveillance, hotels, resorts, restaurants and event planning.

Some careers include assistant casino manager, table games manager, slot machines manager, director of security, director of surveillance, and convention services manager. In all of these positions, strong guest service, leadership, human resources, problem solving, and math skills are required.

This degree is currently offered exclusively to Four Winds Casino employees. Please see the program advisor for any questions concerning this degree.

Certificate & Associate Degree

Upon completion of the 31-credit program, you may apply for an Advanced Certificate.

Upon completion of the 60-credit program, you may apply for an Associate in Applied Science degree. Certificate requirements may be applied to the degree program.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Program Sequence

An advisor will help you make necessary changes to this recommended sequence.

Advanced Certificate Program

Semester 1

BUSA 103, HOSP 255, COMM 101, HOSP 202, CIS 108

Semester 2

HOSP 253, BUSA 201, BUSA 211, BUSA 220, HOSP 201

Certified Nursing Assistant (CNA)

Non-Degree and Specialty Certificate Program

Advisors: LaToya Mason, **(269) 926-4086**, lmason@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Program Prerequisites
Proficiency in reading and English on the assessment.

Certificate Requirements
The completion of 98-hours of training in seven (7) weeks is required for this certificate. Students must successfully complete classroom, lab, and clinical portions of the course to be eligible for the State of Michigan certification.

Students are required to undergo a criminal background check and drug screen through the designated third party administrator for Health Sciences prior to the first week of class. Students are also responsible for submitting proof of immunizations and the purchase of scrub pants, appropriate clinical footwear, and a watch.

About the Area of Study
Certified Nurse Aides (CNAs) provide basic patient care under the direction of nursing staff. As a health care professional, you will perform the following duties: performing vital signs, feeding, bathing, dressing, grooming, moving patients, and changing linens. You may also transfer or transport patients. CNA's are primarily employed in long-term care facilities, hospitals, skilled nursing facilities, and home care.

Upon successful completion of the 98-hour program, students will apply for the Michigan State Certified Nurse Aide Exam administered at Lake Michigan College by Headmaster. Once registered, it is the student's responsibility to maintain a current status on certification.

Chemistry

Associate in Science Degree – TRANSFER PROGRAM *Program Code 064*

Advisors: Dr. Bal Barot, **(269) 927-8754**, barot@lakemichigancollege.edu
Dr. John Beck, (269) 695-2986, jbeck@lakemichigancollege.edu
Leah Parkinson, **(269) 927-8769**, lparkinson@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

Biology 111, Principles of Biology I 4
Chemistry 111, General Chemistry I 4
English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking 3
*Humanities/Fine Arts 6
Mathematics 151, Calculus I 5
*Social Sciences 6

Major Requirements

Chemistry 112, General Chemistry II 4
Chemistry 203, Organic Chemistry I 4
Chemistry 204, Organic Chemistry II 4
Mathematics 201, Calculus II 5
Physics 201, Engineering Physics I 5
Physics 202, Engineering Physics II 5
CHEM elective or approved course of study*** 2

*From at least two academic disciplines.
**Credit hours listed are based on minimum earned. For example, Mathematics courses have 3, 4, or 5 credits.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

Chemistry deals at the atomic level with the material of which the world is composed. As a chemist, you will study these materials along with their compositions, structures, and changing properties. Hands-on laboratory experiences will allow you to develop experimental techniques and provide you with opportunities to apply the chemical principles that you have learned. Industry, agriculture, education, medicine, and government offer opportunities for employment in chemistry. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **www.lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Child Development

Advanced Certificate – Child Development *Program Code CHDE*

Associate in Applied Science Degree – TRANSFER PROGRAM *Program Code CHDV*

Advisors: Dr. Amy Scrima, **(269) 927-8777**, ascrima@lakemichigancollege.edu
Casey Dubina**, cdubina@lakemichigancollege.edu**umailto:nhatter@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
*English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Mathematics 123 Quantitative Reasoning, or Higher	3
Music 200, Music for the Elementary Teacher	3
Natural Science	3
Social Sciences	3
Major Requirements	
*Art 111, Art Education	3
English 214, Children's Literature	3
*Child Development 110, Introduction to Child Development Theories and Practices	3
*Child Development 111, Early Childhood Learning Environments	2
*Child Development 112, Curriculum and Assessment for Young Children	3
*Child Development 113, Guiding Young Children's Social Development	3
Child Development 210, Curriculum and Assessment for Young Children, II	3
Child Development 211, Diversity in Child Development	3
Child Development 212, Administration of Early Childhood Programs	3
Child Development 213, Current Issues and Advocacy in the Early Childhood Field	3
*Psychology 201, Introduction to Psychology	3
*Psychology 203, Human Development	3
*Education 101, Foundations of Education	3
*Physical Education 208, Introduction to Elementary Physical Education	2
General Electives	2

* Courses are required for the Advanced Certificate.

Sample Program Course Sequence

Year 1

Fall Semester

ENGL 101, EDUC 101, CHDV 110, CHDV 111, CHDV 112

Spring Semester

MATH 123 or higher, PSYC 201, ART 111, CHDV 113, PHED 208

Summer Semester

PSYC 203

Year 2

Fall Semester

ENGL 102 OR COMM 101, ENGL 214, MUSI 200, CHDV 211, CHDV 212

Spring Semester

PHSC 205 OR BIOL 101 OR CHEM 101 OR BIOL 204, SOC 101 OR POSC 101 OR HIST 201 OR BUSA 200, CHDV 210, CHDV 213, Elective

About the Area of Study

The growing field of early childhood education (birth through age 8) includes many different job opportunities. As a child development major, you might enjoy a variety of career options after you graduate including a child care teacher, an assistant director or director of a child care facility, a private preschool teacher, nanny, director of a preschool program, an elementary school assistant, or Head Start assistant.

Lake Michigan College offers students two program options, an Advanced Certificate and an Associate of Applied Science degree. Upon completion of the Associate degree, LMC graduates have the option to move into their career path or, if they want to earn a Bachelor degree, transfer to a four-year institution's Child Development and Family Studies program.

The child development program also offers courses for those seeking application for their Child Development Associate (CDA) credential through the state of Michigan. The CDA credential is the most widely recognized credential in early childhood education and is a key stepping stone on the path of career advancement. LMC does not award the CDA credential, but information on requirements and application for the CDA can be found online at http://www.cdacouncil.org/credentials/apply-for-cda

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. The curriculum for students planning to transfer to a 4-year institution varies considerably. LMC has developed articulation agreements/partnerships with many colleges and universities. Agreements are designed to facilitate the transfer of credits from LMC to these Colleges of Education. See your Academic Advisor for assistance in developing your Student Education Plan or visit **lakemichigancollege.edu/transfer.**

Chocolate and Confections

Certificate of Achievement *Program Code CHOC*

Advisor: Luis Amado, **(269) 927-4951**, lamado@lakemichigancollege.edu

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Certificate Requirements	**Credit Hours**
Business 130, Professionalism in the Workplace	1
Culinary Management 140, Overview of the Chocolate Industry	3
Culinary Management 142, Chocolate and Confections	3
Culinary Management 144, Retail and Online Chocolate Shop Operations	3
Culinary Management 285, Fundamentals of Baking	3
Culinary Management 286, Advanced Pastry Techniques	3

About the Area of Study

The Chocolate and Confections Certificate of Achievement program is designed to provide students with foundational skills in the Chocolate industry. Courses will focus on current trends and emerging technologies in chocolate and confectionery with a focus on sustainability and environmental stewardship. Students will explore entrepreneurship opportunities, and study recipe and product development.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Program Sequence

An advisor will help you make necessary changes to this recommended sequence.

Computer Information Systems Certificates

Advanced Certificate – CISCO *Program Code 165*

Certificate of Achievement – Geospatial Information Science & Technology (GIST) *Program Code GIST*

Advisors: Shawn Hisle, **(269) 927-8166**, shisle@lakemichigancollege.edu
Jay Keeler, **(269) 927-8772**, jkeeler@lakemichigancollege.edu
Kyle Kelly, **(269) 927-4568**, kkelly@lakemichigancollege.edu

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Certificate Requirements **Credit Hours**

CISCO

Computer Information Systems 100, Foundations of Information Technology 3
Computer Information Systems 106, Operating Systems Foundations 3
Computer Information Systems 119, Programming Logic and Design 3
Computer Information Systems 140, Network Foundations 3
Computer Information Systems 155, Comparative Operating Systems.....3
Computer Information Systems 156, Computer Security 3
Computer Information Systems 167, Python Programming.....3
Computer Information Systems 200, IT Support.....3
Computer Information Systems 226, Routing & Switching 3
Computer Information Systems 228, Scaling Networks.....3
Computer Information Systems 242, Windows Server.....3

Geospatial Information Science & Technology

Computer Information Systems 158, Geospatial Technologies 3
Computer Information Systems 167, Python Programming.....3
Computer Information Systems 237, Geographic Information Systems.....3
Computer Information Systems 238, Remote Sensing 3
Computer Information Systems 239, Field Methods in GIS 3
Computer Information Systems 277, Advanced GIS 3
Computer Information Systems 278, GeoDatabase Design & Web GIS 3
Computer Information Systems 279, GIS Customization & Programming.....3

About the Area of Study - CISCO

The CIS CISCO option will allow you to develop skills using the de facto network standard throughout the world. This certificate aligns students for the following professional certifications: Comptia A+/Security+, Cisco CCENT/CCNA, and Microsoft MCSA.

Advanced Certificate Program

Semester 1
CIS 100, CIS 140, CIS 200

Semester 2
CIS 156, CIS 226, CIS 119

Semester 3
CIS 155, CIS 228, CIS 106

Semester 4
CIS 242, CIS 167

About the Area of Study - GIST

Identified by the U.S. Department of Labor as one of the top three growth sectors in the workplace, GIST provides multi-disciplinary tools to collect, manage, analyze and present information that is spatial, or has a “where” component. This certificate is offered as a stand-alone program or a complement to several degree programs.

Applications include business and marketing analysis, demographic studies, emergency management, urban planning, crimes analysis, homeland security, and natural resource management. Because uses for geospatial technology are so widespread and diverse, the market is growing at an annual rate of over 35%, with the commercial subsection of the market expanding at the rate of over 100 percent each year (Source: Geospatial Information & Technology Association).

Certificate of Achievement Program

Semester 1
CIS 158, CIS 167

Semester 2
CIS 237, CIS 238

Semester 3
CIS 239, CIS 277

Semester 4
CIS 278, CIS 279

Computer Information Systems Certificates

Certificate of Achievement – Information Technology *Program Code 161A*

Certificate of Achievement – Web Development *Program Code 161D*

Advisors: Shawn Hisle, **(269) 927-8166**, shisle@lakemichigancollege.edu
Jay Keeler, **(269) 927-8772**, jkeeler@lakemichigancollege.edu
Kyle Kelly, **(269) 927-4568**, kkelly@lakemichigancollege.edu

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Certificate Requirements **Credit Hours**

Information Technology

Computer Information Systems 106, Operating Systems Foundations 3
Computer Information Systems 100,
Foundations of Information Technology 3
Computer Information Systems 118, Web Dev. & Design Foundations 3
Computer Information Systems 119, Programming Logic and Design.....3
Computer Information Systems 140, Network Foundations 3
Computer Information Systems 156, Computer Security 3
Computer Information Systems 167, Python Programming.....3
Computer Information Systems 200, IT Support.....3
Computer Information Systems 240, Systems Analysis & Design.....3

Web Development

Business 222, Data Reporting and Analysis 3
Computer Information Systems 111, Database Systems.....3
Computer Information Systems 118, Web Dev. & Design Foundations 3
Computer Information Systems 119, Programming Logic and Design.....3
Computer Information Systems 167, Python Programming 3
Computer Information Systems 219, Client-Side Web Development.....3
Computer Information Systems 220, Web Programming.....3
Computer Information Systems 221, Server-Side Scripting.....3

About the Area of Study – Information Technology

The CIS Information Technologies option emphasizes the overall business support function of computer information systems. It can lead to careers working a help desk and computer support specialist.

Certificate of Achievement Program

Semester 1

CIS 100, CIS 119, CIS 140, CIS 200, CIS 167

Semester 2

CIS 106, CIS 118, CIS 156, CIS 240

About the Area of Study – Web Development

The Web Development certificate is offered as a stand-alone program or a complement to several degree programs. This program will allow you to develop skills in a variety of popular web design and programming languages. Web designers and programmers can be found in almost every industry including telecommunications, financial institutions, educational institutions, government agencies, and management firms. Web design and maintenance are regular features of any business whether large or small.

Certificate of Achievement Program

Semester 1

CIS 111, CIS 118, CIS 119

Semester 2

CIS 219, CIS 220

Semester 3

CIS 221

Criminal Justice

Associate in Applied Science Degree *Program Code CRJU*

Advisors: Brad Byerle, **(269) 927-8154**, bbyerle@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Degree Requirements **Credit Hours**

General Education Requirements

Communication 215, Professional Communications or Communication 101, Intro to Public Speaking 3
English 101, English Composition 3
Humanities/Fine Arts 3
Mathematics 122, Intermediate Algebra or Mathematics 123, Quantitative Reasoning 4
Natural Sciences 4
Sociology 101, Introduction to Sociology 3

Major Requirements

Business Administration 130, Professionalism in the Workplace 1
Criminal Justice 140, Introduction to Criminal Justice 3
Criminal Justice 150, Juvenile Delinquency and Behavior 3
Criminal Justice 201, Criminology 3
Criminal Justice 202, Criminal Law 3
Criminal Justice 245, Report Writing for Criminal Justice 3
Criminal Justice 251, Seminar in Criminal Justice and Public Safety 3
Criminal Justice 252, Criminal Procedures 3
Psychology 201, Introduction to Psychology 3

You may select a law enforcement or corrections course as a program elective. Before taking Seminar in Criminal Justice and Public Safety, please see the program advisor.

Program Electives (15 credits)

Corrections Service Track

Criminal Justice 160, Intro to Corrections 3
Criminal Justice 161, Institutional Operations 3
Criminal Justice 162, Institutional Populations 3
Criminal Justice 263, Legal Issues in Corrections 3
Criminal Justice 203, Criminal Justice Skills 3

Law Enforcement Track

Criminal Justice 141, Introduction to Policing 3
Criminal Justice 242, Police Organization and Administration 3
Criminal Justice 203, Criminal Justice Skills 3
Criminal Justice 204, Current Issues in Policing 3
Criminal Justice 205, Criminal Investigations 3

General Track

Criminal Justice 160, Intro to Corrections 3
Criminal Justice 161, Institutional Operations 3
Criminal Justice 162, Institutional Populations 3
Criminal Justice 263, Legal Issues in Corrections 3
Criminal Justice 141, Introduction to Policing 3
Criminal Justice 242, Police Organization and Administration 3
Criminal Justice 203, Criminal Justice Skills 3
Criminal Justice 204, Current Issues in Policing 3
Criminal Justice 205, Criminal Investigations 3
Natural Sciences 3
Humanities/Fine Arts 3

About the Area of Study

The Criminal Justice program trains students for jobs in corrections, probation, parole, law enforcement, and related fields. These are typically found at county, state, or federal jails, prisons or juvenile centers. Upon completion of the 61-credit hour Criminal Justice program, you may apply for an Associate in Applied Science degree.

Sample Program Sequences

An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program

Semester 1

ENGL 101, CRIM 140, CRIM 150, SOC 101, Humanities, BUSA 130

Semester 2

COMM 101 or COMM 215, PSYC 201, MATH 122 or MATH 123, CRIM 201, CRIM 252

Semester 3

Natural Science, CRIM 202, CRIM 245, TRACK ELECTIVE, TRACK ELECTIVE

Semester 4

CRIM 251, TRACK ELECTIVE, TRACK ELECTIVE, TRACK ELECTIVE

Culinary Management

Associate in Applied Science Degree *Program Code 312*

Advisor: Luis Amado, **(269) 927-4951**, lamado@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
Communication 215, Professional Communications	3
English 101, English Composition	3
Humanities/Fine Arts	3
Mathematics 122, Intermediate Algebra, or Mathematics 123, Quantitative Reasoning	4
Natural Sciences	4
Social Science	3
Major Requirements	
Business 101, Business Accounting I or *Business 201, Principles of Accounting I (4 Credits)	3
Business 130, Professionalism in the Workplace	1
Culinary Management 120, Professional Cooking I	3
Culinary Management 153, Nutrition	3
Culinary Management 163, Sustainable Cooking Practices	3
Culinary Management 200, Culinary Management Internship	1
Culinary Management 210, Café and Restaurant Operations	3
Culinary Management 220, Professional Cooking II	3
Culinary Management 254, Hospitality Cost Control Systems	3
Culinary Management 280, Garde Manger	3
Culinary Management 285, Fundamentals of Baking	3
Culinary Management 286, Advanced Pastry Techniques	3
Culinary Management 290, Food Technology	3
Hospitality 110, Sanitation	1
Hospitality 111, Responsible Beverage Service	1
Hospitality 130, Table Service	3
Hospitality 252, Supervisory Skills & Human Relations	3

*Transferring students are encouraged to take Business 201

About the Area of Study

Graduates of the Culinary Management program may select a variety of management- and staff-related careers in restaurants, hotels, resorts, catering and events, personal food service and artisanal food production.

Careers include sous chef, catering chef, pastry chef, personal chef, executive chef, and restaurant owner/operator. In all of these positions, strong guest service, leadership, human resources, problem solving, and math skills are required.

Degree Options

By completing the 63-credit program in Culinary Management, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Program Sequence

An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program

Semester 1

CULI 120, HOSP 150, CULI 153, ENGL 101, BUSA 130

Semester 2

CULI 220, HOSP 110, HOSP 111, MATH 122 or MATH 123, Social Sciences

Semester 3

HUMN 201, HOSP 110, Natural Sciences

Semester 4

HOSP 130, BUSA 101 or BUSA 201, CULI 285, HOSP 252, CULI 290

Semester 5

CULI 210, CULI 254, CULI 280, CULI 286, CULI 163

Semester 6

COMM 215, CULI 200

Cybersecurity - CIS

Associate in Applied Science Degree - Cybersecurity *Program Code CYBS*

Advisors: Shawn Hisle, **(269) 927-8166**, shisle@lakemichigancollege.edu
Jay Keeler, **(269) 927-8772**, jkeeler@lakemichigancollege.edu
Kyle Kelly, **(269) 927-4568**, kkelly@lakemichigancollege.edu

Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, Technical Writing or Communications 215, Professional Communications	3
Humanities/Fine Arts	3
Math 123, Quantitative Reasoning, or Higher Excluding MATH 200, MATH 210 or MATH 265	4
Natural Science	3
Social Science	3
Major Requirements	
Computer Information Systems 100, Foundations of Information Technology	3
Computer Information Systems 106, Operating System Foundations	3
Computer Information Systems 119, Programming Logic and Design	3
Computer Information Systems 140, Network Foundations	3
Computer Information Systems 156, Computer Security	3
Computer Information Systems 167, Python Programming	3
Computer Information Systems 170, Unix/Linux Operating Systems	3
Computer Information Systems 200, IT Support	3
Computer Information Systems 215, Digital Forensics	3
Computer Information Systems 240, Systems Analysis & Design	3
Computer Information Systems 273, Linux Unix Server Administration	3
Computer Information Systems 275, Disaster Recovery	3
Information Technology Systems 120R, Legal Ethical and Regulatory I	3
Information Technology Systems 240R, Ethical Hacking and Network Defense	3

Electives (Select 3 Credit Hours)	
Computer Information Systems 108, Office Information Systems	3
Computer Information Systems 111, Database Systems	3
Computer Information Systems 158, Geospatial Technologies	3
Computer Information Systems 164, C++ Programming	3
Computer Information Systems 202, Data Reporting & Analysis	3
Computer Information Systems 208, Adv. Microcomputing Apps	3
Computer Information Systems 219, Client-Side Web Development	3
Computer Information Systems 220, Web Programming	3
Computer Information Systems 221, Server-Side Scripting	3
Computer Information Systems 237, Geographic Information Systems	3
Computer Information Systems 238, Remote Systems	3
Computer Information Systems 239, Field Methods in GIS	3
Computer Information Systems 255, Structured Query Language	4
Computer Information Systems 261, Co-Op I	3
Computer Information Systems 262, Co-Op II	3
Computer Information Systems 264, Advanced C++ Programming	3
Computer Information Systems 266, Java Programming	3
Computer Information Systems 268, C# Programming	3
Computer Information Systems 277, Advanced GIS Applications	3
Computer Information Systems 278, Web GIS/Geodatabase Design	3
Computer Information Systems 279, GIS Customization and Programming	3
Computer Information Systems 291, Software Engineering	3
Computer Information Systems 295, Project Management	3

About the Area of Study
The purpose of the program is to prepare individuals to assess the security needs of computer and network systems, recommend safeguard solutions, and manage the implementation and maintenance of security devices, systems, and procedures.

The AAS in Cyber Security degree is designed to provide students with foundational skills in Cyber Security. The program includes basic instruction in computer architecture, programming, and systems analysis; networking; telecommunications; cryptography; security system design; applicable law and regulations; risk assessment and policy analysis; disaster recovery; contingency planning; user access issues; investigation techniques; and troubleshooting.

Associate Degree
When you complete the program, you may apply for the Associate in Applied Science degree.

Transfer Resources
If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Program Sequences
A CIS advisor will help you make necessary changes to these recommended sequences.

Associate Degree Program
Semester 1
CIS 100, CIS 106, CIS 119, CIS 140, ENGL 101, BUSA 130

Semester 2
CIS 156, CIS 167, CIS 200, ENGL 102 or 103, MATH 123 or higher

Semester 3
CIS 170, CIS 215, IRS 120R, Natural Science, Social Science

Semester 4
CIS 240, CIS 273, CIS 275, ITS 240R, Humanities/Fine Arts

Dental Assisting (Registered)

Advanced Certificate – Dental Assisting *Program Code 231*

Associate in Applied Science Degree *Program Code 230*

Advisors: Academic Advising, Advisor@lakemichigancollege.edu
Health Sciences Office Staff,
healthsciences@lakemichigancollege.edu

Degree Requirements **Credit Hours**

General Education Requirements

**Biology 110, Biological Science or Biology 205, Human Anatomy....4
English 101, English Composition....3
English 102, English Composition, or
English 103, Technical Writing, or
Communication 101, Introduction to Public Speaking....3
Humanities/Fine Arts....3
Mathematics 122, Intermediate Algebra, or
Mathematics 123, Quantitative Reasoning....4
Psychology 201, Introduction to Psychology....3

Major Requirements

**Dental Assisting 166, Chairside I....3
**Dental Assisting 167, Chairside II....3
**Dental Assisting 168, Chairside III....3
**Dental Assisting 169, Chairside V....3
**Dental Assisting 170, Introduction to Dental Office Assisting....2
**Dental Assisting 172, Medical Issues in Dental Office....2
**Dental Assisting 174, RDA I....3
**Dental Assisting 175, RDA II....3

**Dental Assisting 177, Dental Assisting Clinical....4
+**Dental Assisting 181, Radiography for Dental Assisting....3
**Health 101, Introduction to Allied Healthcare Careers....2
**Health 103, Medical Terminology....2
**Health 160, Introduction to Dental Assisting....3

** Classes required for Advanced Certificate program
+ Courses are open to all employed dental assistants

Program Accreditation

The program in Dental Assisting is accredited by the Commission on Dental Accreditation of the American Dental Association, (CODA), 2111 East Chicago Avenue, Chicago, IL 60611, Phone: 312-440-4653 a specialized accrediting body recognized by the Council on Postsecondary Accreditation and by the U.S. Department of Education. The program is also accredited by the Michigan State Board of Dentistry.

About the Area of Study

The Registered Dental Assisting Program prepares students for entry-level dental assisting positions in a variety of settings such as private dental offices, dental schools, the military, and dental insurance offices The program also prepares students' skills that include: chairside, receptionist, and laboratory duties, as well as inventory control, infection control, and equipment maintenance. While in the program students will obtain clinical experience in local dental offices. Upon completion of the program, students will be able to take the Michigan state board exam for Registered Dental Assistants (RDA). Graduates are also eligible to take the Dental Assisting National Board (DANB) examination for the Certified Dental Assistant credential.

Sample Course Sequences

Certificate

Semester 1
HEAL 101, HEAL 103, HEAL 160, BIOL 110

Semester 2
DENT 166, DENT 167, DENT 168, DENT 170

Semester 3
DENT 169, DENT 172, DENT 181

Semester 4
DENT 174, DENT 175, DENT 177

Associate Degree

Semester 1
HEAL 101, HEAL 103, HEAL 160, BIOL 110

Semester 2
DENT 166, DENT 167, DENT 168, DENT 170

Semester 3
DENT 169, DENT 172, DENT 181

Semester 4
DENT 174, DENT 175, DENT 177, ENGL 101

Semester 5
ENGL 102, MATH 122 OR MATH 123, PSYC 201, Humanities/Fine Arts Elective

Diagnostic Medical Sonography

Associate in Applied Science Degree *Program Code 225*

Advisors: Elizabeth Zak, **(269) 927-8870**, bzak@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Program Prerequisites

There are special admission requirements for the Diagnostic Medical Sonography program. Acceptance into this program is competitive and based on a point system. Applicants are awarded points based on grades earned in program specific prerequisite coursework. All accepted students are required to pass a criminal background check and drug screen prior to admission into the program. Contact Academic Advising at advisor@lakemichigancollege.edu or the Health Sciences office at healthsciences@lakemichigancollege.edu for complete details. An Academic Advisor will help you determine prerequisites that are required and designed to prepare you for training in the program.

Degree Requirements **Credit Hours**

General Education Requirements

Biology 110, Human Anatomy & Physiology....4
English 101, English Composition....3
English 102, English Composition....3
Humanities/Fine Arts....3
Mathematics 122, Intermediate Algebra, or
Mathematics 123, Quantitative Reasoning....4
Psychology 201, Introduction to Psychology....3

Major Requirements

Diagnostic Medical Sonography 100,
Introduction to Diagnostic Medical Sonography....3
Diagnostic Medical Sonography 101, General Sonography I Abdomen....4
Diagnostic Medical Sonography 102, General Sonography I OB/GYN....4
Diagnostic Medical Sonography 103, Sonography Lab Applications I....3
Diagnostic Medical Sonography 104, Clinical Experience A....2
Diagnostic Medical Sonography 200, General Sonography II Abdomen....3
Diagnostic Medical Sonography 201, General Sonography II OB/GYN....3
Diagnostic Medical Sonography 202, Sonography Lab Applications II....3
Diagnostic Medical Sonography 203, Sonographic Physics I....3
Diagnostic Medical Sonography 204, Clinical Experience B....2
Diagnostic Medical Sonography 213, Sonographic Physics II....3
Diagnostic Medical Sonography 214, Clinical Experience C....5
Diagnostic Medical Sonography 224, Clinical Experience D....5
Diagnostic Medical Sonography 230, Introduction to Vascular
Sonography & Lab Applications....4
Diagnostic Medical Sonography 234, Clinical Experience E....3
Diagnostic Medical Sonography 240, Sonographic Registry Review....2
Physical Science 101, Physical Science: Chemistry and Physics....4
Reading 110, Medical Terminology Vocabulary or
Health 103, Medical Terminology....1

Program Accreditation

Accredited by the Joint Review Committee on Education in Diagnostic Medical Sonography, located at 6021 University Boulevard, suite 500, Ellicott City, MD 21043; Phone 443-973-3251; jrcdms.org. The program is also accredited by the Commission on Accreditation of Allied Health Education Programs, located at 1361 Park Street, Clearwater, FL 33756; Phone 727-210-2350; caahep.org.

Diagnostic Medical Sonography Program Handbook

In addition to the rules stated in this catalog, Ultrasound students are required to abide by the rules stated in the *Diagnostic Medical Sonography Program Handbook*.

About the Area of Study

The Diagnostic Medical Sonography program trains you to become a diagnostic medical sonographer. This program includes five (5) consecutive programmatic semesters. You will obtain clinical experience at local healthcare facilities in addition to formal classroom instruction provided on campus.

Diagnostic medical sonographers are employed in hospitals, clinics, commercial imaging laboratories and physician offices where they use sophisticated imaging equipment that is dependent upon sound wave technology. In addition to preparing patients and operating equipment, diagnostic medical sonographers also work with radiologists, referring physicians and hospital management to assure quality patient care and diagnosis.

Diagnostic medical sonographers also serve in capacities such as departmental managers, technical advisors and applications specialists, sales and service for ultrasound equipment manufacturers, and as educators.

Diagnostic Medical Sonography, continued

Associate Degree
Upon completion of the 77-credit Diagnostic Medical Sonography program, graduates may apply for an Associate in Applied Science degree.

Certification Examination
Qualified graduates are eligible to sit for the American Registry for Diagnostic Medical Sonography (ARDMS) or The American Registry of Radiologic Technologists (ARRT) ultrasound credentialing exam.

Sample Course Sequence
An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program
Semester 1
DMSO 100, Humanities/ Fine Arts, ENGL 102, PSYC 201

Semester 2
DMSO 101, DMSO 102, DMSO 103, DMSO 104

Semester 3
DMSO 200, DMSO 201, DMSO 202, DMSO 203, DMSO 204

Semester 4
DMSO 214

Semester 5
DMSO 224

Semester 6
DMSO 213, DMSO 230, DMSO 234, DMSO 240

Electrical Distribution *Program Code ELEC*

Associate in Applied Science Degree

Advisor: Kevin Kreitner, **(269) 927-1000, ext. 3033**, kkreitner@lakemichigancollege.edu

Degree Requirements **Credit Hours**

General Education Requirements

Business 203, Principles of Economics (Macro).....3
Communication 215, Professional Communications.....3
English 101, English Composition.....3
Mathematics 122, Intermediate Algebra or
Mathematics 123, Quantitative Reasoning or
Mathematics 128, Pre-Calculus Algebra.....4
Natural Sciences.....4
Humanities/Fine Arts.....3

Major Requirements

Electronics 100, DC Electricity.....4
Electronics 106, AC Electricity.....3
Electronics 110, General Electricity.....3
Electronics 151, Transformers, Motors and Motor Controls.....2
Electronics 152, Electrical Motor Controls II.....2
Energy 111, Energy Generation and Distribution.....3
Energy 185, Line Worker Orientation.....1
Energy 188, Line Worker Field Experience.....2
Energy 190, Introduction to the Utility Industry.....3
Energy 191, Climbing and Working in Elevated Work Sites.....3
Energy 192, Utility Construction Fundamentals.....3
Energy 193, Energy Production Technology.....3
Trade Related Instruction 138, Industrial Safety.....1
Trade Related Instruction 144, Blueprint Reading and Sketching.....4
Trade Related Instruction 156, Industrial Rigging.....2
Trade Related Instruction 211, Soldering.....1

It is recommended for students that successfully complete a Utility Lineworker apprenticeship be eligible for a PEL block of 40 semester hours of technical credit towards the major requirements of an Associate in Applied Science in Electrical Distribution. Students must currently hold/s ALL the following or similar third part credentials:

- American Electric Power (AEP) D-100
- American Electric Power (AEP) D-200
- American Electric Power (AEP) D-300
- American Electric Power (AEP) C-100
- American Electric Power (AEP) C-200
- American Electric Power (AEP) C-300
- American Electric Power (AEP) C-400
- American Electric Power (AEP) B-100
- American Electric Power (AEP) B-200
- Commercial Driver's License (CDL)-Class A Licensure

These courses should be part of a planned program of study as designed by an employee sponsor to meet their specific needs. Please see the Program Advisor for specific related technical instruction (RTI).

About the Area of Study

The purpose of the Electrical Distribution program is to provide individuals/apprentices with the following established skills (curriculum approved by company): installation, operate, maintain and repair local, long-distance, and rural electric power cables and communication lines; erect and construct pole and tower lines; and install underground lines and cables an avenue to apply those skills/hours towards an associate degree.

Associate Degree

When you complete the Electrical Distribution program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program

Semester 1

ELEC 110, TRIN 144, TRIN 138, TRIN 211, BUSA 203

Semester 2

ELEC 100, TRIN 156, ENGY 111, ENGY 185, MANU 122

Semester 3

ENGY 188, ENGY 190, ENGY 191, ENGY 192, ENGY 193

Semester 4

ELEC 151, ELEC 106, ENGY 111, COMM 215, ENGL 101

Semester 5

ELEC 152, ELEC 106, Natural Sciences, Humanities\Fine Arts

Emergency Medical Services

Non-Degree and Specialty Certificate Course

Advisors: LaToya Mason, **(269) 926-4086**, lmason@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Program Prerequisites
Proficiency in reading, English, and mathematics on the assessment or successful completion of recommended classes.

Certificate Requirements	**Credit Hours**
Basic Emergency Medical Technician 162	8

Courses offered in Fall and Spring semester.

About the Area of Study
The Emergency Medical Technician course trains students for emergency medical technician (EMT-Basic) positions in pre-hospital emergency care for sick and injured individuals. Students will obtain classroom, lab and clinical education experience during this course. Emergency medical technicians provide medical care to patients in times of crisis and emergency. EMTs respond to emergency calls, performing medical services and transporting patients to medical facilities. A certificate of completion is awarded upon successful completion of this course. Successful completion of the course will allow the student to sit for the National Registry of Emergency Medical Technicians examination.

All students are required to pass a criminal background check and drug screen prior to admission into the program.

Engineering

Associate in Science Degree – TRANSFER PROGRAM *Program Code 082*

Advisor: John Stahl, **(269) 927-8184**, jstahl@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics 151, Calculus I	5
*Natural Sciences	4
Physics 201, Engineering Physics I	5
*Social Sciences	6
Major Requirements	
Mathematics 201, Calculus II	5
Mathematics 202, Calculus III	5
Mathematics 252, Differential Equations	4
Physics 202, Engineering Physics II	5
General Electives	9

*From at least two academic disciplines.

About the Area of Study

This program is designed to cover most of the freshman and sophomore pre-engineering requirements in a typical bachelor's engineering program. The curriculum is intensively mathematical and has challenging performance requirements. The level of rigor will lay the foundation in analytical reasoning and problem solving required to succeed in an engineering discipline. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Engineering Technology

Associate in Applied Science Degree *Program Code ENTC*

Advisor: Kevin Kreitner, **(269) 927-1000, ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

Chemistry 101, Introductory Chemistry I, or
Chemistry 104, Fundamentals of General, Organic, and Biochemistry.....4
English 101, English Composition.....3
English 103, Technical Writing.....3
Humanities/Fine Arts.....3
Mathematics 123, Quantitative Reasoning.....4
Social Science.....3

Major Requirements

Chemistry 111, General Chemistry I.....4
Electricity 100, DC Electricity.....4
Electricity 106, AC Electricity.....3
Engineering 113, Engineering Design & Graphics.....4
Engineering 210, Advanced CAD Techniques.....3
Industrial Maintenance Technology 204, Basic Hydraulics & Pneumatics.....2
Machine Tool Technology 110, Machine Tool I.....3
Machine Tool Technology 120, Machine Tool II.....3
Machine Tool Technology 140, Introduction to Numerical Control (NC) Computer Numerical Control (CNC).....2
Machine Tool Technology 150, Introduction to CAM.....2
Manufacturing Technology 120, Fundamentals of Programmable Controllers.....2
Manufacturing Technology 122, Introduction to Robotics.....2
Manufacturing Technology 222, Industrial Robotics.....4
Manufacturing Technology 224, Robotics IR Systems.....2
Mathematics 135, Pre-Calculus Algebra/Trig.....5
Physics 101, General Physics I.....5

About the Area of Study

The Engineering Technology program concentrates on product design principles, materials, and manufacturing processes. The primary program objective is to prepare students to assist and support engineers with projects and research and development. Students will be trained in skills and techniques related to branches of engineering, with a practical understanding of general engineering concepts.

Associate Degree

When you complete the 70-credit engineering technology program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program

Semester 1
MACH 110, BUSA 203, MATH 123, CHEM 101, ELEC 100

Semester 2
MACH 120, MACH 140, ELEC 106, INMT 204, MANU 122, ENGL 103

Semester 3
PHIL 102, ENGL 103, ENGR 113, MANU 120, MANU 222

Semester 4
PHYS 101, ENGR 210, MACH 150, MANU 224, CHEM 111

Semester 5
MATH 135

English

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 041*

Advisors: Nick Brittin, **(269) 927-8759**, brittin@lakemichigancollege.edu
Lia McCoskey, **(269) 927-8195**, lmccoskey@lakemichigancollege.edu
Erik Mortenson, **(269) 927-8966**, emortenson@lakemichigancollege.edu
Sean Newmiller, **(269) 927-8741,** snewmiller@lakemichigancollege.edu
Dr. Sarah Smith, **(269) 927-8872**, ssmith@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking 3
*Humanities/Fine Arts 6
Mathematics 4
*Natural Sciences 8
*Social Sciences 6

Major Requirements

Program requires at least 15 credits in ENGL or approved course of study***
(Excluding ENGL 101 or ENGL 102 or ENGL 103) 3
General Electives 27

The following English courses are offered at LMC:

English 101, English Composition 3
English 102, English Composition 3
English 103, Technical Writing 3
English 201, Gender and LGBTQ+ Literature 3
English 203, Masterpieces of English Literature I 3
English 204, Masterpieces of British Literature II 3
English 205, Introduction to Shakespeare 3
English 206, Modern Drama 3
English 208, Literary Interpretation 3
English 209, American Novel 3
English 210, American Literature to 1865 3
English 211, American Literature 1865 to Present 3
English 214, Children's Literature 3
English 215, Poetry 3
English 216, Literature of Black America 3
English 217, Creative Writing 3
English 220, Contemporary Fiction 3

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

Students pursuing a bachelor's degree in English will be able to complete their first two years of college with courses at Lake Michigan College. All courses in English and other recommended courses are transferable to other institutions in Michigan and elsewhere.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Foreign Language

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 042*

Advisor: Nick Brittin, **(269) 927-8759**, brittin@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics	4
*Natural Sciences	8
*Social Sciences	6
Major Requirements	
Program requires at least 15 credits in Foreign Language or approved course of study***	15
General Electives	15

The following Foreign Language courses may be offered at LMC Contact the Department Chair or an Advisor for more information.

American Sign Language 101R, American Sign Language I	4
American Sign Language 102R, American Sign Language II	4
American Sign Language 201R, American Sign Language III	4
American Sign Language 202R, American Sign Language IV	4
Foreign Language 101, Elementary French I	4
Foreign Language 102, Elementary French II	4
Foreign Language 121, Elementary Spanish I	4
Foreign Language 122, Elementary Spanish II	4
Foreign Language 198 Elementary Arabic I	4
Foreign Language 123, Spanish for the Workplace I	4
Foreign Language 124, Spanish for the Workplace II	4
Foreign Language 181, Elementary Russian I	4
Foreign Language 182, Elementary Russian II	4
Foreign Language 188, Elementary Japanese I	4
Foreign Language 189, Elementary Japanese II	4
Foreign Language 195, Elementary Italian I	4
Foreign Language 196, Elementary Italian II	4
Foreign Language 221, Intermediate Spanish I	4
Foreign Language 222, Intermediate Spanish II	4
Foreign Language 251, Advanced Oral and Written Spanish	3
French 101R, Elementary French I	4
French 102R, Elementary French II	4
French 201R, Intermediate French I	4
French 202R, Intermediate French II	4

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

This program will help you succeed if you plan to use a foreign language as a primary skill in teaching, interpreting, translating or business. The courses broaden your background knowledge and awareness of the world and its interdependent people. You are strongly urged to gain a good understanding of the cultural heritage of the foreign language you study.

Wider employment opportunities are available if you combine knowledge of a foreign language with professional programs like business administration, journalism, travel, tourism, hospitality and education. Courses in Spanish and Arabic are offered in face-to-face classroom and various Distance Learning formats.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

General Education Transfer

Advanced Certificate – TRANSFER PROGRAM *Program Code LIBA*

Advisor: Kris Zook, **(269) 927-6588**, kzook@lakemichigancollege.edu

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Certificate Requirements	**Credit Hours**
Certificate Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	6
Mathematics	3
Natural Sciences	8
Physical Education and Wellness	1
Social Sciences	6

About the Area of Study

This Advanced Certificate enables students who do not earn an associate degree to obtain a certificate that demonstrates their commitment toward the completion of a program/ degree. Under the Michigan Transfer Agreement, students are allowed to earn up to 30 hours of general education courses (designated by each institution) which can then be transferred to 4-year colleges and/ or universities.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Program

This certificate is extremely flexible, it is essential that you work with your Academic Advisor to develop an individualized program that meets your specific needs.

General Studies

Associate in General Studies – TRANSFER PROGRAM *Program Code 005*

Advisor: Kris Zook, **(269) 927-6588**, kzook@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, English Composition, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	3
Mathematics	3
Natural Sciences	3
Social Sciences	3
Electives	
General Electives	42

About the Area of Study

The Associate in General Studies degree is an appropriate degree for students who have taken or plan to take courses in diverse areas of the college without designating a major area of study. The Associate in General Studies meets all general education requirements at Lake Michigan College.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

General Technology

Associate in Applied Science Degree *Program Code GENT*

Advisor: Kevin Kreitner, **(269) 927-1000 ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
English 103, English Composition, or
Communication 101, Introduction to Public Speaking 3
Humanities/Fine Arts 3
Math 100, Applied Mathematics, or
Math 122, Intermediate Algebra, or
Math 123, Quantitative Reasoning 4
Physics 110, Technical Physics 4
Social Sciences 3

Major Requirements

Mathematics 110, Technical Mathematics I, or
Mathematics 130, Pre-Calculus Trigonometry, or
Mathematics 135, Pre-Calculus Algebra/Trig 3
Business 103, Introduction to Business 3

At least 34 hours of credit in the Industrial Technology and Business areas are required. These courses should be part of a planned program of study as designed by the advisor to meet your interests and your employer's needs.

About the Area of Study

With a two-year degree focused in your general technology area of study, you could be prepared for entry-level positions including assistant manager, basic electrical, CNC machinist, business, maintenance and welding.

Associate Degree

When you complete the 60-credit General Technology program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Course Sequence

An advisor will help you develop course program sequences.

General

Associate in Applied Science General–*Program Code AASG*

Advisor: David Blumberg, **(269) 926-2124**, dblumberg@lakemichigancollege.edu
Kevin Kreitner, **(269) 927-1000 x3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, English Composition, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	3
Mathematics	3
Natural Sciences	3
Social Sciences	3
Electives	
General Electives	42

These are courses taken in the Career and Workforce Education or Health Sciences area. Please work with your Academic Advisor for assistance.

About the Area of Study

The Associate in Applied Science General degree is an appropriate degree for students who have taken or plan to take applied courses in diverse areas of the college without designating a major area of study. Please work with an academic advisor as you plan your program.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Graphic Design

Associate in Arts Degree *Program Code 395*

Certificate of Achievement *Program Code*

Advisor: Brandon Pierce, **(269) 927-8767**, pierce@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking 3
*Humanities/Fine Arts 6
Mathematics 3
*Natural Sciences 8
**Physical Education 200, Healthful Living, or
Physical Education 212, Health and Fitness, or
Physical Education 214, Personal Health 1
Political Science 101, National Government, or
Political Science 102, State Governments, or
History 201, American History to 1865, or
History 202, American History 1865 to Present 3
*Social Sciences 3

Major Requirements

Requires at least one course in Graphic Design (GRDN) 3
General Electives 27

The following Graphic Design courses are offered at LMC:

Graphic Design 101, Digital Studio I 3
Graphic Design 110, Introduction to Graphic Design 3
Graphic Design 130, Photography I 3
Graphic Design 131, Photography II 3
Graphic Design 140, Production Skills for Graphic Design 3
Graphic Design 200, Principles of Typography 3
Graphic Design 220, Digital Studio II 3

*From at least two academic disciplines.
**Credit hours listed are based on minimum earned. For example, Mathematics courses have 3, 4, or 5 credits.

About the Area of Study

Graphic design is the intermingling of traditional art and design elements with leading edge computer technology. The Graphic Design program will prepare you for local employers and to serve as a freelance graphic designer. Graphic designers often work for marketing, public relations, and advertising firms; commercial printing; newspapers; and other publishing organizations.

Mac-based instruction using tools such as Adobe Creative Cloud and other industry-standard image editing, page layout, and vector-based illustration software is featured in the program. The program's goal is the creation of a portfolio of your best work, either for job applications or, in cooperation with ART classes, for transfer applications

Certificate Option

It is recommended students complete the Graphic Design Certificate of Achievement within one year ~~of~~ the Associate in Arts degree.

ART 109, Basic Design 1, 2D
ART 122, Drawing 1
ART 123, Drawing 2
GRDN 101, Digital Studio I
GRDN 130, Digital Photography I
GRDN 131, Digital Photography II
GRDN 200, Principles of Typography
GRDN 220, Digital Studio II

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas

Program Sequence

Students are strongly encouraged to take the following studio classes in their first year:

ART 109, Basic Design 1, 2D (Fall)
ART 110, Basic Design 2, 3D (Spring)
ART 122, Drawing 1 (Fall, ideally)
ART 123, Drawing 2 (Spring, ideally)
GDRN 101, Digital Studio 1 (Fall or Spring)

Health Science

Associate in Science Degree – TRANSFER PROGRAM *Program Code HLTH*

Advisor: LaToya Mason, **(269) 926-4086**, lmason@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

Biology 110, Human Anatomy and Physiology....4
Chemistry 104, Fundamentals of General, Organic, and Biochemistry....4
English 101, English Composition....3
English 102, English Composition....3
*Humanities/Fine Arts....6
Mathematics 123, Quantitative Reasoning or
Mathematics 128, Pre-Calculus Algebra....4
Physical Education 200, Healthful Living....1
Political Science 101, National Government, or
Political Science 102, State Governments, or
History 201, American History to 1865, or
History 202, American History 1865 to Present....3
Psychology 201, Introduction to Psychology....3

Major Requirements

Biology 205, Human Anatomy....4
Biology 206, Human Physiology....4
Biology 210, Microbiology....4
Health 101, Introduction to Allied Healthcare Careers....2
Health 103, Medical Terminology....2
Health 113, Nutrition and Diet Therapy....3
Mathematics 216, Introduction to Statistics....3
Electives....7

*From at least two academic disciplines.

About the Area of Study

The Health Science Associate in Science degree will meet the degree outcome for students who are looking to transfer to a four (4) year College or University to participate in a Health Science program offered at a Bachelor level or as an educational pathway option for students who may change their healthcare education pursuit while at Lake Michigan College.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancolleg.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

History

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 021*

Advisor: Dr. Chris Paine, **(269) 927-8607**, paine@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking.....3
*Humanities/Fine Arts.....6
Mathematics.....4
*Natural Sciences 8
*Social Sciences 6

Major Requirements

Requires at least 15 credits in HIST or approved course of study***.....15
General Electives 15

The following History courses are offered at LMC:

History 101, History of Western Civilization.....4
History 102, History of Western Civilization.....4
History 201, American History to 1865.....3
History 202, American History 1865 to Present 3
History 204, Modern East Asia 3
History 205, African American History 3
History 209, Women in the Western World 3
History120, The Civil War and Reconstruction 3

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

History is a branch of knowledge that records and explains past events. If you plan to obtain a bachelor's degree in History, you may complete the first two years of your studies at Lake Michigan College. All the History courses are transferable to other Michigan colleges as well as other four-year colleges and universities.

History majors find employment in areas such as teaching, library/archival fields and government service. Along with Political Science, a bachelor's degree in History is regarded as a steppingstone to law school. Students are strongly urged to complete two semesters of German, French, or Spanish. Consult a faculty advisor for specific guidance. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Hospitality Management

Certificate of Achievement – Hospitality Management *Program Code HOSP*

Advanced Certificate – Hospitality Management *Program Code 315*

Associate in Applied Science Degree *Program Code 316*

Advisor: Chris Woodruff, CHA, CHE, **(269) 927-8868**, woodruff@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

Communication 215, Professional Communications....3
English 101, English Composition....3
Humanities/Fine Arts....3
Math 122, Intermediate Algebra, or
Math 123, Quantitative Reasoning....4
Natural Sciences....4
Social Sciences....3

Major Requirements

Business 101, Business Accounting, or
*Business 201, Principles of Accounting I (4 credits)....3/4
+ **Business 130, Professionalism in the Workplace....1
**Business 209, Principles of Marketing....3
**Hospitality Management 110, Sanitation....1
**Hospitality Management 111, Responsible Beverage Service....1
**Hospitality Management 115, Safety & Legal Overview....3
**Hospitality Management 117, Event Management....3
**Hospitality Management 130, Guest Service and Etiquette....3
+ **Hospitality Management 150, Introduction to Hospitality Careers....3
+ **Hospitality Management 200, Hospitality Internship....3
+ **Hospitality Management 201, Restaurant Operations....3
**Hospitality Management 252, Hospitality Human Resources....3
+ **Hospitality Management 253, Tourism....3
+ **Hospitality Management 255, Hotel Management & Operations....3
Hospitality Management 275, Beverage Management....3
Hospitality Management 295, Hospitality Internship II....3

*Transferring students are encouraged to take BUSA 201

All courses with a + above must be completed for the Certificate of Achievement.

All courses with a ** above must be completed for the Advanced Certificate.

About the Area of Study

Graduates of the Hospitality Management program may select from a variety of management and staff-related careers in hotels, restaurants, resorts, clubs, event planning, casinos, and travel and tourism. Some careers include hotel general manager, restaurant general manager, executive housekeeper, guest services manager, food and beverage manager, and convention services manager. In all these positions, strong guest service, leadership, human resources, problem solving, and revenue management skills are required.

Certificate & Associate Degree

Upon completion of the 16-credeit certificate program, you may apply for a Certificate of Achievement. Upon completion of the 33-credit certificate program, you may apply for an Advanced Certificate. Upon completion of the 67-credit program, you may apply for an Associate in Applied Science degree. Certificate requirements may be applied to the degree program.

Transfer Resources

Lake Michigan College Hospitality Management has many transfers partners locally, regionally, and nationwide! If you would like more information on transferring, please talk with the Hospitality Management advisor early in your journey. If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Program Sequences
An advisor will help you make necessary changes to these recommended sequences.

Certificate of Achievement
Semester 1
BUSA 130, HOSP 150, HOSP 200, HOSP 201, HOSP 253, HOSP 255

Advanced Certificate Program
Semester 1
BUSA 130, HOSP 110, HOSP 111, HOSP 115, HOSP 117, HOSP 130, HOSP 150

Semester 2
HOSP 200, HOSP 201, HOSP 251, HOSP 252, HOSP 253, HOSP 255

Associate Degree Program
Semester 1
BUSA 130, ENGL 101, HOSP 111, HOSP 150, HOSP 155, MATH 123

Semester 2
COMM 215, HOSP 110, HOSP 117, HOSP 130, HOSP 200, HOSP 201

Semester 3
BUSA 101 or 201, HOSP 251, HOSP 252, HOSP 255, Humanities/ Fine Arts

Semester 4
HOSP 250, HOSP 253, HOSP 254, HOSP 275, HOSP 295, Social Science

Machine Tool Technology

Advanced Certificate – *Program Code 346*

Associate in Applied Science Degree *Program Code MATT*

Advisor: Kevin Kreitner, **(269) 927-1000 ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
English 103, Technical Writing, or
Communication 101, Introduction to Public Speaking....3
Humanities/Fine Arts....3
*Mathematics 100, Applied Mathematics, or
Mathematics 122, Intermediate Algebra, or
Mathematics 123, Quantitative Reasoning....4
Physics 110, Technical Physics 4
Social Sciences 3

Major Requirements

*Engineering 113, Engineering Design & Graphics....4
*Machine Tool Technology 110, Machine Tool I....3
*Machine Tool Technology 120, Machine Tool II....3
*Machine Tool Technology 130, Precision Inspection 3
*Machine Tool Technology 140, Introduction to Numerical Control (NC)
Computer Numerical Control (CNC)....2
*Machine Tool Technology 150, Introduction to CAM....2
Machine Tool Technology 241, CNC Programming I....2
Machine Tool Technology 242, CNC Programming II....2
*Manufacturing Technology 111, Manufacturing Processes I....3
Manufacturing Technology 122, Introduction to Robotics....2
*Mathematics 110, Technical Mathematics I, or
Mathematics 130, Pre-Calculus Trigonometry, or
Mathematics 135, Precalculus Algebra/Trig 3
*Trade Related Instruction 134, Metallurgy and Heat Treatment....3
*Trade Related Instruction 144, Blueprint Reading & Sketching....4
Welding 101, Fabrication I 2
*Welding 103, Gas Metal Arc Welding I, or
Welding 202, Gas Tungsten Arc Welding (GTAW)....2

* Classes required for Advanced Certificate program.
Some courses may be offered in Open Entry/Open Exit (OE/OE) format. See course descriptions.

About the Area of Study

The Machine Tool Technology program provides basic and advanced machining skills. Class time is spent in the classroom as well as working in the lab on traditional metal cutting machinery and computer-numerically-controlled machines.

If you have previous machining experience from a vocational high school program or industrial experience, you may qualify for advanced standing. Journeymen in the machine field can apply previous course work and experience toward an associate degree.

Certificate and Degree Options

Upon completion of the Machine Tool Technology certificate program, you may apply for the Advanced Certificate. Credit earned can be applied toward your associate degree. When you complete the 60-credit Machine Tool Technology program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Advanced Certificate

Semester 1
MACH 110, MACH 140, TRIN 144, MANU 111

Semester 2
MACH 120, MATH 100, ENGR 113, WELD 101

Semester 3
MATH 110, MACH 130, MACH 150, TRIN 134

Associate Degree Program

Semester 1
MACH 110, MACH 140, ENGL 101, WELD 101, TRIN 144

Semester 2
MACH 120, MATH 100, MACH 241, MACH 130, ENGR 113

Semester 3
WELD 103, ENGL 102, MANU 111, MATH 110

Semester 4
PHYS 110, MACH 242, WELD 103, PHIL 102, MANU 122, POSC 101

Machine Tool Technology

Certificate of Achievement – Machine Tool *Program Code 347*

Certificate of Achievement – Manufacturing Production *Program Code 366*

Advisor: Kevin Kreitner, **(269) 927-1000 ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

Machine Tool Technology Certificate Requirements

Engineering 113, Engineering Design & Graphics 4
Machine Tool Technology 110, Machine Tool I 3
Machine Tool Technology 120, Machine Tool II 3
Manufacturing Technology 111, Manufacturing Processes I 3
Mathematics 100, Applied Mathematics 4
Trade Related Instruction 134, Metallurgy and Heat Treatment 3
Trade Related Instruction 144, Blueprint Reading & Sketching 4

Manufacturing Production Certificate Requirements

Machine Tool Technology 110, Machine Tool I 3
Manufacturing Technology 111, Manufacturing Processes I 3
Manufacturing Technology 120, Fundamentals of PLC 2
Trade Related Instruction 138, Industrial Safety 1
Trade Related Instruction 143, Introduction to Mold Making 3
Trade Related Instruction 144, Blueprint Reading & Sketching 4

About the Area of Study

The Machine Tool Technology program provides basic and advanced machining skills. Class time is spent in the classroom as well as working in the lab on traditional metal cutting machinery and computer-numerically-controlled (CNC) machines. If you have previous machining experience from a vocational high school program or industrial experience, you may qualify for advanced standing. Career opportunities include CNC operator, CNC programmer, machine builder, machinist, and tool and die maker.

Certificate Options

Upon completion of the listed Machine Tool Technology certificate requirements, you will be eligible for a Certificate of Achievement. The certificate allows you to enter the job market with basic, entry-level skills needed to be effective in the workforce. Credit earned can be applied toward your associate degree.

Upon completion of the listed Manufacturing Production Technology certificate requirements, you will be eligible for a Certificate of Achievement. Credit earned can be applied toward your associate degree.

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Certificate of Achievement – Mach

Semester 1

MACH 110, TRIN 144, TRIN 134, MANU 111

Semester 2

MACH 120, MATH 100, ENGR 113

Semester 1

MACH 110, MANU 111, MANU 120, TRIN 144

Semester 2

TRIN 138, TRIN 143

Mathematics

Associate in Science Degree – TRANSFER PROGRAM *Program Code 052*

Advisors: Brenda Shepard, **(269) 927-8781**, bshepard@lakemichigancollege.edu
Chris Bendixen, **(269) 927-8755**, bendixen@lakemichigancollege.edu
Dr. Gerry Cox, **(269) 927-1000 ext. 5078**, cox@lakemichigancollege.edu
Jim Larson, **(269) 927-8962**, larson@lakemichigancollege.edu
Julie Blinder, **(269) 927-6110**, jblinder@lakemichigancollege.edu
Peter Brown, **(269) 927-8760**, pbrown@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking 3
*Humanities/Fine Arts 6
Mathematics 151, Calculus I 5
*Natural Sciences 4
Physics 201, Engineering Physics I 5
*Social Sciences 6

Major Requirements

Mathematics 201, Calculus II 5
Mathematics 202, Calculus III 5
Mathematics 216, Introduction to Statistics or
Business Administration 216, Business Statistics 3
Mathematics 252, Differential Equations 4
Physics 202, Engineering Physics II 5
Math Electives or approved course of study*** 6

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

Please see the Catalog for courses that have Honors equivalents and meet MTA transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

About the Area of Study

Mathematics is an art, science, and language that encompasses the beauty of pattern and structure, the challenge of uncertainty and abstraction, and the excitement of solving problems. It provides a foundation for much of modern human society. Courses cover basic mathematical functions to more advanced work with calculus, statistics and differential equations. Mathematics students hone their ability to reason effectively and write clearly.

Many careers are open to Mathematics majors. Some pursue graduate degrees or become teachers, and others choose among several professions. Potential fields include law, medicine, business, communication, actuarial science, academic or industrial research, consulting, writing, editing, computer science, statistics and operations research. Consult a faculty advisor for specific guidance. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Mechatronics Technology

Associate in Applied Science Degree *Program Code MECT*

Advisor: Kevin Kreitner, **(269) 927-1000 ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, Technical Writing, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	3
Mathematics 100, Applied Mathematics, or Mathematics 122, Intermediate Algebra, or Mathematics 123, Quantitative Reasoning	4
Physics 110, Technical Physics	4
Social Sciences	3
Major Requirements	
Electronics 100, DC Electricity	4
Electronics 106, AC Electricity	3
Electronics 110, General Electricity	3
Electronics 111, Semiconductors	4
Electronics 113, Digital Electronics	3
Electronics 151, Transformers, Motors and Motor Controls	2
Electronics 152, Electrical Motor Controls II	2
Industrial Maintenance Technology 204, Basic Hydraulics and Pneumatics	2
Machine Tool Technology 110, Machine Tool I	3
Manufacturing Technology 120, Fundamentals of Programmable Controllers	2
Manufacturing Technology 122, Introduction to Robotics	2
Manufacturing Technology 222, Industrial Robotics	4
Manufacturing Technology 224, Robotics Infra-red Systems	2
Mathematics 110, Technical Mathematics, or Mathematics 130, Pre-Calculus Trigonometry, or Mathematics 135, Pre-Calculus Algebra/Trig	3
Trade Related Instruction 138, Industrial Safety	1
Program Electives (Suggested but not required)	
Electronics 109, Introduction to Residential Wiring	4
Electronics 211, Soldering	1
Industrial Maintenance Technology 240, Predictive and Preventive Maintenance	3
Trade Related Instruction 129, Electrical Code Study	2

Some courses may be offered in Open Entry/Open Exit (OE/OE) format.
See course descriptions.

About the Area of Study

The Mechatronics Technology program provides comprehensive instruction and hands-on experience with mechanical systems, electronics, fluid power, automation and robotics. Combining science and technology, the Mechatronics program provides students a comprehensive array of job-ready skills that involve integrating technologies and systems-thinking required to effectively problem solve, program, operate and maintain electromechanical and automated equipment.

Associate Degree

When you complete the 60-credit mechatronics technology program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program

Semester 1

ENGL 101, ELEC 110, MANU 120, MANU 122, ELEC 100, TRIN 138

Semester 2

MATH 100 or MATH 122, ELEC 106, INMT 204, MANU 222, ENGL 102

Semester 3

PHIL 102, MATH 110 or MATH 130, MANU 224, ELEC 151, ELEC 111

Semester 4

PHYS 110, ELEC 113, ELEC 152, MACH 110, POSC 101

Mechatronics Technology

Certificate of Achievement – Mechatronics Technology *Program Code MCTR*

Advisor: Kevin Kreitner, **(269) 927-1000 ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
Mechatronics Technology Certificate Requirements	
Electronics 100, DC Electricity	4
Electronics 106, AC Electricity	3
Manufacturing Technology 120, Fundamentals of Programmable Controllers	2
Manufacturing Technology 122, Introduction to Robotics	2
Manufacturing Technology 222, Industrial Robotics	4
Manufacturing Technology 224, Robotics Infra-red Systems	2

Some courses may be offered in Open Entry/Open Exit (OE/OE) format.
See course descriptions.

About the Area of Study

The Mechatronics Technology program provides comprehensive instruction and hands-on experience with mechanical systems, electronics, fluid power, automation and robotics. Combining science and technology, the mechatronics technology program provides students a comprehensive array of job-ready skills that involve integrating technologies and systems-thinking required to effectively problem solve, program, operate and maintain electromechanical and automated equipment.

Certificate

Upon completion of the listed Mechatronics Technology certificate requirements, you will be eligible for a Certificate of Achievement. This allows you to enter the job market with basic, entry-level skills. Credit earned can be applied toward your associate degree.

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Certificate of Achievement

Semester 1

ELEC 100, MANU 120, MANU 122

Semester 2

ELEC 106, MANU 222, MANU 224

Medical Assisting

Advanced Certificate *Program Code 207*

Associate in Applied Science Degree *Program Code MEAS*

Advisors: LaToya Mason, **(269) 926-4086**, lmason@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition 3
Humanities/Fine Arts....3
Mathematics 122, Intermediate Algebra, or
Mathematics 123, Quantitative Reasoning....4
Psychology 201, Introduction to Psychology 3
200-Level Biology or 100-Level Chemistry 4

Major Requirements

*Biology 110, Human Anatomy & Physiology....4
*Health 101, Introduction to Allied Healthcare Careers....2
*Health 103, Medical Terminology 2
*Medical Assisting 102, Law & Ethics for Medical Assisting 3
*Medical Assisting 104, Medical Office Procedures I....4
*Medical Assisting 202, Human Disease Overview....3
*Medical Assisting 203, Pharmacology for Medical Assisting 3
*Medical Assisting 204, Medical Assisting Clinical Lab I 4
*Medical Assisting 211, Medical Office Procedures II....3
*Medical Assisting 212, Medical Coding....3
*Medical Assisting 214, Medical Assisting Clinical Lab II 5
*Medical Assisting 221, Medical Assistant Externship....3
*Medical Assisting 222, Medical Assistant Certification Review 3

*Courses required for the Advanced Certificate program

About the Area of Study

The Medical Assisting program prepares students for highly skilled, entry-level positions as medical assistants in the health care industry. Students will learn the administrative and clinical skills that are expected of medical assistants. Upon completion of the program, students are eligible to take the Certified Medical Assistant (CMA, AAMA) examination offered by the American Association of Medical Assistants (AAMA) or the Registered Medical Assistant (RMA) examination offered by the American Medical Technologists (AMT).

All students in the Medical Assisting program are required to pass a criminal background check and drug screen prior to participating in the Medical Assisting program courses.

Certificate and Degree Options

Upon completion of the 42-credit program students may apply for an Advanced Certificate.

Upon completion of the 62-credit program students may apply for an Associate in Applied Science degree.

Program Accreditation

The certificate in Medical Assisting is approved by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 9355 113th St. N., #7709 Seminole, FL 33775, Phone: 727-210-2350. **caahep.org**

Sample Program Sequence

Advanced Certificate Program

Semester 1
MEDA 102, MEDA 104, MEDA 202, MEDA 204

Semester 2
MEDA 203, MEDA 211, MEDA 212, MEDA 214

Semester 3
MEDA 221, MEDA 222

Associate Degree Program

Semester 1
MEDA 102, MEDA 104, MEDA 202, MEDA 204

Semester 2
MEDA 203, MEDA 211, MEDA 212, MEDA 214

Semester 3
MEDA 221, MEDA 222, ENGL 101

Semester 4
ENGL 102, MATH 123, PSYC 201

Semester 5
HUMN 105, BIOL 205

Music

Associate in Arts Degree *Program Code 035*

Advisors: Dr. Rob Lunn, **(269) 927-8192**, rlunn@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking.....3
*Humanities/Fine Arts.....6
Mathematics.....4
*Natural Sciences 8
Social Sciences 6

Major Requirements: (AUDITION REQUIRED)

Requires at least 15 CREDITS in Music (MUSI) or approved course of study*** 15
General Electives 15

Please refer to the pages with the Music course descriptions for a complete list of courses that are offered at LMC.

*From at least two academic disciplines.
***An approved course of study can be developed with a faculty advisor to align with a specific transfer school or career need.

For specific pathways within the major, such as music technology, music therapy, music education, or music performance, contact a faculty advisor.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Career Options

The field of music offers many possibilities for a fulfilling and rewarding career. Job opportunities exist in diverse areas such as music education, performance, therapy, and technology, as well as church music, songwriting, publishing, licensing, the business of music, instrument building and repair, and many others. Completing an associate degree with a Music concentration can provide the first step in preparing for a career as a musician.

About the Area of Study

The Music curriculum prepares you for opportunities that require a traditional degree and provides an outlet for your performance skills. Coursework is available if you are interested solely in advancing your music skills or earning the first two years of a four-year degree in Music leading to a Bachelor of Arts, Bachelor of Music, or Bachelor of Science degree.

Applied music courses give you direct contact with performance faculty who help you improve your technical competence on your instrument or in voice. Music theory and history are offered for a better appreciation of the art form. Ensembles include Jazz Band, Rock/Pop Music Ensemble, Symphonic Wind Ensemble, Concert Choir, String Ensemble, Guitar Ensemble, Percussion Ensemble, Southshore Concert Band, and Vocal Chamber Ensemble.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Music

Associate in Applied Science Degree *Program Code 215*

Advisors: Dr. Rob Lunn, **(269) 927-8192**, rlunn@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, Technical Writing, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	3
Mathematics	3
Natural Sciences	4
Social Sciences	3
Major Requirements: (AUDITION REQUIRED)	
Music 100+ or 200+, Beginning Applied Music	8
Music 101, Concert Choir or Music 103, Symphonic Wind Ensemble	8
Music 114, Piano Class I	2
Music 115, Piano Class II	2
Music 162, Basic Music I	3
Music 163, Basic Music II	3
Music 164, Aural Comprehension I	1
Music 165, Aural Comprehension II	1
Music 213, Music History I	3
Music 214, Music History II	3
Music 262, Basic Music III	3
Music 263, Basic Music IV	3
Music 264, Aural Comprehension III	1
Music 265, Aural Comprehension IV	1

For specific pathways within the major, such as music technology, music therapy, music education, or music performance, contact a faculty advisor.

Completion of the Michigan Transfer Agreement (MTA) requires 30 credits of coursework in the 5 MTA distribution areas.

Career Options

The field of music offers many possibilities for a fulfilling and rewarding career. Job opportunities exist in diverse areas such as music education, performance, therapy, and technology, as well as church music, songwriting, publishing, licensing, the business of music, instrument building and repair and many others. Completing an associate degree with a Music concentration can provide the first step in preparing for a career as a musician.

About the Area of Study

The Music curriculum prepares you for opportunities that require a four-year degree and provides an opportunity to hone your performance skills. Coursework is available if you are interested solely in advancing your music skills or earning the first two years of a four-year degree in Music leading to a Bachelor of Arts, Bachelor of Music, or Bachelor of Science degree.

Applied Music courses give you direct contact with performance faculty who help you improve your technical competence on your instrument or in voice. Music theory and history are offered for a better appreciation of the art form. Ensembles include Jazz Band, Rock/Pop Music Ensemble, Symphonic Wind Ensemble, Concert Choir, String Ensemble, Guitar Ensemble, Percussion Ensemble, Southshore Concert Band, and Vocal Chamber Ensemble.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Networking – CIS

Associate in Applied Science Degree - Networking *Program Code NETW*

Advisors: Shawn Hisle, **(269) 927-8166**, shisle@lakemichigancollege.edu
Jay Keeler, **(269) 927-8772**, jkeeler@lakemichigancollege.edu
Kyle Kelly, **(269) 927-4568**, kkelly@lakemichigancollege.edu

Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, Technical Writing or Communications 215, Professional Communications	3
Humanities/Fine Arts	3
Math 123, Quantitative Reasoning, or Higher Excluding MATH 200, MATH 210 or MATH 265	3
Natural Sciences	3
Social Science	3
Major Requirements	
Business 130, Professionalism in the Workplace	1
Computer Information Systems 100, Foundations of Information Technology	3
Computer Information Systems 106, Operating System Foundations	3
Computer Information Systems 118, Web Dev. & Design Foundations	3
Computer Information Systems 119, Programming Logic and Design	3
Computer Information Systems 140, Network Foundations	3
Computer Information Systems 155, Comparative Operating Systems	3
Computer Information Systems 156, Computer Security	3
Computer Information Systems 167, Python Programming	3
Computer Information Systems 170, Unix/Linux Operating Systems	3
Computer Information Systems 226, Routing & Switching	3
Computer Information Systems 228, Scaling Networks	3
Computer Information Systems 240, Systems Analysis & Design	3
Computer Information Systems 242, Windows Server	3

Electives (Select 3 Credit Hours)	
Computer Information Systems 108, Office Information Systems	3
Computer Information Systems 111, Database Systems	3
Computer Information Systems 158, Geospatial Technologies	3
Computer Information Systems 164, C++ Programming	3
Computer Information Systems 200, IT Support	3
Computer Information Systems 202, Data Reporting & Analysis	3
Computer Information Systems 208, Adv. Microcomputing Apps	3
Computer Information Systems 215, Digital Forensics	3
Computer Information Systems 219, Client-Side Web Development	3
Computer Information Systems 220, Web Programming	3
Computer Information Systems 221, Server-Side Scripting	3
Computer Information Systems 237, Geographic Information Systems	3
Computer Information Systems 238, Remote Systems	3
Computer Information Systems 239, Field Methods in GIS	3
Computer Information Systems 255, Structured Query Language	4
Computer Information Systems 261, Co-Op I	3
Computer Information Systems 262, Co-Op II	3
Computer Information Systems 264, Advanced C++ Programming	3
Computer Information Systems 266, Java Programming	3
Computer Information Systems 268, C# Programming	3
Computer Information Systems 275, Disaster Recovery	3
Computer Information Systems 277, Advanced GIS Applications	3
Computer Information Systems 278, Web GIS/Geodatabase Design	3
Computer Information Systems 279, GIS Customization and Programming	3
Computer Information Systems 291, Software Engineering	3
Computer Information Systems 295, Project Management	3

About the Area of Study
Students preparing for a career in information technology learn analytical and critical thinking skills, as well as the technical skills necessary to be successful IT professionals. At Lake Michigan College, hands-on learning opportunities are provided in computer labs using state-of-the-art hardware and software. In addition, students build important soft skills such as interpersonal communications, problem-solving, team-building and project management.

Associate Degree
When you complete the 62-credit program, you may apply for the Associate in Applied Science degree.

Transfer Resources
If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Sample Program Sequences
A CIS advisor will help you make necessary changes to these recommended sequences.

Associate Degree Program
Semester 1
CIS 100, CIS 106, CIS 119, CIS 140, ENGL 101, BUSA 130

Semester 2
CIS 118, CIS 156, CIS 226, ENGL 102 or 103, MATH 123 or higher

Semester 3
CIS 155, CIS 228, CIS Elective, Social Science, Natural Science

Semester 4
CIS 227, CIS 240, CIS 242, CIS Elective, Humanities/Fine Arts

Nursing (Registered)

Associate in Applied Science Degree *Program Code 210*

Pre-Nursing Advisors: Academic Advising, Advisor@lakemichigancollege.edu
Health Sciences Office Staff, healthsciences@lakemichigancollege.edu

Program Prerequisites

There are special admission requirements for the Nursing program. Acceptance into this program is competitive and based on a point system. Applicants are awarded points based on grades earned in program specific prerequisite coursework. All accepted students are required to pass a criminal background check and drug screen prior to admission into the program. Contact Academic Advising at Advisor@lakemichigancollege.edu or the Health Science at healthsciences@lakemichigancollege.edu for complete details. Please note: All non-native English-speaking students must take the TOEFL **prior** to the required HESI A2. Please contact the ESL Program to schedule testing at esl@lakemichigancollege.edu or call 269-927-4557. Please plan ahead when taking both the HESI A2 and the TOEFL exam.

Degree Requirements	**Credit Hours**
General Education Requirements	
Biology 101, Biological Science, or	
Biology 110, Basic Human Anatomy & Physiology	4
English 101, English Composition	3
English 102, English Composition	3
Humanities/Fine Arts	3
Mathematics 122, Intermediate Algebra, or	
Mathematics 123, Quantitative Reasoning	4
Psychology 201, Introduction to Psychology	3
Major Requirements	
Biology 205, Human Anatomy	4
Biology 206, Principles of Human Physiology	4
*Chemistry 104, Fundamentals of General, Organic and Biochemistry	4
Health 121, Calculations for Healthcare Professionals	1
Nursing 131, Nursing Pharmacology I	2
Nursing 136, Nursing Pharmacology II	2
Nursing 180, Nursing Fundamentals	6
Nursing 181, Medical-Surgical Nursing I	5
Nursing 182, Community Mental Health Nursing	3
Nursing 290, Advanced Health Assessment	1
Nursing 291, Medical-Surgical Nursing II	4
Nursing 292, Maternal and Child Nursing	5
Nursing 293, Medical-Surgical Nursing III	4
Nursing 294, Medical-Surgical Nursing IV	5
Nursing 288, Current Issues in Nursing	1

Note: Students must have at least a "C +" grade in all courses required for the nursing degree. There is also a ten-year time limit on science and math courses accepted for program entrance.

*Chemistry 105, Fundamentals of Inorganic Chemistry, if taken prior to Fall 2010, may be substituted for Chemistry 104 requirement. Chemistry 111 or a transfer equivalent may also be substituted for Chemistry 104.

Entrance into each semester of Nursing classes requires completion of all courses, including General Education courses, from the previous semester, according to the course sequence. General Education courses may be taken earlier, but not later, than listed. The following course sequences are recommended if you want to complete the entire AAS RN in two years. It is a rigorous schedule, and many students prefer to ease the load by completing some or all the general education requirements prior to beginning nursing classes. An advisor will help you make necessary changes to this sample schedule.

Associate Degree

Pre-Program

BIOL 101, MATH 123, BIOL 205, CHEM 104, BIOL 206, ENGL 101, HEAL 121

Semester 1

PSYC 201, NURS 131, NURS 180

Semester 2

ENGL 102, NURS 181, NURS 182, NURS 136

Semester 3

Humanities, NURS 290, NURS 291, NURS 292

Semester 4

NURS 293, NURS 294, NURS 288

Program Accreditation

The Associate in Applied Science Nursing program is accredited by the Accreditation Commission for Education in Nursing, Inc., (ACEN), 3390 Peachtree Road NE, Suite 1400, Atlanta, GA 30326, Phone: 404-975-5000. The most recent decision made by the ACEN Board of Commissioners for this program is Continuing Accreditation. View the public information disclosed by the ACEN regarding this program at acenursing.us/accreditedprograms/programSearch.htm. This agency is a resource for information about length of programs and required tuition and fees. There is a 70-credit degree requirement needed for graduation.

Nursing (Registered) Continued

About the Area of Study
The associate degree nursing (ADN) program qualifies graduates to take the National Council Licensure Exam (NCLEX-RN) leading to state licensure as a registered nurse (RN).

Licensed practical nurses (LPNs) who meet advanced standing requirements (see nursing student handbook or program advisor) may enter the second year of the nursing program after completing the support courses from the first year of the program and qualifying for admission to the associate degree program.

Nursing program applicants should be aware that the Michigan Department of Licensing and Regulatory Affairs in its Nursing Practice Act states that it can deny a license to an applicant if any of the following are true:

1. Has been convicted of a criminal offense in a court of law.
2. Is habitually intemperate in the use of alcoholic beverages.
3. Is addicted to, or has improperly obtained, possessed, used or distributed habit-forming drugs or narcotics.
4. Is guilty of dishonesty or unethical conduct.
5. Has violated or aided or abetted others in violation of any provision of this act.

This is not an inclusive list. If there are questions about a situation, please call the Michigan Board of Nursing at 517-335-0918.

Clinical Assignments
In addition to classroom work, students must participate in clinical assignments. The clinical shifts are scheduled during days, evenings and weekends at facilities throughout the region and attendance is required. Because clinical schedules are not flexible, students will need to work their schedule around these times and have access to dependable transportation in order to travel to the assignments. Students should also plan for additional time outside of the printed schedule for skills practice, clinical preparation and study.

Nursing Program Handbook
In addition to the rules stated in this catalog, Lake Michigan College nursing students are required to abide by rules stated in the Nursing Student Handbook. Students can view a copy of the Nursing Student Handbook by contacting the Health Sciences Advisor or the Nursing Department.

As a student in the nursing program, students should expect costs greater than the average LMC student. These additional costs will include a greater number of textbooks, school-approved uniforms, a pre-program physical exam, immunization for specified communicable diseases, ID badges, testing, and background checks.

Transfer Options
LMC's Nursing program is designed to transfer to and has articulation relationships with, Bethel College, Chamberlain College, University of Michigan-Flint, University of Wisconsin-Green Bay, and Western Michigan University which operate degree completion programs for a bachelor's degree in Nursing, or to other four-year institutions depending on their policies. Visit LMC's webpage at www.lakemichigancollege.edu/academics/educational-goals/transfers or speak with the Health Sciences Advisor for more information about transferring credit.

Pharmacy Technician

Advanced Certificate *Program Code PHTC*

Associate in Applied Science Degree *Program Code PHAR*

Advisors: LaToya Mason, **(269) 926-4086**, lmason@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Degree Requirements **Credit Hours**

General Education Requirements

Biology 205, Human Anatomy, or
Biology 206, Principles of Human Physiology 4
English 101, English Composition 3
English 102, English Composition, or
English 103, Technical Writing, or
Communication 101, Introduction to Public Speaking....3
Humanities/Fine Arts....3
Mathematics 122, Intermediate Algebra, or
Mathematics 123, Quantitative Reasoning....4
Psychology 201, Introduction to Psychology 3

Major Requirements

*Biology 110, Human Anatomy & Physiology....4
Business 115, Principles of Customer Service 3
Chemistry 104, Fundamentals of General, Organic and Biochemistry 4
Communications 215, Professional Communications....3
*Health 101, Introduction to Allied Healthcare Careers....2
*Health 103, Medical Terminology 2
*Health 113, Nutrition and Diet Therapy....3
*Pharmacy Technician 201, Pharmacy Technician Foundations....3
*Pharmacy Technician 211, Pharmaceutical Concepts & Calculations....3
*Pharmacy Technician 212, Prescription Processing & Simulations....4
*Pharmacy Technician 221, Pharmacy Technician Clinical Lab 4
*Pharmacy Technician 222, Pharmacy Technician Exam Review....3
*Pharmacy Technician 223, Pharmacy Technician Externship....4

*Classes required for the Advanced Certificate program

About the Area of Study

The Pharmacy Technician program prepares students for entry level pharmacy technician positions in hospitals and retail stores. Students will gain valuable hands-on experience that will prepare them to work under the supervision of a pharmacist.

Certificate and Degree Options

Upon completion of the 32-credit program you may apply for an Advanced Certificate.

Upon completion of the 62-credit program you may apply for an Associate in Applied Science degree.

All students in the Pharmacy Technician program are required to pass a criminal background check and drug screen prior to participating in the Pharmacy Technician program courses.

Sample Program Sequences

Advanced Certificate Program

Semester 1 (SPRING)
BIOL 110, HEAL 101, HEAL 103, PHAR 201

Semester 2 (FALL)
PHAR 211, PHAR 212, PHAR 221, HEAL 113

Semester 3 (SUMMER)
PHAR 222, PHAR 223

Associate Degree Program

Semester 1 (FALL)
BIOL 110, HEAL 101, HEAL 103, ENGL 101

Semester 2 (SPRING)
PHAR 201, ENGL 102, BIOL 205 or BIOL 206

Semester 3 (SUMMER)
PHAR 211, PHAR 212, PHAR 221, HEAL 113

Semester 4 (FALL)
PHAR 222, PHAR 223, BUSA 115, MATH 122 or MATH 123

Semester 5 (SPRING)
PSYC 201, COMM 215, CHEM 104, Humanities/Fine Arts

Philosophy

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 022*

Advisors: Dr. Amy Scrima, **(269) 927-8777**, ascrima@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking.....3
*Humanities/Fine Arts.....6
Mathematics.....4
*Natural Sciences 8
Social Sciences 6

Major Requirements

Requires at least 15 credits in Philosophy (PHIL) or approved course of study***
.....15
General Electives 15

The following Philosophy courses are offered at LMC:

Philosophy 101, Introduction to Philosophy.....3
Philosophy 102, Introduction to Logic.....3
Philosophy 215, Introduction to Religious Thought.....3
Philosophy 250, Sophomore Seminar in Philosophy.....3

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

Philosophy is a discipline that deals with all learning exclusive of technical precepts and the practical arts. Courses include study in areas such as logic, ethics, religious thought, and issues with technology, business, and medicine.

If you are pursuing a bachelor's degree in Philosophy, you may complete your first two years of coursework at Lake Michigan College. Philosophy courses are transferable to other institutions in Michigan and elsewhere.

Well-prepared Philosophy majors have done well consistently in the Graduate Record Examination (GRE) and Law School Aptitude Test (LSAT).

You may complete the requirements for an Associate in Arts degree. Competency in a foreign language is not a degree requirement. However, Philosophy majors are strongly urged to complete at least two semesters of French, German, or Spanish. As a Philosophy major, you should seek a broad-based education through careful selection of courses. Consult the faculty advisor for specific guidance.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Phlebotomy Technician

Certificate of Achievement *Program Code PHBT*

Advisors: LaToya Mason, **(269) 926-4086**, lmason@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Degree Requirements **Credit Hours**

Certificate Requirements – 16 Credit Hours

Biology 110, Human Anatomy and Physiology....4
Health 101, Introduction to Allied Healthcare Careers....2
Health 103, Medical Terminology....2
Health 130, Phlebotomy Technician....5
Health 131, Phlebotomy Technician Externship....3

About the Area of Study

Phlebotomy technicians are employed in various health care settings such as hospitals, acute care centers, medical groups, and outpatient clinics. The Phlebotomy Technician program provides hands-on classroom experience that will prepare students for employment in a laboratory setting. Upon successful completion of the course, students are eligible to take the National Healthcareer Association certification examination.

All students in the Phlebotomy Technician program are required to pass a criminal background check and drug screen prior to clinical placement.

Sample Program Sequence
Certificate of Achievement
Semester 1
BIOL 110, HEAL 101, HEAL 103, HEAL 130

Semester 2
HEAL 131

Physical Education and Wellness

Associate in Science Degree – TRANSFER PROGRAM *Program Code 091*

Advisor: Dan Meyer, **(269) 927-8745**, meyer@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition	3
*Humanities/Fine Arts	6
Mathematics	3
*Natural Sciences	8
Psychology 201, Introduction to Psychology	3
*Social Sciences	6
Major Requirements	
Biology 205, Human Anatomy	4
Biology 206, Principles of Human Physiology	4
Communication 101, Introduction to Public Speaking	3
Physical Education 201, Foundations of Physical Education	3
Physics 101, General Physics	5
Psychology 203, Human Development	3
PHED elective or approved course of study***	6

*From at least two academic disciplines.

***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

The Physical Education and Wellness program offers instruction and opportunities to participate in fitness-related activities, recreational and lifetime activities, and wellness promotion opportunities.

The professional program offers instruction in physical education skills, programs, philosophy, and administration. It is open to students planning to complete a major or minor in physical education, recreation, or coaching for their bachelor's degree program.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet MTA transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Physical Science

Associate in Science Degree – TRANSFER PROGRAM *Program Code 063*

Advisor: Dr. John Beck, (269) 695-2986, jbeck@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
Chemistry 111, General Chemistry I	4
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics 151, Calculus I	5
Physical Science 104, Physical Geology	4
Social Sciences	6
Major Requirements	
Chemistry 112, General Chemistry II	4
Physics 101, General Physics	5
Physics 102, General Physics II	5
PHYS elective or approved course of study***	5
General Electives	10

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

Physical Science offers an introduction to the physical sciences (chemistry, geology, and physics). The program provides coursework for you to complete towards your general education requirements in science and provides initial preparation work in a science field. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Physics

Associate in Science Degree – TRANSFER PROGRAM *Program Code 065*

Advisor: John Stahl, **(269) 927-8184**, jstahl@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
Chemistry 111, General Chemistry I	4
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics 151, Calculus I	5
Physics 201, Engineering Physics I	5
Social Sciences	6
Major Requirements	
Chemistry 112, General Chemistry II	4
Mathematics 201, Calculus II	5
Mathematics 202, Calculus III	5
Mathematics 252, Differential Equations	4
Physics 202, Engineering Physics II	5
PHYS elective or approved course of study***	5

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

Physics is a rigorous program applying mathematics to the fundamental concepts governing the natural world. You will develop a solid foundation in analytical reasoning and problem solving. Hands on laboratories are used to enhance the lecture material and introduce you to the laboratory environment. The Physics curriculum is an intensive and challenging program intended to prepare you for transfer into a bachelor's program at most institutions. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Political Science

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 014*

Advisor: Dr. Tiffany Bohm, **(269) 927-8877**, tbohm@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
**Mathematics	4
*Natural Sciences	8
Political Science 101, National Government, or Political Science 102, State Governments, or History 201, American History to 1865, or History 202, American History 1865 to Present	3
*Social Sciences	3
Major Requirements	
Program requires at least 15 credits in POSC or approved course of study***	15
General Electives	15
The following Political Science courses are offered at LMC:	
Political Science 101, National Government	3
Political Science 102, State Government	3
Political Science 202, Comparative Government	3
Political Science 203, International Relations	3
Political Science 204, Political Parties	3
Political Science 250, Introduction to Social Science Research	3
Political Science 260, Introduction to Public Policy	3

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

Political Science is the study of local, state, national, and international governments and their impact upon human society. If your goal is to pursue a bachelor's degree in political science, you may complete your first two years of coursework at Lake Michigan College. Political Science courses are transferable to other institutions in Michigan and elsewhere. Political Science is recommended if you are interested in government service, elective politics or a law degree. Consult the faculty advisor for specific guidance. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your academic advisor for assistance in developing your student education plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Psychology

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 012*

Advisors: Dr. Amy Scrima, **(269) 927-8777**, ascrima@lakemichigancollege.edu
Dr. Mya Hernandez, **(269) 927-8775**, mhernandez@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics	4
*Natural Sciences	8
*Social Sciences	6
Major Requirements	
Program requires at least 15 credits in PSYC or approved course of study***	15
General Electives	15

The following Psychology courses are offered at LMC:

Psychology 201, Introduction to Psychology	3
Psychology 202, Introduction to Behavior Analysis	4
Psychology 203, Human Development	3
Psychology 204, Child Development and Personality	3
Psychology 205, Interpersonal Relations	3
Psychology 206, Social Psychology	3
Psychology 210, Registered Behavior Technician Pre-Practicum	1
Psychology 211, Registered Behavior Technician Practicum	4
Psychology 212 Registered Behavior Technician Supervision	3
Psychology 230, Psychology of Stereotyping and Prejudice	3
Psychology 231, Abnormal Psychology	3
Psychology 250, Introduction to Social Science Research	3

*From at least two academic disciplines.
*****An approved course of study can be developed with an advisor to align with a specific transfer school or career need.**

About the Area of Study

Psychology is the scientific study of behavior. Through research and critical thought, we will explore the biological, behavioral, developmental and social processes that shape and govern human behavior. If you plan to major in Psychology at a four-year university, you may complete the first two years of your program at Lake Michigan College.

You have a unique opportunity to conduct research in Psychology 250. Research projects that qualify are published in *The Lake Michigan College Journal of Psychology*. Students may be eligible for membership in Psi Beta, the national honor society for Psychology students at community and junior colleges. Consult a faculty advisor for specific guidance. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your academic advisor for assistance in developing your student education plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Radiologic Technology

Associate in Applied Science Degree *Program Code 221*

Advisors: Ildiko Widman, **(269)-927-5102,** widman@lakemichigancollege.edu
Academic Advising, Advisor@lakemichigancollege.edu

Program Requirements

There are special admission requirements for the Radiologic Technology program. Acceptance into this program is competitive and based on a point system. Applicants are awarded points based on grades earned in program specific prerequisite coursework. All accepted students are required to pass a criminal background check and drug screen prior to admission into the program. Contact Academic Advising at Advisor@lakemichigancollege.edu for an appointment or the Health Sciences office at ext. 8768 for complete details. An advisor will help you determine prerequisites that are required and designed to prepare you for training in the program.

Degree Requirements	**Credit Hours**
General Education Requirements	
+Biology 110, Human Anatomy & Physiology, or Biology 101, Biological Science, or Biology 111, Principles of Biology I, or Biology 112, Principles of Biology II	4
+English 101, English Composition	3
+English 102, English Composition	3
+Humanities/Fine Arts	3
+Mathematics 122, Intermediate Algebra	4
+Psychology 201, Introduction to Psychology	3
Major Requirements	
+Biology 205, Human Anatomy	4
+Health 103, Medical Terminology	2
+Physical Science 101, Physical Science: Chemistry and Physics	4
Radiologic Technology 130, Introduction to Radiography	3
Radiologic Technology 131, Radiographic Positioning I	8
Radiologic Technology 134, Physics I	4
Radiologic Technology 138, Clinical Experience I	2
Radiologic Technology 139, Physics II Common Equipment	3
Radiologic Technology 140, Radiographic Positioning II	8
Radiologic Technology 143, Clinical Experience II	6
Radiologic Technology 144, Radiographic Positioning III	8
Radiologic Technology 145, Radiographic Protection and Biology	2
Radiologic Technology 228, Computer Applications in Medical Imaging	3
Radiologic Technology 229, Clinical Experience III	4
Radiologic Technology 232, Clinical Experience IV	3
Radiologic Technology 241, Sectional Anatomy and Modalities	3
Radiologic Technology 244, Senior Registry Review	1

+Must be completed BEFORE admittance into the program

Radiologic Technology Program Handbook

In addition to the rules stated in this catalog, Radiologic Technology students are required to abide by the rules stated in the *Radiologic Technology Program Handbook*, which may be reviewed in the college library.

About the Area of Study

The Radiologic Technology program trains you to become a radiologic technologist. This 21-month program includes a summer semester of courses. You will obtain clinical experience at local healthcare facilities in addition to formal classroom instruction provided on campus and online.

Radiologic technologists are employed in hospitals, clinics, commercial x-ray laboratories, and physician offices where they use radiation to produce images of the bones and organs of the human body. In addition to preparing patients and operating equipment, radiologic technologists also work with electronic medical records and may prepare exam schedules, evaluate equipment purchases, or manage a radiology department.

Program Accreditation

This program is accredited by the Joint Review Committee on Education in Radiologic Technology, 20 N. Wacker Dr., Suite 2850, Chicago, IL 60606-3182; Phone 312-704-5300. jrcert.org, and email@jrcert.org.

Associate Degree

Upon successful completion of the Radiologic Technology program, you may apply for an Associate in Applied Science degree.

Certification Examination

Graduates are eligible to apply to sit for the American Registry of Radiologic Technologists (ARRT) national certification examination. Any applicant who has been convicted of a felony and some misdemeanors should pre-apply to ARRT for determination of eligibility to sit for the national certification examination.

Sample Course Sequence
An advisor will help you make necessary changes to this recommended sequence.

Associate Degree Program
Pre-Program
BIOL 101, ENGL 101, ENGL 102, Humanities, MATH 123, PSYC 201

Semester 1
RADT 130, RADT 131, RADT 134

Semester 2
RADT 138, RADT 139, RADT 140

Semester 3
RADT 143, RADT 144

Semester 4
RADT 145, RADT 228
RADT 229,

Semester 5
RADT 232, RADT 241, RADT 244

Registered Behavior Technician

Certificate of Achievement *Program Code RBT*

Advisors: Dr. Amy Scrima, **(269) 927-8777**, ascrima@lakemichigancollege.edu
Dr. Mya Hernandez, **(269) 927-8775**, mhernandez@lakemichigancollege.edu

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Certificate Requirements	**Credit Hours**
Business 130, Professionalism in the Workplace	1
Psychology 201, Introduction to Psychology	3
Psychology 202, Introduction to Behavior Analysis	4
Psychology 210, Registered Behavior Technician Pre-Practicum	1
Psychology 211, Registered Behavior Technician Practicum	4
Psychology 212 Registered Behavior Technician Supervision	3

About the Area of Study

The Registered Behavior Technician® (RBT®) is a paraprofessional certification in behavior analysis. Completion of the certificate will prepare students to gain employment in an accredited institution that serves developmentally disabled individuals. They will be eligible for a higher rate of compensation and the certification is transferable to other states.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan or visit **lakemichigancollege.edu/transfer**.

Sample Course Sequence

An advisor will help you develop course program sequences.

Skilled Trades Technology

Advanced Certificate *Program Code 382*

Associate in Applied Science Degree *Program Code SKTT*

Advisor: Kevin Kreitner, **(269) 927-1000 ext. 3033**, kkreitner@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, Technical Writing, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	3
Mathematics 100, Applied Mathematics, or Mathematics 122, Intermediate Algebra, or Mathematics 123, Quantitative Reasoning	4
Physics 110, Technical Physics	4
Social Sciences	3
Major Requirements	
Mathematics 110, Technical Mathematics, or Trade Related Instruction 107, Applied Geometry/Trigonometry	4

At least 36 hours of credit from a Department of Labor (DOL) registered apprenticeship is required. These courses should be part of a planned program of study as designed by an employee sponsor to meet their specific needs. Please see the Program Advisor for specific related technical instruction (RTI).

About the Area of Study

In cooperation with local employers, Lake Michigan College provides training for men and women enrolled in formal apprenticeship agreements approved by the U.S. Department of Labor, Office of Apprenticeship and Training. Such training programs include academic instruction as well as on-the-job training and usually take a minimum of two to four years to complete.

Associate Degree

An apprentice who has completed the academic requirements of a U.S. Department of Labor Registered Apprenticeship and completed a minimum of 30 credit hours may apply for an Advanced Certificate from Lake Michigan College.

The associate degree is designed for those apprentices that have received a Completion Certificate from the U.S. Department of Labor or possess a journeyman card. The degree incorporates the courses taken during the student's apprenticeship training, additional advanced level courses, and general education courses. Upon completion of the degree program with a minimum of 60 credit hours, a student may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan or visit **lakemichigancollege.edu/transfer**.

Sample Course Sequence

An advisor will help you develop course program sequences.

Sociology

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 011*

Advisor: Dr. Amy Scrima, **(269) 927-8777**, ascrima@lakemichigancollege.edu
David Martin, **(269) 927-8863**, damartin@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics	4
*Natural Sciences	8
*Social Sciences	6
Major Requirements	
Program requires at least 15 credits in SOC or approved course of study***	15
General Electives	15

The following Sociology courses are offered at LMC:

Sociology 101, Introduction to Sociology	3
Sociology 201, Modern Social Problems	3
Sociology 202, Marriage and the Family	3
Sociology 204, The Field of Social Work	3
Sociology 205, Race and Ethnic Relations	3
Sociology 210, Sociology of Aging	3
Sociology 215, Internet, Society, and Social Media	3
Sociology 250, Introduction to Social Science Research	3

*From at least two academic disciplines.
***An approved course of study can be developed with an advisor to align with a specific transfer school or career need.

About the Area of Study

The discipline of Sociology is concerned with the social and cultural life of humans. Sociologists study the organization, functions, and problems of human societies and groups. The dynamics of human relationships are of primary interest along with the analysis of culture, social systems, socialization, social classes, poverty, minorities and majorities, population, social institutions and social change.

Occupations in sociology/social work usually require a bachelor's or master's degree. The Sociology discipline at Lake Michigan College provides you with the first two years of a bachelor's program. You should work with your advisor to check with four-year colleges and universities regarding specific requirements. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Teacher Education

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 037*

Advisors: Dr. Amy Scrima, **(269) 927-8777**, ascrima@lakemichigancollege.edu
Casey Dubina, cdubina@lakemichigancollege.edu

Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition, or
Communication 101, Introduction to Public Speaking 3
Humanities/ Fine Arts 6
Mathematics 3
*Natural Sciences 8
Physical Education 212, Health and Fitness, or
Physical Education 214, Personal Health 3
Political Science 101, National Government, or
Political Science 102, State Governments, or
History 201, American History to 1865, or
History 202, American History 1865 to Present 3
Social Sciences 3

Major Requirements

Requires at least one course in Education (EDUC) 3
General Electives 25
*From at least two academic disciplines.

**Credit hours listed are based on minimum earned. For example, Mathematics courses have 3, 4, or 5 credits.

Colleges of Education:

Andrews University ..... www.andrews.edu/sed
Central Michigan University ..... www.ehs.cmich.edu
Eastern Michigan University ..... www.emich.edu/coe
Ferris State University ..... www.ferris.edu
Grand Valley State University ..... www.gvsu.edu/soe
Indiana University South Bend ..... www.iusb.edu/~edud/
Michigan State University ..... www.educ.msu.edu
Northern Michigan University ..... www.nmu.edu/education
University of Michigan ..... www.soe.umich.edu
Western Michigan University ..... www.wmich.edu

If you are interested in attending a school not listed here, please work with an Academic Advisor to build a program that will meet the requirements of your chosen school.

Test Scores Required for Admission into a College of Education

The state of Michigan requires that teacher candidates demonstrate basic skills in reading, writing and mathematics before they can begin their education coursework at a 4-year institution. SAT scores may now be used in place of the Professional Readiness Exam to meet the Michigan basic skills examination requirement. Scores acceptable for admission will be:

- Evidence-Based Reading and Writing: 480 or higher
- Mathematics: 530 or higher

Students must meet the minimum test scores to be admitted into WMU's College of Education. Please see your LMC Education advisor for additional information.

About the Area of Study

Lake Michigan College's Teacher Education Associate in Arts program prepares students to transfer to a 4- year institution's teacher preparation bachelor's degree program.

LMC's curriculum will meet the general education requirements toward transfer and introduce students to the field of education. The program provides students with carefully constructed courses that are based on sound theoretical foundations. Courses at all levels include field experiences in a variety of settings with diverse populations. Students work with their Teacher Education program advisor to create an individualized program.

Transfer Resources

Students wishing to pursue a career in Education will need to continue their schooling at a 4-year institution. The curriculum for students preparing to become elementary teachers varies considerably among transfer institutions. If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

LMC has developed several articulation agreements/partnerships with colleges and universities in Teacher Education. These agreements are designed to facilitate the transfer of credits from LMC to these Colleges of Education. Students must meet with a program advisor before their first semester for the specific requirements of the college or university they are planning to attend.

In discussions with their advisor, students will determine the teaching certification/grade level they are interested in pursuing, their college selection, and an academic content major area for additional endorsements. With several course options in this program, it is important that students choose courses based on their career and transfer goals.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Teacher Education

Associate in Applied Science Degree – TRANSFER PROGRAM *Program Code TEED*

Advisors: Dr. Amy Scrima, **(269) 927-8777**, ascrima@lakemichigancollege.edu
Casey Dubina, cdubina@lakemichigancollege.edu

Degree Requirements **Credit Hours**

General Education Requirements

English 101, English Composition 3
English 102, English Composition 3
Political Science 101, National Government 3
Mathematics 200, Mathematics for Elementary Teachers 4
Biology 170, Life Science for Elementary Teachers I 3
Humanities 201, Introduction to the Arts 3

Major Requirements

History 201, American History 3
Physical Education 212, Health and Fitness, or
Physical Education 214, Personal Health 3
Psychology 201, Introduction to Psychology 3
Psychology 203, Human Development or
Psychology 204, Child Development and Personality 3
Mathematics 210, Geometry for Elementary Teachers 4
Mathematics 265, Probability and Statistics for Elementary/Middle
School Teachers 4
Physical Science 180, Physical Science in Elementary Education 3
Physical Science 190, Earth Science for Elementary/Middle
School Teachers I 3
Physical Science 280, Physical Science for Elementary Teachers II 3

Program Electives (12-15 credits required, depending on track)

Early Childhood Elementary (Pre K-5th Grade Certification) Track

Geography 100, World Regional Geography 4
Business 200, Introduction to Economics 3
Physical Education 208, Introduction to Elementary
Physical Education 2
Child Development 212, Administration of Early
Childhood Programs 3

Elementary (K-8th Grade Certification) Track

Art 111, Art Education or
Music 200, Music for the Elementary Teacher 3
History 202, American History 3
History 204, Modern East Asia 3
Physical Science 290, Earth Science for
Elementary/Middle
School Teachers 3
Choose One Content Area Major Course:
Biology 270, Life Science for Elementary Teacher II
Chemistry 101, Introductory Chemistry I
English 208, Literary Interpretation
English 214, Children's Literature
English 215, Poetry
English 216, Literature of Black America
Physics 104, Introduction to the Sky and Solar System
Political Science 102, State Government 3

Special Education Track

Geography 100, World Regional Geography 4
Business 200, Introduction to Economics 3
Physical Education 208, Introduction to Elementary
Physical Education 2
Education 101, Foundations of Education 3

Teacher Education, continued

About the Area of Study
LMC's curriculum will meet the general education requirements toward transfer and introduce students to the field of education with emphasis on their specific program track. The program provides students with carefully constructed courses that are based on sound theoretical foundations. Courses at all levels include field experiences in a variety of settings with diverse populations. Students work with an academic planning advisor to create an individualized program.

Transfer Resources
Students wishing to pursue a career in education will need to meet with an LMC Teacher Education program advisor for assistance in developing an individualized Student Education Plan (SEP).

In discussions with their advisor, students will determine the teaching certification/grade level they are interested in pursuing, their college selection, and an academic content major area for additional endorsements. With several course options in this program, it is important that students choose courses based on their career and transfer goals.

Test Scores Required
The state of Michigan requires that teacher candidates demonstrate basic skills in reading, writing and mathematics before they can begin their education coursework at a 4-year institution. SAT scores may now be used in place of the Professional Readiness Exam to meet the Michigan basic skills examination requirement. Scores acceptable for admission will be:

- Evidence-Based Reading and Writing: 480 or higher
- Mathematics: 530 or higher

Students must meet the minimum test scores to be admitted into WMU's College of Education. Please see your LMC Education advisor for additional information.

Theatre

Associate in Arts Degree – TRANSFER PROGRAM *Program Code 046*

Advisors: Dr. Patrick King, **(269) 927-8172**, pking@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics	4
*Natural Sciences	8
*Social Sciences	6
Major Requirements	
Program requires at least 15 credits in DRAM or approved course of study***	15
General Electives	15

The following Theatre courses are offered at LMC:

Drama 110, Principles and Practices of Acting I	3
Drama 110, Principles and Practices of Acting II	3
Drama 112, Stagecraft	3
Drama 113, Musical Theatre Performance I	3
Drama 120, Script Analysis	3
Drama 125, Improvisation and Theatre Games	3
Drama 175, Summer Theatre Workshop	6
Drama 201, Introduction to Theatre	3
Drama 202, Theatre Practicum	3
Drama 220, Introduction to Theatre for Young Audiences and Creative Dramatics	3

*From at least two academic disciplines.

*****An approved course of study can be developed with an advisor to align with a specific transfer school or career need.**

About the Area of Study

Theatre courses help you develop an appreciation of the discipline as well as to expand your personal and professional enrichment through study in acting and stagecraft. The curriculum is comprised of courses dealing with dramatic theory and appreciation, design and technical theatre, and performance. Courses are open to all students.

Credits apply toward the Associate in Arts degree. If you are planning to transfer to a four-year school, you should obtain degree requirements for the freshman and sophomore years at your selected school and consult with the Theatre program advisor to plan your individualized program. There is a 60-credit degree requirement needed for graduation.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer.**

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Trucking (Commercial Driver's License A)

Non-Degree and Specialty Certificate Program

Advisors: Jeremy Burleson, **(269) 637-7514**, jburleson@lakemichigancollege.edu or trucking@lakemichigancollege.edu

Program Prerequisites

Three Week Course- None
Two Week Course- Department of Transportation (DOT) Physical, DOT Drug Screen, and Commercial Learner's Permit (CLP)

Certificate Requirements

Completion of either the 120- hours of training, three (3) weeks course, or completion of the 80 hours of training, two (2) weeks course, is required for this license. For the three (3) week course, students must successfully complete one (1) week classroom training and two (2) weeks hands-on yard training to be eligible for the Commercial Driver's License (CLD) Class A License.

For the two (2) week course, students must provide documentation of a completed DOT Physical, DOT Drug Screen, and Commercial Learner's Permit and successfully complete the two (2) weeks hands-on yard training to be eligible for the CDL Class A License.

Students are required to undergo a CDL eligibility background check before the first week of either course.

About the Area of Study

The CDL Class A Trucking Program provides basic knowledge of the vehicle, Department of Transportation rules and regulations, map reading information, preparation for the Michigan CLP Assessment, vehicle inspection, basic driving maneuvers, and ten (10) hours of road drive time. CDL Class A Licenses are needed for positions in long –haul cargo trucking, construction and cement work, courier services, bus driving, heavy equipment hauling, chauffer transportation and many other fields.

Undecided

Associate in Arts Degree – TRANSFER PROGRAM *Program Code UAAT*

Advisor: Kris Zook, **(269) 927-6588**, kzook@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics	4
*Natural Sciences	8
*Social Sciences	6
Major Requirements	
Requires at least one additional course in Social Science	3
Requires at least one additional course in Humanities/Fine Arts	3
General Electives	24

*From at least two academic disciplines.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Undecided

Associate in Science Degree – TRANSFER PROGRAM *Program Code UAST*

Advisor: Kris Zook, **(269) 927-6588**, kzook@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or Communication 101, Introduction to Public Speaking	3
*Humanities/Fine Arts	6
Mathematics	4
*Natural Sciences	8
*Social Sciences	6
Major Requirements	
Requires at least one additional course in Natural Science	4
Requires at least one additional course in Mathematics	3
General Electives	23

*From at least two academic disciplines.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your Academic Advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Please see catalog for courses that have Honors equivalents and meet Michigan Transfer Agreement (MTA) transfer guidelines. Completion of the MTA requires 30 credits of coursework in the 5 MTA distribution areas.

Welding Production Technology

Associate in Applied Science Degree *Program Code WDPT*

Advisor: Nathan Kramb, **(269) 927-4244**, nkramb@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
General Education Requirements	
English 101, English Composition	3
English 102, English Composition, or English 103, Technical Writing, or Communication 101, Introduction to Public Speaking	3
Humanities/Fine Arts	3
Mathematics 100, Applied Mathematics, or Mathematics 122, Intermediate Algebra, or Mathematics 123, Quantitative Reasoning	4
Physics 110, Technical Physics	4
Social Sciences	3
Major Requirements	
Machine Tool Technology 110, Machine Tool I	3
Machine Tool Technology 120, Machine Tool II	3
Machine Tool Technology 140, Introduction to Numerical Control (NC) Computer Numerical Control (CNC)	2
Manufacturing Technology 111, Manufacturing Process I	3
Manufacturing Technology 122, Introduction to Robotics	2
Mathematics 110, Technical Math, or Mathematics 130, Pre-Calculus Trigonometry, or Mathematics 135, Pre-Calculus Algebra/Trig	3
Trade Related Instruction 134, Metallurgy and Heat Treatment	3
Trade Related Instruction 138, Industrial Safety	1
Welding Production Technology 101, Fabrication	2
Welding Production Technology 102, SMAW (Shielded Metal Arc Welding) I	2
Welding Production Technology 103, GMAW (Gas Metal Arc Welding) I	2
Welding Production Technology 104, Welding Blueprint Reading & Symbols	2
Welding Production Technology 105, Welding Fabrication I	2
Welding Production Technology 200, Welding Fabrication II	2
Welding Production Technology 201, GMAW Welding II	2
Welding Production Technology 202, GTAW (Gas Tungsten Arc Welding) I	2
Welding Production Technology 203, GMAW Welding Production	2
Welding Production Technology 204, SMAW Welding Production	1
Welding Production Technology 205, GTAW Welding Production	1

Some courses may be offered in Open Entry/Open Exit (OE/OE) format.
See course descriptions.

About the Area of Study

The welding production technology program prepares students for employment in the construction, manufacturing, and utilities industries. The program provides instruction in the most common manual welding and cutting processes. Training includes welding with "TIG," "Stick," "MIG" and flux cored wires for most common materials. Cutting is done both manually and mechanized with plasma and oxy-fuel systems. Training is geared to provide the skill base, knowledge, and professional attitude required to eventually become a highly skilled welder.

Associate Degree

When you complete the 60-credit Welding Technology program, you may apply for an Associate in Applied Science degree.

Transfer Resources

If you are planning to transfer to a four-year college or university, you should become familiar with your chosen school's requirements. See your academic advisor for assistance in developing your Student Education Plan (SEP) or visit **lakemichigancollege.edu/transfer**.

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Semester 1

WELD 102, WELD 103, WELD 202, WELD 104, WELD 101, TRIN 138, ENGL 101

Semester 2

MACH 110, MATH 100, MACH 140, WELD 105, WELD 201, MANU 122

Semester 3

PHIL 102, MANU 111, MATH 110, WELD 200, TRIN 134

Semester 4

PHYS 110, ENGL 102, WELD 203, WELD 204, WELD 205, MACH 120, POSC 101

Welding Production Technology

Certificate of Achievement – Welding Production Technology *Program Code WEPT*

Advisor: Nathan Kramb, **(269) 927-4244**, nkramb@lakemichigancollege.edu

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Degree Requirements	**Credit Hours**
Welding Production Technology Certificate Requirements	
Machine Tool 110, Machine Tool I	3
Trade Related Instruction 134, Metallurgy and Heat Treatment	3
Welding Production Technology 101, Fabrication	2
Welding Production Technology 102, SMAW (Shielded Metal Arc Welding) I	2
Welding Production Technology 103, GMAW (Gas Metal Arc Welding) I	2
Welding Production Technology 104, Welding Blueprint Reading & Symbols	2
Welding Production Technology 105, Welding Fabrication I	2
Welding Production Technology 202, GTAW (Gas Tungsten Arc Welding) I	2

Some courses may be offered in Open Entry/Open Exit (OE/OE) format.
See course descriptions.

About the Area of Study

The Welding Production Technology program prepares students for employment in the construction, manufacturing, and utilities industries. The program provides instruction in the most common manual welding and cutting processes. Training includes welding with "TIG," "Stick," "MIG," and flux cored wires for most common materials. Cutting is done both manually and mechanized with plasma and oxy-fuel systems. Training is geared to provide the skill base, knowledge, and professional attitude required to eventually become a highly skilled welder.

Certificate Options

Upon completion of the listed Welding Production Technology certificate requirements, you will be eligible for a Certificate of Achievement. This allows you to enter the job market with basic, entry-level skills. Credit earned can be applied toward your associate degree.

Sample Course Sequence

An advisor will help you make necessary changes to this recommended sequence.

Semester 1

WELD 101, WELD 102, WELD 103, WELD 104, TRIN 134, WELD 202

Semester 2

WELD 105, MACH 110

Wine and Viticulture Technology

Associate in Applied Science Degree *Program Code WINE*

Advisor: Michael Moyer, **(269) 927-8617**, mmoyer@lakemichigancollege.edu

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Degree Requirements **Credit Hours**

General Education Requirements

Chemistry 104, Fundamentals of General, Organic & Biochemistry, or
Chemistry 111, General Chemistry, or
Agriculture 110, Agriculture Chemistry 4

English 101, English Composition 3

English 102, English Composition, or
English 103, Technical Writing, or
Communication 101, Introduction to Public Speaking 3

Humanities/Fine Arts 3

Mathematics 123, Quantitative Reasoning, or
Mathematics 122, Intermediate Algebra 4

Social Sciences 3

Major Requirements

Biology 120, Plant Biology 4

Business 101, Business Accounting I or
Business 207, Small Business Management or
Business 208, Advertising and Sales Promotion 3

Enology 101, Winemaking and Fermentation 3

Enology 105, Wines of the World I 1

Enology 106, Wines of the World II 1

Enology 111, Winery Hospitality Co-Op 2

Enology 190, Enology Co-Op I 2

Enology 191, Enology Co-Op II 2

Enology 210, Wine Analysis and Quality Control 4

Enology 220, Winery Operations Management 3

Enology 290, Enology Co-Op III 4

Viticulture 110, Establishing a Vineyard 3

Viticulture 120, Maintaining a Vineyard 3

Viticulture 220, Vineyard Diseases and Insects 3

Viticulture 291, Viticulture Co-Op 2

Sample Course Sequence

Fall First Year

CHEM 104, MATH 123, ENOL 101, ENOL 190

Spring First Year

ENOL 105, BIOL 120, VITI 110, ENOL 191, ENOL 210

Summer First Year

ENOL 106, VITI 120, VITI 220, VITI 291, ENOL 111

Fall Second Year

ENOL 220, ENOL 290, ENGL 101

Spring Second Year

BUSA 208, ENGL 102 or ENGL 103 or COMM 101, Humanities/Fine Arts, Social Sciences

About the Area of Study

The Michigan wine industry is growing rapidly and is ripe with opportunity. It is currently home to over 140 wineries and 3,000 acres of wine grapes, which produce more than 2.75 million gallons of wine annually. Michigan is the fifth-ranked state in the U.S. in terms of wine grape production. Bolstered by the population centers and consumer markets within and surrounding Michigan, the Michigan wine industry continues to thrive.

The AAS degree in Wine and Viticulture Technology emphasizes hands-on learning, where the college's vineyard blocks, and world class teaching winery serve as classrooms. Areas of study include:

- Vineyard site selection
- Vineyard establishment
- Canopy management
- Pest and disease control
- Harvest operations and fruit processing
- Fermentation management
- Wine chemistry and analysis
- Filtration and fining
- Bottling
- Business of wine
- Marketing & distribution
- Regulatory compliance

Future careers in the wine industry include, but are not limited to:

- Viticulturists and vineyard managers
- Winemakers and enologists
- Tasting room managers and event coordinators
- Equipment sales, barrels sales, and other suppliers
- Equipment manufacturing and metal fabrication
- Custom crush
- Bulk wine sales and brokering
- Warehousing and logistics
- Wine distribution and sales

COURSE DESCRIPTIONS

How to Read Course Descriptions

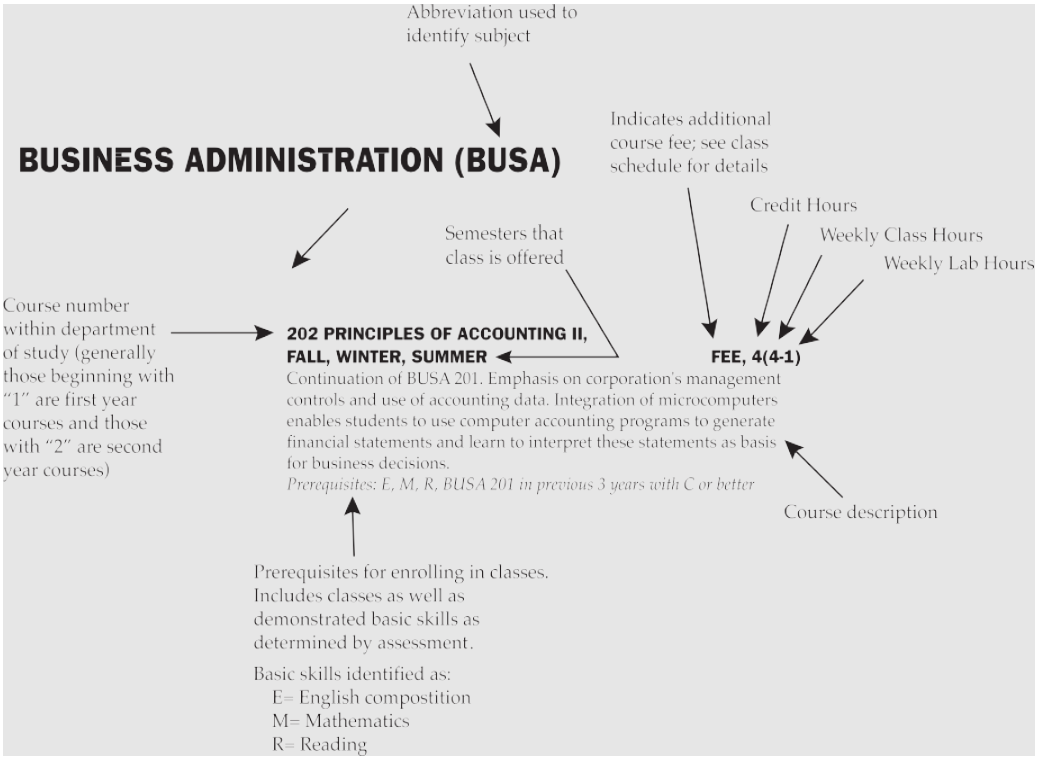

Diagram Description

The diagram above illustrates the parts of a course description. Following the department of study is the abbreviation used to identify the subject, in parentheses. The course number within the department of study precedes the course name; the course numbers beginning with "1" are generally first year courses and those beginning with "2" are second year courses. Following the course name is a list of the semester the class is offered. After the semester list, the word "Fee" indicates additional course fee; see class schedule for details. Credit hours are next, followed in parentheses by weekly class hours and weekly lab hours).

The description of the course is next.

Finally, prerequisites for enrolling in the class follow the course description. Prerequisites include classes as well as demonstrated basic skills as determined by assessment. Basic skills are identified as "E" - English composition, "M" - Mathematics, and "R" - Reading.

Definitions

Concurrent - may take course(s) at the same time

Co-requisite - must take course(s) at the same time

Equivalent - determined by department, chair, or full-time faculty

English, Math, and Reading Prerequisite Requirements

"E" English Minimum Score
ACT English 18
Evidence Based Read/Write 480
Next Generation Accuplacer: WritePlacer 5
SAT Writing/Language 27

"M" Math Minimum Score
ACT Math 18
Accuplacer Arithmetic 58
Next Generation Math 237
SAT Math 23
SAT Math Section 460
MATH 090 with a C or better
MATH 095A with a C or better

"R" Reading Minimum Score
ACT English 18
ACT Reading 17
Evidence Based Read/Write 480
SAT Reading 26
SAT Writing/Language 27
Next Generation Accuplacer: WritePlacer 5

Test*	**E(English/Writing)**	**R (Reading)**	**M (Math)**
ACT	English= 18	Reading= 17	Math= 18
SAT (2016 and after)	Writing/Language Test Score= 27	Reading Test Score= 26	Math Test Score= 23 ***Or*** Math Section= 460
Next Generation Accuplacer	WritePlacer ≥ 5		Next Generation Quantitative/Algebra/ Statistics=237

ALL PREREQUISITE COURSES REQUIRE A GRADE OF "C" OR BETTER UNLESS OTHERWISE NOTED.

* A high school GPA of 2.5 after freshman year meets both **E** and **R**.

AGRICULTURE (AGRI)

110 AGRICULTURAL CHEMISTRY FALL FEE 4 (3-3)
This is a fundamental course in chemistry. Topics include an overview of basic inorganic, organic and biochemistry with applications to agriculture.
Prerequisites: E, R and MATH 095 or pass algebra proficiency test

AMERICAN SIGN LANGUAGE (ASL)

101R AMERICAN SIGN LANGUAGE I 4 (4-0)
Introduction of principles, methods, and techniques for communicating with deaf people who sign. Development of expressive and receptive sign skills, manual alphabet, numbers, and sign vocabulary. Overview of syntax, grammar, and culture related to American Sign Language (A.S.L.). This course is delivered through a partnership with Rio Salado College.

102R AMERICAN SIGN LANGUAGE II 4 (4-0)
Continued development of knowledge and language skills for communicating with deaf people who sign. Includes numbers, fingerspelling, and culture. Emphasis on enhancement of receptive sign skills and continued development of expressive sign skills. Application of rudimentary, syntactical, and grammatical structure stressed with continued development of sign vocabulary. Completion of prerequisites within the last three years is required with a grade of "C" or better, or permission of Department or Division. This course is delivered through a partnership with Rio Salado College.
Prerequisite: ASL 101R

201R AMERICAN SIGN LANGUAGE III 4 (4-0)
Linguistics of American Sign Language (A.S.L.) including non-manual behaviors and signing English idioms with conceptual accuracy. Emphasis on practical application of A.S.L. skills, expanded vocabulary, and cross cultural communication. Completion of prerequisites within the last three years is required with a grade of C or better or permission of Department or Division. This course is delivered through a partnership with Rio Salado College.
Prerequisite: ASL 102R

202R AMERICAN SIGN LANGUAGE IV 4 (4-0)
Advanced American Sign Language skills including continued vocabulary. Emphasis on conversational techniques in a cross cultural framework. Continued work on conceptual accurate signing of English idioms and words with multiple meanings. Completion of prerequisites within the last three years is required or permission of Department or Division. This course is delivered through a partnership with Rio Salado College.
Prerequisite: ASL 201R

ART (ART)

101 ART APPRECIATION I FALL 3 (3-0)
Introduction to appreciation of visual arts. Study of artistic styles that explains ideas about visual art and architecture through discussion and field trips. Open to all students.

102 ART APPRECIATION II SPRING 3 (3-0)
Explores visual arts through studio projects, slides, lectures and discussion. Work in basic elements of design and form organization through various two-dimensional and three-dimensional media. Open to all students.

109 BASIC DESIGN (2-D) FALL 3 (0-6)
A thorough investigation of the elements of design (line, texture, value, color, etc.) and principles of form organization to establish the visual language of the two-dimensional arts. Open to all students. Required for Art majors.

110 BASIC DESIGN (3-D) SPRING 3 (0-6)
Focus on visual fundamentals of three-dimensional design and study of form as means of expression. Open to all students. Required for Art majors.

111 ART EDUCATION SPRING 3 (2-2)
Explores a wide range of visual experiences. Emphasis on understanding child growth and development against a background of various painted, drawn and sculptured images. For students interested in teaching.
Prerequisites: E, R

115 PAINTING I SPRING 3 (0-6)
Fundamentals of form and their relationships in painting. Range of subject matter includes portrait and figure studies. Open to all students.

116 PAINTING II SPRING 3 (0-6)
Further study in structural concerns of painting. Emphasis on discipline and integration of personal expression through principles of form, organization, movement, repetition, proportion, balance, etc. Open to all students.
Prerequisite: ART 115

120 CERAMICS I FALL, SPRING FEE 3 (0-6)
Focus on materials, tools and special equipment used in working with clay. Investigation of firing procedures, preparation of clay and glazes and fundamentals of throwing pottery on wheel. Open to all students.

121 CERAMICS II FALL, SPRING FEE 3 (0-6)
Advanced course in study of clay. Hand-building and/or wheel-throwing problems according to individual interests. Experiments in glazing. Open to all students.
Prerequisite: ART 120

122 DRAWING I FALL, SPRING 3 (0-6)
Explores the fundamentals of drawing. Investigation of the elements of design and other ideas underlining a successful drawing. Includes drawing portraits. Open to all students. Required for Art majors.

123 DRAWING II FALL, SPRING 3 (0-6)
Continued study in drawing. Emphasis on development of personal expression through use of line and value. Open to all students. Required for Art major.
Prerequisite: ART 122

200 HISTORY OF ART I FALL 3 (3-0)
Lecture course that discusses a historical survey of architecture, sculpture and painting from Prehistoric Period to Gothic Period. Includes study of Egyptian, Greek, Roman and Romanesque art. Open to all students.
Prerequisites: E, R

201 HISTORY OF ART II FALL 3 (3-0)
Lecture course that discusses a historical survey of architecture, sculpture and painting from Renaissance to Twentieth Century. Focus on important aspects of Baroque, Neo-classical and Romantic art culminating in Modern Movement. Open to all students.
Prerequisites: E, R

202 TWENTIETH-CENTURY ART SPRING 3 (3-0)
Lecture course that addresses contemporary trends in painting and sculpting. Lectures supplemented with slides and videos engage students with major movements and developments in Europe and United States. Includes study of Impressionism and Post-Impressionism as foundations for understanding twentieth-century ideas. Open to all students.
Prerequisites: E, R

203 2OTH CENTURY ART HISTORY: 1900-1945
SPRING 3 (3-0)
Art from 1900 to 1945 will be discussed in terms of its origins, trends and the contributions of culture and technology. Major developments to be covered include Fauvism, Cubism, Expressionism, Dadaism, Surrealism and Abstract Expressionism. Photography and Architecture will be discussed, too. Open to all students.

204 20TH CENTURY ART HISTORY 1945-PRESENT
SPRING 3 (3-0)
Major developments in Art from 1945 to Present, including Abstract Expressionist, Pop Art, Minimalism, Conceptual Art, Photo Realism, Neo-Expressionism and the Post-Modern era are discussed alongside the associated disciplines of Photography, Architecture and Graphic Design. Open to all students.

212 SCULPTURE I FALL FEE 3 (0-6)
Basic sculpture forming techniques; investigation of form relationships through use of clay and other media. Emphasis on developing skills in manipulation of materials. Open to all students.

213 SCULPTURE II FALL FEE 3 (0-6)
Advanced exploration of ideas and materials used in sculpture. Choice of wood, metal, or plaster for study. Emphasis on developing skills in articulating form. Open to all students.
Prerequisite: ART 212

251 STUDIO PROBLEMS: PAINTING SPRING FEE 3 (0-6)
Advanced study in acrylic and/or oil painting, emphasis on development of technical skills according to individual student interest. *Prerequisites: ART 115, ART 116*

252 STUDIO PROBLEMS: CERAMICS
FALL, SPRING FEE 3 (0-6)
Advanced study in ceramics with more individualized directions. Hand-building and wheel-thrown objects as well as experiments with glaze compounds. *Prerequisites: ART 120, ART 121*

253 STUDIO PROBLEMS: SCULPTURE
FALL FEE 3 (0-6)
Advanced study in sculpture, with emphasis on improving individual directions in clay, plaster, metal, or wood.
Prerequisites: ART 212, ART 213

254 STUDIO PROBLEMS: WATERCOLOR
SPRING 2 (0-4)
Advanced study in watercolor to explore color and form according to individual interests.
Prerequisites: ART 105, ART 106

260 STUDIO PROBLEMS: DRAWING
FALL, SPRING 3 (0-6)
Advanced course in drawing. Exploration of different directions of expression through personal experimentation.
Prerequisites: ART 122, ART 123

BIOLOGY (BIOL)

101 BIOLOGICAL SCIENCE
FALL, SPRING FEE 4 (3-2)
Introduction to basic principles and concepts of biology as well as related laboratory experiences. Areas of emphasis include ecology, evolution, unity and diversity of life, molecular biology, genetics, cell biology, biotechnology and behavior. NOTE: Students with two (2) or more years of high school biology are recommended to take BIOL 111, BIOL 112, or BIOL 204.
Prerequisites: E, M, R

107 BIOLOGY FOR YOUR LIFE FEE 4 (3-2)
Introduction to basic principles and concepts of biology to support sound personal and social decisions. Areas of emphasis include evolution, molecular biology, genetics, cell biology, biotechnology and medicine.
Note: Students with two (2) or more years of high school biology are recommended to take BIOL 111, BIOL 112, or BIOL 204.
Prerequisites: E, M, R

109 ENVIRONMENTAL BIOLOGY FALL FEE 4 (3-2)
The study of basic concepts and applications of ecology. Emphasis on how basic ecological concepts relate to current environmental problems. Laboratory work includes field and laboratory studies and field trips to areas of ecological and environmental interest. *Prerequisites: E, M, R*

110 HUMAN ANATOMY & PHYSIOLOGY
FALL, SPRING FEE 4 (3-2)
A lecture and laboratory course designed for students interested in a health science program of study. Structure-function relationships of the eleven organ systems of the human body are emphasized at the cell, tissue, organ and system levels. NOTE: Students with one year of high school biology (with a C or better within the last 5 years) and one year of high school anatomy and physiology (with a C or better with the last 5 years) may be placed in BIOL 205 with Natural Science Chair approval.
Prerequisites: E, M, R

111 PRINCIPLES OF BIOLOGY I FEE 4 (3-3)
Emphasizes molecular biology, cell chemistry, cell structure and function, physiology, growth and development and genetics. For Biology majors and minors, or students planning to transfer to pre-professional programs requiring Biology. Includes a three-hour laboratory experience per week. Recommend 2 years of high school biology, or one year of high school biology and one year of chemistry, all with a grade of C or better.
Prerequisites: E, M, R, and BIOL 101 or HONR 101 or BIOL 107 or BIOL 110 or BIOL 120

112 PRINCIPLES OF BIOLOGY II
SPRING FEE 4 (3-3)
Emphasizes diversity of organisms, animal and plant structure, animal behavior, and ecology. For Biology majors and minors, or those students planning to transfer to pre-professional programs requiring Biology. Includes a three-hour laboratory experience per week. Two years of high school biology, or one year of high school biology and one year of high school chemistry all with a grade of C or better will serve as a prerequisite.
Prerequisites: E, M, R, and BIOL 107 or BIOL 109 or BIOL 120 or BIOL 111

120 PLANT BIOLOGY SPRING FEE 4 (3-2)
A basic course in plant science designed to provide a practical understanding of plant morphology along with the processes involved in plant growth and development.
Prerequisites: E, M, R

170 LIFE SCIENCE FOR ELEMENTARY TEACHERS I
FALL FEE 3 (2-3)
The first of a two course laboratory based biology sequence designed for prospective elementary school science teachers. This course is intended to acquaint students with the important concepts of biology and why it is important for children to learn biology and how to help them become independent and creative investigators of nature. This course will explore the practice of science rather than a body of revealed knowledge to be memorized. This course is specifically designed to transfer to Western Michigan University's Elementary Education program and may not transfer to other institutions.
Prerequisites: E, M, R and computer literacy

205 HUMAN ANATOMY
FALL, SPRING, SUMMER FEE 4 (3-2)
A lecture and laboratory course in which the human body is studied at the histological and gross levels of structure. Laboratory work includes organ dissection and the application of cadaver software and anatomical models illustrating the musculoskeletal, neuroendocrine, cardiopulmonary, and urogenital systems. Out of class testing is required. Two years of high school biology with a C or better within the last five years may substitute for the biology prerequisite with instructor permission.
Prerequisites: E, R, BIOL 101 or BIOL 107 or BIOL 110 or BIOL 111 or BIOL 112

206 PRINCIPLES OF HUMAN PHYSIOLOGY
FALL, SPRING, SUMMER FEE 4 (3-3)
A lecture and laboratory course covering the basic principles and concepts of human physiology. Online and classroom lectures are used to present core content. Computer simulations and hands-on laboratories are integrated with discussions and provide opportunity to apply basic physiological principles. Case studies are designed to help students make connections between

knowledge of physiology and real-world situations. Testing outside scheduled class time required. Two years of high school math and 1 year of high school chemistry within the last 5 years may substitute for the chemistry prerequisite.
Prerequisites: E, M, R, BIOL 205 and CHEM 101 or CHEM 104 or PHSC 101 or CHEM 111 or CHEM 203 with a grade of C or better

210 MICROBIOLOGY FEE 4 (3-3)
This is a basic microbiology course that introduces students to the principles of microbiology with an additional emphasis on health career applications. Instructor and student-led discussion sessions present the principles of microbiological morphology, physiology, reproduction and pathology, with special attention given to human disease. Laboratory exercises are integrated with discussion sessions and develop standard microbiology lab skills in the identification, culture, control and assay of microorganisms.
Prerequisites: E, M, R, and BIOL 101 or HONR 101 or BIOL 107 or BIOL 111 or BIOL 120, and CHEM 101 or CHEM 104 or CHEM 111

212 GENETICS FEE 4 (3-3)
Course includes topics in Mendelian genetics, DNA and chromosomes; gene transmission; linkage and recombination; gene mapping; genes and enzymes; molecular structure of DNA and RNA; the genetic code; mutations and variations; recombinant DNA; genomics and gene technology; gene regulation; population and evolutionary genetics. Lab experiences include breeding experiments with C.elegans, enzyme digest and mapping plasmids, molecular techniques, RNA interference in C. elegans, microarray analysis, transformation of E. coli, and bioinformatics.
Prerequisites: E, M, R and BIOL 101 or HONR 101 or BIOL 107 or BIOL 111 or BIOL 120

225 INTEGRATED LIFE SCIENCE FOR K-6 GRADE TEACHERS FEE 4 (3-2)
This course promotes mastery of life and Earth science concepts necessary to teach K-8 science. Through inquiry and group discussions students develop reasoning and thinking skills critical to science while also developing mastery of science content.
Prerequisite(s): E, M, R, pre- or co-requisite: MATH 226

270 LIFE SCIENCE FOR ELEMENTARY TEACHER II
SPRING FEE 3 (2-3)
This is a laboratory-based course specifically designed for prospective elementary and middle school teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key biological concepts and their interrelationships; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternative conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science.
Prerequisites: E, M, R

210 MICROBIOLOGY FALL, SPRING 4 (3-3)
This is a basic microbiology course that introduces students to the principles of microbiology with an additional emphasis on health career applications. Instructor and student-led discussion sessions present the principles of microbiological morphology, physiology, reproduction and pathology, with special attention given to human disease. Laboratory exercises are integrated with discussion sessions and develop standard microbiology lab skills in the identification, culture, control and assay of microorganisms.
Prerequisites: E, M, R, BIOL 101 or BIOL 110 OR BIOL 111, CHEM 101 or CHEM 104 or CHEM 111

BUSINESS ADMINISTRATION (BUSA)

100 BUSINESS MATHEMATICS
FALL, EVEN YEARS 3 (3-0)
Fundamentals of addition, subtraction, division and multiplication with whole numbers, common fractions and percentages, and their application in business transactions.
Prerequisites: MATH 095 with a C or better or associated placement test score

101 BUSINESS ACCOUNTING I
FALL 3 (3-0)
Accounting course for office workers, small-business accountants and owners, and those interested in the double-entry accounting system. Work includes development of basic principles underlying accounting procedures and discussion of

techniques and records used in analyzing, classifying, recording, summarizing and reporting business transactions. Computers and other materials as appropriate will be utilized in the course.
Prerequisites: M, R

103 INTRODUCTION TO BUSINESS 3 (3-0)
Survey, orientation and background course acquaints students with role of business enterprise. Deals with various areas of business and is designed to help students decide their field of specialization.
Prerequisite: R

104 PROFESSIONAL SALES 3 (3-0)
An introduction to professional sales and its integration into the marketing mix with an emphasis on the personal selling process. Topics include professional skills needed to be successful in personal sales, especially credibility, time management, organizing sales operations, sales planning, customer and competitive research, negotiations, listening, and communication. Students will also be introduced to sales management topics in order to become a valuable member of a professional sales team, exploring topics ranging from territory management, and sales organization structure to team sales. Emphasis on methodical rigor and practical application.
Prerequisites: E, M, R

105 PRINCIPLES OF RETAILING 3 (3-0)
This course explores the practices of successful retail management through the lens of contemporary retail developments -- multi-channel offerings, customer experience, delivery methods, technology enhancements, brand collaborations, community involvement, and consumer behavior. Students will examine key retail decision variables, including location, merchandise management, pricing, communication and promotion, design, customer service, and store management. Case studies, field trips, and guest speakers allow students to compare a variety of retail formats and discuss challenges and opportunities faced by retailers today.
Prerequisites: BUSA 103

108 SUPERVISORY SKILLS 3 (3-0)
Supervisory skills prepares students to perform effectively as front-line supervisors by developing fundamental skills with an emphasis on leading teams, motivating individuals, and communicating with expertise. Topics include professionalism, diversity, bias, decision making, delegation, goal-setting, supervisory planning, performance feedback, and modern workplace challenges. Students will examine realistic case studies, actively participate in discussions, and interact with business professionals.
Prerequisites: E, R

115 PRINCIPLES OF CUSTOMER SERVICE 3 (3-0)
Principles of Customer Service explores the essential role customer service plays in a modern organization. Students will first understand how evolving customer expectations, cultural diversity, and emerging use of multiple technologies impact customer development and retention. Next, students will develop critical skills of communication, listening, questioning, problem-solving and evaluating to build long-term customer relationships.
Prerequisites: BUSA 103 OR PHAR 201

116 FUNDAMENTALS OF QUALITY CUSTOMER SERVICE 1 (1-0)
Defines QCS, discusses importance, describes necessary infrastructure and helps students recognize moments of truth, to gain understanding of customer-focused company.
Prerequisite: BUSA 103

117 CUSTOMER COMMUNICATION 1 (1-0)
Effective communication skills are the basis of customer service programs. Students learn active listening skills, assertive verbal communication and the impact of non-verbal language in this communication process as well as writing policies and procedures that support quality customer services.
Prerequisite: BUSA 103

118 SPECIAL CUSTOMER SERVICE SKILLS 1 (1-0)
Elderly customers and customers with physical disabilities require sensitivity and special attention. Students learn how to overcome common feelings of awkwardness and the do's and don’ts in providing customer services.
Prerequisite: BUSA 103

130 PROFESSIONALISM IN THE WORKPLACE 1 (1-0)
Professionalism in the Workplace prepares students to enter the workplace with the attitudes and soft skills required in a professional setting. Designed as a capstone experience for students enrolled in career programs, or for students preparing to transfer, this straightforward and motivating course teaches the missing basics of professionalism including: integrity, work ethic, time management, taking initiative, engagement, resourcefulness, self-awareness and oral and nonverbal communication. Students actively interact with practical tools and techniques for identifying blind spots, setting personal goals and mastering core competencies that relate to career success. Guest speakers emphasize how careers are rarely limited by a shortfall of technical expertise, but by deficiencies in self-management, communication and social behaviors.

150 JOB SEARCH SEMINAR 1 (1-0)
Introduction to techniques of locating and obtaining employment. Includes practice letter- and resume-writing skills and discussion of interviewing skills, utilizing library and outside resources.
Prerequisites: E, R

151 MARKETING CAREER DEVELOPMENT 1 (1-0)
Enhances the value of education in marketing, merchandising and management, which contributes to occupational competence. Promoting appreciation for responsibilities of citizenship in a free, competitive enterprise system. For students preparing for careers in management, sales, advertising, finance, retailing, wholesaling, insurance, real estate, fashion merchandising and other marketing-oriented occupations. Can be repeated up to four semester hours.

152 DIGITAL MARKETING 3 (3-0)
Learn actionable tips and techniques that can be transferred from the classroom to small or large businesses in this hands-on digital marketing course. Students will gain an understanding of how to: 1) develop a DM plan aligned with overall business strategy; 2) select the best DM tactics to drive business results; 3) measure a DM campaign to assess effectiveness and set priorities. Topics include targeted content, social media, digital ads, search engine optimization, websites, mobile marketing, and analytics.
Prerequisite(s): E, R

200 INTRODUCTION TO ECONOMICS SPRING 3 (3-0)
Introduction to Economics is a survey course that covers foundational principles of economics and their application in both macro and micro economic theory. The course focuses on gaining an understanding of how economic principles can be applied as a method of reasoning to analyze issues and problems faced by individuals, firms and society in the allocation of scarce resources. Microeconomic topics include the interaction of people and firms in the marketplace, including market structures and how individuals and firms make decisions. Macroeconomic topics include trade, inflation, unemployment, business cycles, growth, government spending, monetary and fiscal policy and taxation.
Prerequisites: E, M, R

201 PRINCIPLES OF ACCOUNTING I
FALL, SPRING, SUMMER 4 (4-0)
Basic theoretical framework of accounting is presented to enable students to understand accounting principles and concepts as developed for sole proprietorship and partnership. Integration of microcomputers enables students to experience computers in accounting.
Prerequisites: E, M, R

202 PRINCIPLES OF ACCOUNTING II
FALL, SPRING, SUMMER 4 (4-0)
Continuation of BUSA 201. Emphasis on corporations' management controls and use of accounting data. Integration of microcomputers enables students to use computer accounting programs to generate financial statements and learn to interpret these statements as basis for business decisions.
Prerequisites: E, M, R, BUSA 201 in previous 3 years with C or better

203 PRINCIPLES OF ECONOMICS (MACRO)
FALL, SPRING, SUMMER 3 (3-0)

Emphasizes general principles of macroeconomics. Topics include supply and demand, inflation, unemployment, economic growth, business cycles, money, taxes, government spending, gross national product, price indexes, technology, wages, fiscal and monetary policy, interest rates, deficit and national debt, and international trade.
Prerequisites: E, M, R

204 PRINCIPLES OF ECONOMICS (MICRO)
FALL, SPRING, SUMMER 3 (3-0)
Emphasizes general principles of microeconomics. Topics include supply and demand, consumer behavior, cost theory, market structures, pricing factors of production, unions, poverty, government regulation and international trade.
Prerequisites: E, R, MATH 122 or MATH 128 or MATH 129 or MATH 130 or MATH 135 or MATH 151 or MATH 201 or MATH 202 or MATH 252 with a C or better

205 BUSINESS LAW I 3 (3-0)
Promotes understanding of laws covering business transactions encountered in everyday life and small businesses. Areas covered include torts, formation and performance of contracts, sales, and negotiable instruments.
Prerequisites: E, R

206 BUSINESS LAW II 3 (3-0)
Basic legal matters pertaining to intellectual property, real property and leases, and partnerships and corporations. Completion of prerequisites within the last three years is required or by permission of Department or Division.
Prerequisites: E, R, BUSA 205

207 SMALL BUSINESS MANAGEMENT 3 (3-0)
Designed for current or potential small business owners or managers, small business management focuses on activities critical to a thriving small business. The course contrasts managerial activities of large firms to those of small business with limited resources. Emphasis is placed on planning, realistic business forecasting, capitalization, cash-flow management, insurance, and risk assessment. Students will also address concepts critical to operations management, employee selection, business formation, and legal fundamentals.
Prerequisite: E, R

207A ENTREPRENEURSHIP A1 (1-0)
This course provides an examination of an individual's opportunity to achieve their entrepreneurial goals through understanding entrepreneurship and its relation to small business in the economy. Examination of business opportunities as they relate to small business success factors and their place within the local and global markets will be evaluated. The process of understanding and developing a business plan will be analyzed in respect to the goal of obtaining financial assistance. Types of business ownership will be studied as well as their place in the economy as determined by market analysis.
Prerequisites: E, M, R

207B ENTREPRENEURSHIP B1 (1-0)
This course continues evaluating the entrepreneurial opportunities discussed in track A by exploring family business, franchising and business startup or purchase. Further development of the business plan including financial data and how it is delivered will be discussed. Continued examination of selection of organizational format and the management team will be included. The marketing plan will be refined so that the financial issues will be understood within the parameters of selection of funding sources and facilities location. Customer loyalty and product strategies such as pricing, promotion and distribution will be examined.
Prerequisites: E, M, R

207C ENTREPRENEURSHIP C1 (1-0)
This course continues evaluating the entrepreneurial opportunities discussed in tracks A & B by exploring the ethical issues faced by new business owners and their implications concerning success. Growth and its management will be examined regarding the aspects of human resources, information technology, quality and operations. This class will provide an analysis of assessing performance through financial evaluation, risk and asset management. Opportunities for the future including the sale of the business entity will be discussed. *Prerequisites: E, M, R*

208 ADVERTISING AND SALES PROMOTION 3 (3-0)

This course provides an overview of real-world advertising and promotion practices within the context of an integrated marketing communications (IMC) approach. IMC includes advertising, sales promotion, digital and social media, experiential marketing, and public relations, as well as the functions of marketing, research, advertising and promotion agencies, the creative process, and media placement. This is an experiential course with an emphasis on customized interactive sessions, including video and live presentations by business professionals and relevant reading and case study analysis. Students will practice real-world skills and expand their understanding of their own roles as consumers.
Prerequisites: E, M, R

209 PRINCIPLES OF MARKETING 3 (3-0)
Analysis of the marketing task, with various essential functions performed in marketing and numerous varied types of institutions performing the role of marketing.
Prerequisites: BUSA 103

211 PRINCIPLES OF MANAGEMENT 3 (3-0)
Principles of management and organization in modern business and industry; deals with standards, methods and problems in management.
Prerequisites: E, M, R

212 ACCOUNTING APPLICATIONS ON COMPUTERS
FALL 3 (3-0)
Computer applications for accounting including general ledger, accounts receivable, accounts payable, depreciation and payroll, and spreadsheet accounting.
Prerequisites: E, BUSA 201 or BUSA 101, CIS 108 (CIS 108 may be taken concurrently with this class)

213 COST ACCOUNTING I SPRING 3 (3-0)
Fundamentals of cost accounting procedures including job cost principles and practices, with a basic course in manufacturing accounting and problem solving.
Prerequisites: E, M, R, BUSA 201, BUSA 202 in previous 3 years with C or better

214 COST ACCOUNTING II SUMMER 3 (3-0)
Continuation of BUSA 213. Major topics include budgeting procedures, flexible budget, standard costs, gross profit analysis, direct costing, break-even analysis, differential and comparative cost, capital budgeting and control, profit performance measurements, and linear programming.
Prerequisites: E, M, R, BUSA 201, BUSA 202, BUSA 213 in previous 3 years with C or better

216 BUSINESS STATISTICS 3 (3-0)
Statistical decision-making is surveyed. The topics covered include: sampling techniques, tabular and graphical data, measures of central tendency and variability, simple probability, probability distributions (binomial, normal, t, chi-square and F), Central Limit Theorem, correlation and regression, estimation, hypothesis testing and analysis of variance.
Prerequisites: E, R, MATH 122 or MATH 123 or MATH 128 or MATH 129 or equivalent

218 INTERMEDIATE ACCOUNTING I FALL 3 (3-0)
Definition and valuation of current assets and liabilities, income measurements, balance sheet, cash flow, inventory valuation methods, plant assets, intangible assets and present-value methods.
Prerequisites: E, M, R, BUSA 201, BUSA 202 in previous 3 years with C or better

219 INTERMEDIATE ACCOUNTING II
SPRING 3 (3-0)
Stockholder's equity, treasury stock, long-term liabilities, income tax allocation, investments, statement of cash flow, analysis of financial statements, price level changes, pension fund provisions and leases.
Prerequisites: E, M, R, BUSA 201, BUSA 202, BUSA 218 in previous 3 years with C or better

220 ORGANIZATIONAL BEHAVIOR
FALL, SPRING 3 (3-0)
This course provides an examination of individual, interpersonal, group and organization processes faced by employees. Current theory, research and practice regarding variables that influence human behavior are discussed. Emphasis is placed on learning

relevant to goal setting, managing change, team processes, reward structures, human productivity and career management in organization settings. *Prerequisites: E, M, R*

221 INTRODUCTION TO GLOBAL BUSINESS 3 (3-0)
An introductory course which explores global business in order to provide students a foundation for operating in an international environment or for future international business courses. Topics include the implications of crossing cultures; differing political, legal, financial, and economic structures and forces; trade theory; ethics; and considerations for marketing; operations; and human resource management.
Prerequisites: E, M, R, BUSA 103

222 DATA REPORTING AND ANALYSIS 3 (3-0)
This course is designed to give students comprehensive skills and in-depth knowledge to plan, design, and deliver business reports that will help management analyze and interpret complex business information. Business report solutions that range from personal productivity software to full-scale reporting systems will be covered.
Prerequisites: E, M, R, CIS 108

223 PAYROLL ACCOUNTING 3 (3-0)
This course provides an understanding of the laws that affect a company's payroll structure and practical application skills in maintaining payroll records. Topics include payroll tax laws, payroll tax forms, payroll and personnel records, computing wages and salaries, taxes affecting employees and employers, and analyzing and journalizing payroll transactions.
Prerequisites: BUSA 201 (may be taken concurrently)

224 INCOME TAX ACCOUNTING SPRING 3 (3-0)
Federal and state income tax laws as applied to individual, partnership and corporation returns.
Prerequisites: E, M, R, BUSA 201 in previous 3 years with C or better

225 PERSONNEL MANAGEMENT ON DEMAND 3 (3-0)
The organizational and administrative role of personnel in organizations and internal and external factors that influenced the evolution of personnel.
Prerequisites: E, M, R

226 BOOKKEEPING SKILLS 4 (4-0)
This is a capstone course for the Bookkeeping Certificate. It will prepare students for the Certified Bookkeeper Exam, which leads to a national certification in bookkeeping through the American Institute of Professional Bookkeepers (AIPB). This certification is a practical way to demonstrate a high level of skill and experience. Taking the Certified Bookkeeper national exam is optional and is not a requirement to pass this course. This course emphasizes adjusting entries, correction of errors, depreciation, payroll, and inventory.
Prerequisites: BUSA 201

261 DISTRIBUTIVE EDUCATION CO-OP I FEE 3 (1-15)
Classroom and supervised on-the-job training in approved jobs obtained in retailing, wholesaling, marketing or service outlets. Includes classroom lectures, research and work experience in related business organization. Requires minimum 15 hours of work per week. Application must be placed with coordinator to participate in class.
Prerequisites: E, M, R, advanced standing for marketing and retailing majors, 2.00 GPA or higher in all previous college work, approval of Co-op Coordinator and signature of marketing program advisor

262 DISTRIBUTIVE EDUCATION CO-OP II FEE 3 (1-15)
For those students who successfully complete BUSA 261. Requires minimum 15 hours of work per week. Application must be placed with coordinator to participate in class.
Prerequisites: E, M, R, BUSA 261 or equivalent

263 MANAGEMENT TRAINEE CO-OP I FEE 3 (1-15)
Classroom and cooperative training includes supervised, on-the-job managerial experience in business and industry. Requires minimum 15 hours of work per week. Application must be placed with coordinator to participate in class.
Prerequisites: E, M, R, advanced standing in management trainee program, 2.00 GPA or higher in all previous college work, approval of Co-op Coordinator and signature of Management Program Advisor

264 MANAGEMENT TRAINEE CO-OP II
SPRING FEE 3 (1-15)
For students who successfully complete BUSA 263. Requires minimum 15 hours of work per week. Application must be placed with coordinator to participate in class.
Prerequisites: E, M, R, BUSA 263 or equivalent, approval of Co-op Coordinator and signature of management program advisor

265 ACCOUNTING CO-OP I
FALL, SPRING FEE 3 (1-15)
Students work in approved accounting position to gain on-the-job training. Requires minimum 15 hours of work per week. Each student meets one hour per week with advisor in related class.
Prerequisites: E, M, R, completion of all first year courses in Accounting program with minimum GPA of 2.00, approval of Co-op Coordinator and signatures of Accounting Program Advisor and on other full-time Business Administration instructor

266 ACCOUNTING CO-OP II
SPRING FEE 3 (1-15)
For students who successfully complete BUSA 265, requires minimum 15 hours of work per week. Application must be placed with coordinator to participate in class.
Prerequisites: E, M, R, BUSA 265, approval of Co-op Coordinator and signatures of Accounting program coordinator and one other full-time Business Administration instructor

CREDIT FOR EXPERIENTIAL LEARNING (CAEL)

150 CREDIT FOR EXPERIENTIAL LEARNING PORTFOLIO
FALL, SPRING, SUMMER FEE 1 (1-0)
This course is designed to provide an expedited introduction and overview to Prior Learning Assessment (PLA) portfolio development. This course will utilize readings, structured activities and procedural documentation to help students demonstrate comprehension and appreciation of life/work experiences and how those relate to acquire learning. Upon completion of the course, students will be able to submit a final portfolio for college credit evaluation based on the work completed throughout the course. A grade of C or better in this course is necessary to submit portfolio for additional course credit. This course is offered in collaboration with the Credit for Adult and Experiential Learning.
Prerequisites: ENGL 101, Approval from lead instructor or Department Chair

CHEMISTRY (CHEM)

101 INTRODUCTORY CHEMISTRY I
FALL, SPRING, SUMMER 4 (3-3)
For students with little or no background in chemistry. Concepts of energy and matter; properties of gases, liquids and solids; structure of atoms; periodic table; chemical bonds; formulas and equations; stoichiometry; and solutions. Laboratory includes introduction to qualitative analysis. Credits apply toward Associate Degree. May transfer for science credit but usually not as General Chemistry (depends on specific school and program).
Prerequisites: E, M, R (or one year of high school algebra, with C or better)

104 FUNDAMENTALS OF GENERAL, ORGANIC AND BIOCHEMISTRY
FALL, SPRING, SUMMER 4 (3-3)
Intense introductory course that integrates topics from general, organic and biochemistry and is geared toward Allied Health students. Measurements, conversions, atomic structure, bonding, states of matter, chemical reactions, stoichiometry, gas laws, acid/base chemistry, nuclear chemistry, functional groups, organic/biochem structures, isomers, nomenclature, enzymatic activity and basic biochemical/metabolism reactions are all topics covered. Includes integrated laboratory experiences. Out-of-class assessment is part of the course.
Prerequisites: E, R, MATH 095/125 or pass algebra proficiency test

111 GENERAL CHEMISTRY I FALL FEE 4 (3-3)

The first course in a two-term sequence of General Chemistry. Fundamental principles of chemistry are explored, including elements and compounds, naming, chemical bonding, reaction types, stoichiometry, thermochemistry, solution chemistry, gas laws, acid-base chemistry and molecular geometry. Integrated laboratory exercises reinforce concepts. One (1) year high school chemistry, can serve as the chemistry prerequisite with permission of the instructor.
Prerequisites: E, R, MATH 122 OR (MATH 200 and MATH 210 and MATH 265), CHEM 101 with a grade of C or better or CHEM 104 all with a grade of C or better

112 GENERAL CHEMISTRY II FALL FEE 4 (3-3)
The second course in a two term sequence of General Chemistry. Topics include chemical kinetics, equilibrium chemistry, acid-base, pH, buffers, titrations, thermodynamics, redox and electrochemistry, nuclear chemistry, basic organic structure and biological molecules. Integrated laboratory exercises reinforce concepts.
Prerequisites: E, R, MATH 122, CHEM 111 with a grade of C or better

203 ORGANIC CHEMISTRY I FALL FEE 4 (3-3)
Chemistry of compounds of carbon. Meets requirements for majors in chemistry, biological science, chemical engineering and health science. Includes nomenclature, structure, isomerism, synthesis, functional groups and mechanisms. Problems and laboratory work for each unit.
Prerequisites: E, M, R, CHEM 112 or CHEM 102 with consent of instructor

204 ORGANIC CHEMISTRY II SPRING FEE 4 (3-3)
Continuation of CHEM 203. Includes additional functional groups and mechanisms plus introduction to biochemistry. Laboratory includes qualitative analysis and use of infrared spectrometer, gas chromatograph, polarimeter, and refractometer.
Prerequisites: E, M, R, CHEM 203

CHILD DEVELOPMENT (CHDV)

110 INTRODUCTION TO CHILD DEVELOPMENT THEORIES AND PRACTICES
FALL, SPRING, SUMMER 3 (3-0)
This course provides an overview of early childhood programming for aspiring child care center and preschool lead teachers, assistant teachers, directors and day care providers. Focusing on the development of children from infancy through age eight, this course provides historical and current theories, types of early childhood programming, family communication and collaboration, and developmentally appropriate environmental experiences. An overview of Michigan's Early Childhood Standards of Quality for Infant/Toddler and Preschool and the licensing and accreditation of child care centers, day care and preschool settings will also be reviewed. Students will spend a minimum of 10 hours of observation in diverse early childhood settings. This course is a required introduction for students interested in the Child Development program. Note: This course is not a part of the Teacher Education programming sequence.
Prerequisites: E, R

111 EARLY CHILDHOOD LEARNING ENVIRONMENTS
FALL, SPRING, SUMMER 2 (2-0)
In this course, students will learn how to create high quality, early childhood environments and assess educational settings in child care, preschool, and before and after school programs offered in elementary schools. The importance of creating caring and safe spaces for learning through play will be emphasized. Students will spend a minimum of 10 hours of observation in diverse early childhood settings using current Environmental and Care Rating scales. Note: This course is not a part of the Teacher Education programming sequence.
Prerequisites: E, R

112 CURRICULUM AND ASSESSMENT FOR YOUNG CHILDREN
FALL, SPRING, SUMMER 3 (3-0)
This course provides an overview of the planning, preparation, and delivery of a developmentally appropriate curriculum for young children. Students will plan, implement, and assess multiple lessons supporting the development of the whole child. This course will include 10 hours of observation and involvement in diverse early childhood settings. Students will teach created lessons to children in area child care and preschool settings using Michigan's Early Childhood Standards of Quality Early Learning Expectations in their curriculum planning and program evaluation. Note: This course is not a part of the Teacher Education programming sequence. *Prerequisites: E, R*

113 GUIDING YOUNG CHILDREN'S SOCIAL DEVELOPMENT
FALL, SPRING, SUMMER 3 (3-0)
This course explores specific strategies and methods that guide children's social development and their behavior. Students will learn techniques for listening and talking to children, guiding children's problem solving and choices, and strategies to promote growth and internal self-control. Weekly field experiences with children will provide opportunities to observe the social skills young children need to learn. This course is designed for students in the Child Development program. Note: This course is not a part of the Teacher Education programming sequence.
Prerequisites: E, R

210 CURRICULUM AND ASSESSMENT FOR YOUNG CHILDREN II
FALL, SPRING, SUMMER 3 (3-0)
This course emphasizes the six developmental domains used in curriculum planning for young children. Students will learn to plan and implement effective small and large group instruction using developmentally appropriate practice. Assessing and evaluating children's learning through informal and formal assessments will also be included in the study of curriculum planning. This course will include 10 hours of observation and involvement in diverse early childhood settings where students will present their created and comprehensive unit plans. Note: This course is not a part of the Teacher Education programming sequence.
Prerequisites: E, R, ELCH 110 and ELCH 112

211 DIVERSITY IN EARLY CHILDHOOD EDUCATION
FALL, SPRING, SUMMER 3 (3-0)
Diversity can have a profound influence on children's development and learning. Students in this course explore areas of diversity, including developmental and learning needs, sexuality, ethnicity as well as the impact of living in poverty. Students will reflect on their own prejudices and biases and become aware of how messages of bias are passed on to children. Students will learn how to create an environment that fosters an appreciation of diversity, recognizes unfairness, and develops skills to act against prejudice. Note: This course is not a part of the Teacher Education programming sequence.
Prerequisites: E, R

212 ADMINISTRATION OF EARLY CHILDHOOD PROGRAMS
FALL, SPRING, SUMMER 3 (3-0)
This course addresses the administrative responsibilities of operating an early childhood program. Topics addressed include developing a program philosophy and budget, choosing a site and designing the environment, hiring and supervising staff, planning curriculum, and involving parents. Students will interact with a program administrator to better understand that role and work in groups to design a model program. This course will include 10 hours of field observation/shadowing a program center director in an early childhood education setting. This course is designed as a capstone course for students in the Child Development program in their final year. Note: This course is not a part of the Teacher Education programming sequence.
Prerequisites: E, R, ELCH 110 and ELCH 111 or BIOL 170

213 CURRENT ISSUES AND ADVOCACY IN THE EARLY CHILDHOOD FIELD
FALL, SPRING, SUMMER 3 (3-0)
This course explores current issues in the field of early childhood and assists students in forming research-based responses to these issues. Current topics that will be addressed include child health risks, media and technology, child abuse and neglect, working with a diverse population of families, quality in childcare, kindergarten readiness, and recent brain research. Students will also learn strategies for advocating on critical issues that affect young children and their families. Note: This course is not a part of the Teacher Education programming sequence.
Prerequisites: E, R

CIVIL ENGINEERING (CIVL)

103 CODES AND SPECIFICATIONS 3 (3-0)
Students will be introduced to codes for the built environment. This course will introduce the process on permits, inspections, reviews process, standards, and zoning. The codes referenced will be the Michigan Residential Code and the Michigan Building Code. A basic introduction to plan reading and specification reading will be emphasized.

110 DENSITY CERTIFICATION 2 (2-0)

Students will study techniques and equipment used in determining properties of aggregates, concrete and other materials. Each student will receive a density certification card after successfully completing the course.

120 SURVEYING **4 (2-4)**
Introduces students to surveying technology and the use of the latest equipment. Emphasis is placed on developing skills in operation and the proper handling of high-tech equipment used in the surveying business. Good field work habits and office engineering are covered.

135 SOILS TECHNOLOGY **3 (3-0)**
Exploring, sampling, testing and evaluating subsurface materials and their effect on construction are covered in this course. Includes an introduction to methods of subsurface drainage, soil classifications and physical properties of soils; and discussion, demonstration and performance with equipment used in density testing.

141 SITE INSPECTION **3 (3-0)**
Students will be introduced to codes for the built environment. This course will introduce the process on permits, inspections, reviews process, standards and zoning. The codes referenced will be the Michigan Residential Code and the Michigan Building Code. A basic introduction to plan reading and specification reading will be emphasized.

143 SITE DESIGN & LAYOUT **3 (3-0)**
In this course, students apply road and land development procedures, and interpret survey data in assembling sets of construction drawings. Topics include developing cross sections, road profiles, and utility layouts.

150 INTRODUCTION TO MASONRY AND CONCRETE CONSTRUCTION **4 (2-4)**
This course introduces the basic properties and practices of concrete construction and masonry construction. Upon completion of this course, students will have the knowledge and skills necessary to take the ACI (American Concrete Institute) certification exam for Flatwork Technician.

COLLEGE LIFE STUDIES (CLS)

100 COLLEGE & CAREER SUCCESS
FALL, SPRING, SUMMER **1 (1-0)**
Designed to increase student success by offering a comprehensive orientation to the Lake Michigan College experience. Students will be introduced to college web-based resources and services including WaveLink and Canvas, technology-based program planning and transfer information, and library research databases. Additional topics include career/major decision-making, understanding college expectations, time management, and effective study and learning strategies, and living and working in a diverse global society.

102 COLLEGE LEARNING AND SUCCESS STRATEGIES
SUMMER **2 (2-0)**
An introduction to student success strategies designed to equip students with the information, resources and experiences necessary to be prepared for college. This class will include an overview of college level expectations with a focus on preparation for successful academic and transitional outcomes.

103 HIGHER LEARNING STRATEGIES
FALL, SPRING **2 (2-0)**
An introduction to learning strategies designed to increase student success by offering an applied approach for increased comprehension and retention of course content. This class will focus on developing inquiry-based skills through application to current and future course work.

104 APPLIED LEARNING STRATEGIES
FALL, SPRING **1 (1-0)**
This course will help students apply the learning strategies from CLS103 to both current and future coursework. Instructional support and application scenarios will be practiced for all applicable course content areas.

Co-requisite: CLS 103

110 CAREER DECISION MAKING
FALL, SPRING **2 (2-0)**
Realistic career decision making and planning important to any stage of life. Students learn career paths most appropriate now and in the future. Students examine resources, values and abilities through testing and computerized search processes. Students identify three to five career opportunities appropriate to aptitude and skills. Not intended for transfer.

216 STRESS MANAGEMENT
FALL, SPRING **2 (2-0)**
This course assists the student in understanding the physiological responses to stress and assists in developing techniques for better stress management.

217 SELF ESTEEM **FALL, SPRING** **1 (1-0)**
Assists in growth in ability to love and care for oneself and others. Techniques practiced daily to enhance self-esteem and a variety of self-esteem issues is presented.

COMMUNICATION (COMM)

100 INTRODUCTION TO COMMUNICATION **3 (3-0)**
Introductory course in communication studies offering a survey of theory, research, and practice.
Prerequisites: E, R

101 INTRODUCTION TO PUBLIC SPEAKING
FALL, SPRING **3 (3-0)**
Beginning course in public speaking dealing with application of basic principles and practices of effective speaking. Coursework includes oral presentations and practical applications of speech communication theory.
Prerequisites: E, R

102 INTERPERSONAL COMMUNICATION **3 (3-0)**
Basic concepts for understanding communication in interpersonal relationships. Combines a theoretical approach with a skills approach to the study of interpersonal communication.
Prerequisites: E, R

215 PROFESSIONAL COMMUNICATIONS **3 (3-0)**
Business success today depends on effective communication. It requires professionals to be thoughtful senders and receivers of information with customers, employees, regulators, and managers around the globe. Business communication includes a spectrum of activity, from complex presentations to personal meetings and group email. This course focuses on how to approach communication strategically; students learn to write, speak and listen effectively for improved results. Students study communications from the perspective of both the sender and receiver - to more skillfully analyze a situation, adapt to the sender/receiver, and channel and communicate effectively. Students begin by exploring principles of communication before examining oral and written communication, visual aids, formed presentations, and interviewing.
Prerequisites: ENGL 101

225 SMALL GROUP COMMUNICATION AND LEADERSHIP 3 (3-0)
Discussion and leadership in business and industry. Conference and meeting formats: panel, forum, symposium, group dynamics, role playing, brainstorming, and problem solving exercises.
Prerequisites: COMM 100, ENGL 101

235 INTERCULTURAL COMMUNICATION **3 (3-0)**
Intercultural Communication examines the impact of effective communication among diverse cultures. Among the topics covered are the process of creating cultural identity and perspectives, ethnocentrism, the impact of values and beliefs, and verbal and nonverbal communication.
Prerequisites: COMM 100, ENGL 101

COMPUTER INFORMATION SYSTEMS (CIS)

100 FOUNDATIONS OF INFORMATION TECHNOLOGY
FALL, SPRING, SUMMER **FEE 3 (3-0)**
This survey course is a general introduction to computers and information technology and is designed to provide computer literacy in the digital age. A broad range of topics is covered, including hardware, software, the networking of computer systems, the internet, e-commerce, information security and careers available in the industry. Topics will also include different types of information systems, database design and administration, systems analysis and the use of programming languages in software development.

106 OPERATING SYSTEM FOUNDATIONS
FALL, SPRING, SUMMER **FEE 3 (3-0)**
This course is a survey of current operating systems. Topic coverage will include the newest versions of Windows, Linux, Mac OS and Android, as well as basics in computer security, wireless and cloud computing.

108 OFFICE INFORMATION SYSTEMS **FEE 3 (3-0)**
This course focuses on developing students' skills in business applications of productivity software and understanding of current information technologies. Course topics and activities begin with an overview of businesses uses of various technologies and progress to data manipulation, collaboration, organization, or analysis for decision making in various business functional areas. Specific topics covered include development of integrated electronic documents for business communications, advanced use of spreadsheets, development of professional business presentation, and database storage, retrieval, and reporting. This is the first course in a two-course sequence aligned with Microsoft Office Specialist (MOS) certification.
Prerequisites: E, M, R

111 DATABASE SYSTEMS FALL **FEE 3 (3-0)**
This course introduces the basics of database management and the SQL language by implementing simple databases. Tasks include creating, querying, sorting, indexing and manipulating a database file and generating reports and labels. Normalization techniques will also be introduced. Students will create custom screens and work with multiple database files, forms and report structures to demonstrate understanding of the knowledge and skills acquired in this course. Commercial software will be used. This course prepares students for industry certification exam(s).
Prerequisites: E, M, R

118 WEB DEVELOPMENT & DESIGN FOUNDATIONS
FALL, SPRING **FEE 3 (3-0)**
This class introduces students to the wide range of concepts and technologies related to the web development and design process. Topics include discussion and demonstration of multimedia and web technologies, site functionality, web development languages (such as HTML, CSS and PHP), internet ethics, security, networking, marketing and management. Students will use commercial development tools.

119 PROGRAMMING LOGIC & DESIGN
FALL, SPRING **FEE 3 (3-0)**
This is an introductory course in computer programming logic. The student will learn concepts applicable to all programming languages. Topics include data types, arrays, logic control structures, algorithms, structured programming methods, and report generation, memory addressing schemes, functions and modules. Program logic will be developed using flowcharts and pseudocode.

140 NETWORK FOUNDATIONS **FEE 3 (2-2)**
This course covers the architecture, structure, functions and components of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple local area networks (LAN), perform basic configurations for routers and switches, and implement Internet Protocol (IP). Aligned with industry certifications.

155 COMPARATIVE OPERATING SYSTEMS
FALL **FEE 3 (2-2)**

This course is designed for students wishing to develop an understanding of current operation systems, their differences and similarities, user interfaces and application considerations. Students will develop a proficiency installing current operating systems. They will also use the command line (shell), access and change BIOS, system and administrative tools.
Prerequisites: CIS 106

156 COMPUTER SECURITY
FALL, SPRING **FEE 3 (2-2)**
The purpose of this course is to provide students with a comprehensive overview of computer and network security issues including the numerous types of attacks to which computers are vulnerable; the types of attacker profiles; education, training and awareness regarding computer/network use; and the hardware and software defense solutions available. It covers topics from configuring personal virus detection to the function/operation of firewalls, VPNs, access control lists, etc. Students will gain an appreciation and better understanding of the terms, devices and software employed in securing computers and networks in homes, small businesses and large businesses. Aligned with CompTIA Security+ certification.

158 GEOSPATIAL TECHNOLOGIES
FALL, SPRING, SUMMER **FEE 3 (3-0)**
This survey course is designed to introduce several aspects of geospatial technologies. Topics include cartography and map design, geospatial data and GPS, geographic information systems (GIS), remote sensing (RS) and geospatial applications. This course will provide hands-on experience and a solid foundation that leads to more specialized courses leading to a CIS degree in GIS. Home computer access recommended.

164 C++ PROGRAMMING
FALL, SUMMER **FEE 3 (3-0)**
This course introduces the fundamental concepts and implementations of a modern C programming language in a business environment. Major topics include general programming tools for business applications and fundamentals of business programming such as language syntax, declaration and data types, variables and constants, arrays, statements and expressions, conditions, programming structures (i.e. sequence, selection, iteration) and modularity of business applications. Commercial development tools will be used.
Prerequisite: CIS 119

167 PYTHON PROGRAMMING **FEE 3 (3-0)**
Computer Science 1 (CS1) course focused on problem solving, procedural decomposition, and mastery of basic skills implemented in the latest version of the Python programming language. Topics include data types, conditionals, loops, arrays, flow control, functions, classes, modules, exception handling, inheritance, recursion, and object-oriented programming. Python lists, tuples, dictionaries, comprehension expressions, iterators, and generators are emphasized. The examples and problems used in this course are drawn from diverse areas such as data mining, cryptography, image processing, astronomy, the Internet, bioinformatics, and game design. GUI and Database programming are also introduced.

By the end of the course students will have a fundamental understanding of programming in Python, techniques used in object-oriented programming, and a solid foundation in key problem-solving skills. Content is aligned with the Certified Entry-Level Python Programmer (PCEP) certification.
Prerequisite(s): CIS 119

170 UNIX/LINUX OPERATING SYSTEMS
SPRING **FEE 3 (3-0)**
An introductory course that will introduce students to the basic concepts of the UNIX/Linux operating system. Topics include essential UNIX/Linux commands, login and logout sequences, setting passwords, e-mail, fundamentals of the vi editor, piping and redirection, security and process control, the Kernel, file system, shell programming, X windows and basic system administration. Shell scripts will also be covered. This course is aligned with Linux+ / LPIC 1 certification.
Prerequisite: CIS 106

200 IT SUPPORT FALL, SPRING FEE 3 (2-2)
This course covers personal computer system operation, maintenance and repair. Various hardware components will be examined in detail. Installation, configuration and troubleshooting will be performed. In addition, Microsoft operating systems will be covered from a PC repair technician perspective. Topics include how the operating system interacts with the PC's hardware, the boot process, troubleshooting and interaction with application software. The student will experience hands-on

interactive labs with actual hardware as well as various operating systems and application installations. This course covers the hardware and software concepts necessary for CompTIA A+ certification.

202 DATA REPORTING & ANALYSIS
FALL, SPRING **FEE 3 (3-0)**
This course is designed to give students comprehensive skills and in-depth knowledge to plan, design and deliver business reports that will help management analyze and interpret complex business information. Business report solutions that range from personal productivity software to full-scale reporting systems will be covered.
Prerequisites: CIS 108

208 INTERMEDIATE OFFICE INFORMATION SYSTEMS
SPRING **FEE 3 (3-0)**
This course is a continuation of CIS 108 with advanced experience in office productivity software. Intermediate-level concepts and exercises in word processing, spreadsheets, databases and presentation graphics, with emphasis on advanced use of application software in a business environment. This is the second course in a two-course sequence aligned with Microsoft Office Specialist (MOS) certification.
Prerequisite: CIS 108

215 DIGITAL FORENSICS **3 (2-2)**
This course surveys the technical knowledge of the operating system (OS) that any digital forensic analyst should know to examine digital media. The course focuses on collecting and analyzing data from an OS to provide information that can be used for both civil and criminal litigation. User based activity and software/hardware artifacts are analyzed along with acquisition of digital media in various OS environments.
Prerequisites: CIS 156, CIS 170

219 CLIENT-SIDE WEB DEVELOPMENT
FALL, SPRING **FEE 3 (2-2)**
This is a skill-based course to help students refine the techniques and functionality introduced in the foundations course. Advanced topics will be covered, particularly the use of multimedia and responsive design, to create professional web pages. Advanced software tols will be used. This course is aligned with industry certification.
Prerequisite: CIS 118

220 WEB PROGRAMMING
FALL, SPRING **FEE 3 (2-2)**
This course teaches dynamic web page development with JavaScript through detailed lectures and hands-on laboratory assignments. Students design, code, test and debug web-based applications. The components of web page development and the basic aspects of web page creation, utilizing commonly used HTML5 elements and CSS3 properties are covered, as well as advanced topics including object-oriented programming, the Document Object Model (DOM), touch and mobile interfaces and Ajax. After completing this course, students will be able to use JavaScript to build professional quality web applications.
Prerequisites: CIS 118 and CIS 119

221 SERVER-SIDE SCRIPTING
FALL **FEE 3 (2-2)**
Server based scripting languages are used to develop powerful applications. Database applications using current scripting languages will be discussed and used. Advanced software tools will be used. This course leads to industry certification.
Prerequisites: CIS 118 and CIS 119

226 SWITCHING, ROUTING, AND WIRELESS ESSENTIALS **FEE 3 (2-2)**
This course covers the architecture, components, and operations of routers and switches in small networks and introduces wireless local area networks (WLAN) and security concepts. Students learn how to configure and troubleshoot routers and switches for advanced functionality using security best practices and resolve common issues with protocols in both IPv4 and IPv6 networks. Aligned with industry certifications.
Prerequisites: E, M, R, CIS 140

228 ENTERPRISE NETWORKING **FEE 3 (2-2)**

Enterprise Networking, Security, and Automation (ENSA) describes the architecture, components, operations, and security to scale for large, complex networks, including wide area network (WAN) technologies. The course emphasizes network security concepts and introduces network virtualization and automation. Students learn how to configure, troubleshoot, and secure enterprise network devices and understand how application programming interfaces (API) and configuration management tools enable network automation. This is the third of four courses aligned with the Cisco CCNA certification.
Prerequisite: CIS 226

237 GEOGRAPHIC INFORMATION SYSTEMS
FALL, SPRING **FEE 3 (2-2)**
This course introduces the basic principles and application of geographic information systems (GIS), map design and interpretation and the nature and use of spatial data. Students gain hands-on experience in the various uses of geographic information and the methods for collection, management, exploration, analysis and presentation of vector and raster data. Mainstream commercial software will be used.
Prerequisite: CIS 158

238 REMOTE SENSING
FALL, SPRING **FEE 3 (2-2)**
This course introduces concepts and procedures used in aerial and satellite image processing. Topics covered include sensor properties, image analysis and classification, image transformations and enhancement, applications and integration with GIS. Students will utilize commercial image software to perform basic image manipulation, analysis and display.
Prerequisite: CIS 158

239 FIELD METHODS IN GIS
FALL, SUMMER **FEE 3 (2-2)**
This course introduces concepts and techniques of field mapping and data collection using Global Positioning Systems (GPS) and Mobile GIS, including a detailed study of the technology and applications of GPS. Lab exercises require fieldwork and teamwork. Instruction will include the fundamentals of operating a hand-held GPS unit. Students will utilize pre-planning, field and post-processing procedures to create GIS data. Methods for maximizing data quality and accuracy will be emphasized. Commercial hardware and software will be used.
Prerequisites: CIS 158

240 SYSTEMS ANALYSIS & DESIGN
SPRING **FEE 3 (3-0)**
Understand the process of developing information systems that effectively use hardware, software, data, processes and people to support the company's business objectives.
Prerequisites: CIS 100, CIS 119 and CIS 140

242 WINDOWS SERVER SPRING **FEE 3 (2-2)**
This course covers the fundamentals of Windows server technologies and many of the objectives required for the most current Microsoft Server Certification Exams 70-410 thru 70-412. Hands-on labs supplement the classroom activities. Aligned with Microsoft MCSA certification.
Prerequisites: CIS 140, CIS 155

250 SELECTED TOPICS IN CIS
ON DEMAND **FEE 3 (3-0)**
Information Technology is a dynamic, rapidly changing field. This course is designed to explore current trends and topics in Computer Information Systems. Topics and prerequisites will vary. Students can repeat this course when different topics are offered. This course may be used to fulfill CIS degree program requirements.

255 STRUCTURED QUERY LANGUAGE
SPRING **FEE 3 (3-0)**
Structured Query Language (SQL) is standard language for query databases. Most database tools offer varying menus and functions and share a common underlying SQL engine interface. Experience creating and running independent databases in SQL. Commercial software will be used. This course is aligned with industry certification.
Prerequisite: CIS 111

261 COMPUTER INFORMATION SYSTEMS CO-OP I
FALL, SPRING FEE 3 (1-15)
This course integrates a student's academic studies with work experience in an approved data processing job that the student has obtained and in which the student earns credits for satisfactory data processing experience. A minimum of 15 hours per week is required. Each student meets one hour per week with the coordinator in a related class. To participate in the class, application must be placed with the coordinator.
Prerequisites: advanced standing in the data processing program, a 2.00 GPA or higher in all previous college work and approval of the co-op coordinator, the Computer Information Systems program coordinator and one of the full-time Business Administration faculty; E, M, R

262 COMPUTER INFORMATION SYSTEMS CO-OP II
SPRING FEE 3 (1-15)
This is an elective course for those students who have successfully completed CIS 261. A minimum of 15 hours of work per week is required. Each student meets one hour per week with the coordinator in a related class. To participate in the class, application must be placed with the coordinator.
Prerequisites: E, M, R, CIS 261 and approval of the co-op coordinator

264 ADVANCED C++ PROGRAMMING
FALL FEE 3 (3-0)
This course is a continuation of CIS164 with more emphasis on top-down, modular, structured design and techniques involved in the production of large computer programs. Advanced language features such as web application, database, file access, object-oriented programming, graphics and animation are covered. A team programming project will be assigned.
Prerequisite: CIS 164

266 JAVA PROGRAMMING
FALL FEE 3 (3-0)
An intermediate course that introduces the Java programming language and object oriented programming. Topics will include control statements and methods, arrays, inheritance, string handling, graphics generation, file input/output and multi-threading. Students will design, code, test and debug several Java applets using objects in the standard Java libraries.
Prerequisite: CIS 164

267 ADVANCED PYTHON PROGRAMMING FEE 3 (3-0)
Computer Science 2 (CS2) course with emphasis on data structures, linked lists, binary trees and recursion as implemented in the latest version of the Python programming language. The main goal of the course is to introduce students to fundamental techniques for algorithm design and analysis and apply them using Python. Topics covered include: basic skills for analyzing efficient data structures and algorithms; programming tools and libraries from the rich Python ecosystem for developing reliable, self-documented programs; algorithmic problem-solving including the application of specific techniques for algorithm design like divide-and-conquer, greedy strategies and dynamic programming. Assignments will include both Python programs and written explanations using Anaconda Jupyter Lab and several Python libraries such as scipy, numpy, pandas, requests, and matplotlib.

By the end of the course students will have considerable experience using the programming constructs in Python such as built-in data types, function specifications and implementation, iterative computation, conditional evaluation of code, file input / output, and structured code with modules and functional abstraction, and debugging / testing methods. Content is aligned with the Certified Associate in Python Programming (PCAP) certification.
Prerequisite(s): CIS 167

268 C# PROGRAMMING SPRING FEE 3 (3-0)
An advanced course for students who have a basic understanding of arrays, pointers, structures and object oriented programming. The goal of this course is to provide students with the knowledge and skills they need to develop C# applications for the Microsoft .NET Platform. The course focuses on C# program structure, language syntax and implementation details. Commercial development tools will be used.
Prerequisite: CIS 264

275 DISASTER RECOVERY 3 (2-2)

This course will provide an overview of characteristics of disasters, their impact on population, infrastructure, economy, and disaster management cycle. Topics include the role, organization, and management of business continuity planning in planning for and surviving the impact of disaster, continuing to operate to serve clients or customers, and rapidly recovering to full operations. Other areas of interest include the business impact analysis process, how to manage it, and how to use the analysis as the first step in business continuity plan development.
Prerequisite: CIS 156

277 ADVANCED GIS APPLICATIONS
FALL, SPRING **FEE 3 (2-2)**
This course explores the practice of using a geographic information system (GIS) to perform advanced geoprocessing to solve spatial problems and support decision making. Topics include a review of underlying geographic concepts (coordinate systems and projections), map design and outputs, geodatabases, importing spatial and attribute data, geocoding, spatial data processing and advanced spatial analysis. Additional topics include map algebra, modeling, geostatistical and network analysis, and 3D display. Students will be able to customize their lab exercises by choosing projects using real-world data taken from several disciplines. Students will follow a structured workflow using commercial GIS software to examine data, develop process summary, perform analyses, create maps and write reports that communicate results successfully to a broad audience.
Prerequisite: CIS 237

278 WEB GIS **FEE 3 (2-2)**
Introduction to the fundamental concepts underlying the geodatabase, the various approaches for representing and managing geographic information and how geodatabases are used in cloud and server GIS applications. Students will survey database models, spatial data and spatial database systems. Topics include vector modeling and topography, linear modeling and referencing, geocoding, cell modeling, surface modeling, temporal modeling and multiuser geodatabase editing. Students will also be introduced to Web GIS system architecture, geospatial web services, mashups, customized web-based mapping applications, Mobile GIS and the development of distributed web services for GIS. Integrated lab exercises offer an opportunity to gain hands-on experience using commercial GIS software to plan, create and implement a Web GIS application.
Prerequisite: CIS 237

279 GIS CUSTOMIZATION & PROGRAMMING **FEE 3 (2-2)**
Introduces design, coding and implementation of GIS-based software and models to GIS users who have no prior programming experience. Covers the fundamentals of geoprocessing, ModelBuilder and the Python language. Students will learn how to write scripts that work with spatial data, run tools in Python and automate tasks in ArcGIS. Topics include map scripting, debugging and error handling, and the creation of Python functions and object classes. Integrated lab exercises offer an opportunity to gain hands-on experience using commercial GIS software to process real-world data. Students will conceptualize, plan, implement and document the results of GIS mapping applications, customizations, automations and extensions.
Prerequisite(s): CIS 165, CIS 237

291 SOFTWARE ENGINEERING
SPRING **FEE 3 (2-2)**
Advanced course covering topics in software design and implementation, including development paradigms, project requirements and specifications, object-oriented development, graphical user interface (GUI) design, event-driven systems, CASE tools, and the maintenance and management of systems software. UML will be used to model the phases of the software engineering process and exercises will emphasize a hands-on approach to object-oriented software development.
Prerequisite: CIS 264 or CIS 266

295 PROJECT MANAGEMENT
SPRING **FEE 3 (3-0)**
Students will understand the genesis of project management; its concepts, skills, tools and techniques; and its importance to improving the success of information technology projects.
Prerequisites: E, M, R, CIS 108 or CIS 208

COMPUTERIZED TOMOGRAPHY (CTG)

210 PATIENT CARE AND SAFETY **1 (1-0)**

This course prepares the CT student to safely practice within the hospital or ambulatory care setting. Students will discuss the importance of patient assessment. Emphasis will be placed on radiation safety and contrast administration. Students must be accepted into the CT program or have permission of the program coordinator to register for this course.
Prerequisites: E, M, R

215 PRINCIPLES OF CT 1 (1-0)
This course provides a historical overview of the CT profession. Students will explore the principles of digital imaging. Emphasis will be placed on the physical principles of computed tomography, data acquisition and data processing. Students must be accepted into the CT program or have permission of the program coordinator to register for this course.
Prerequisites: E, M, R

220 CT INSTRUMENTATION 1 (1-0)
This course provides an introduction of the CT operating system. Students will review radiation physics and discuss factors affecting dose in CT. Emphasis will be placed on artifact recognition, artifact reduction, and image quality. Students must be accepted into the CT program or have permission of the program coordinator to register for this course.
Prerequisites: E, M, R, CTG 210, CTG 215, CTG 230, CTG 240

230 CT PROCEDURES AND PATHOPHYSIOLOGY I 3 (3-0)
This is the first in a series of two courses that will provide the student with considerations related to routine imaging techniques of the central nervous system (CNS) and musculoskeletal system (MSK). Students will explore common pathologies found on CT images. Emphasis will be placed on contrast usage, imaging processes, and positioning considerations. Students must be accepted into the CT program or have permission of the program director to register for this course.
Prerequisites: E, M, R

231 CT PROCEDURES AND PATHOPHYSIOLOGY II 3 (3-0)
This is the final procedures and pathophysiology course in a series of two that will provide the student with considerations related to special imaging procedures. Students will explore common pathologies found on CT images. Emphasis will be placed on contrast usage, imaging processes, and positioning considerations.
Prerequisites: E, M, R, CTG 210, CTG 215, CTG, 230, CTG 240

240 CLINICAL PRACTICE I 3 (0-3)
This is the first in a series of two clinical courses that provides the necessary supervised clinical education needed for the CT student to competently apply basic protocols, recognize when to appropriately alter the standard protocol and recognize equipment and patient considerations that affect image quality. Emphasis will be placed on patient safety and comfort while professional values, attitudes, and behaviors. Students must be accepted into the CT program or have permission of the program coordinator to register for this course. *Prerequisites: E, M, R*

241 CLINICAL PRACTICE II 3 (0-3)
This is the final clinical course in a series of two that provides the necessary supervised clinical education needed for the CT student to competently apply basic protocols, recognize when to appropriately alter the standard protocol, and recognize equipment and patient considerations that affect image quality. Emphasis will be placed on patient safety and comfort while professional values, attitudes, and behaviors are upheld.
Prerequisites: E, M, R, CTG 210, CTG 215, CTG 230, CTG 240

CRIMINAL JUSTICE (CRIM)

140 INTRODUCTION TO CRIMINAL JUSTICE
FALL, SPRING 3 (3-0)
History, philosophy and mechanics of several elements that compromise the criminal justice system. Related responsibilities and vocational opportunities are discussed. Designed to introduce students to criminal justice system.
Prerequisites: E, R

141 INTRODUCTION TO POLICING SPRING 3 (3-0)
An introduction to the challenges and rewards of law enforcement. Examines the history of police, police operations, critical issues in policing, and issues related to becoming a police officer.

Prerequisites: E, R

150 JUVENILE DELINQUENCY AND BEHAVIOR FALL 3 (3-0)
Problems of juvenile delinquency, theories on juvenile delinquency, work of youth agencies, legislative involvement and new approaches to prevention of juvenile crimes.
Prerequisites: E, R

160 INTRODUCTION TO CORRECTIONS FALL 3 (3-0)
Provides understanding of correctional systems. Topics include history and philosophical development of corrections, legal process, probation, imprisonment and parole, rights of prisoners, and community-based corrections. Related responsibilities and vocational opportunities examined.
Prerequisites: E, R

161 INSTITUTIONAL OPERATIONS FALL 3 (3-0)
This is an introductory study of correctional institutions and their role in the criminal justice process and society. The course will include, but is not limited to, the study and discussion of correctional institutions, its history, purpose, and objectives. Also included will be a study of the types of institutions, correctional programs, institutional problems, security procedures, correctional and criminal law, management techniques, alternatives to institutionalization, and correctional planning.
Prerequisites: E, R

162 INSTITUTIONAL POPULATIONS SUMMER 3 (3-0)
Basic principles of human and criminal behavior and the role of biological, psychological, environmental, and social influences in the development of normal and criminal personalities, and individual and group techniques for changing attitudes. Institutionalization and controlled community alternatives to institutionalization are evaluated.
Prerequisites: E, R

201 CRIMINOLOGY SPRING 3 (3-0)
Nature and development of criminal behavior. Emphasis on examination of leading theories concerning cause of crime, nature of criminal offender and treatment of convicted offenders. Public reaction to crime reviewed.
Prerequisites: E, R

202 CRIMINAL LAW FALL 3 (3-0)
A study of substantive criminal law. Includes the study of constitutional limitations and protections, classification of crimes, elements of specific crimes, and defenses to crimes. Also incorporates the study of some Michigan criminal laws.
Prerequisites: E, R

203 CRIMINAL JUSTICE SKILLS FALL 3 (3-0)
An introduction to many of the skills needed in the fields of law enforcement and corrections. This is a hands-on class that will require students to participate in introductory skills such as interviewing, handcuffing, use of force, traffic stops, warrant arrests, and physical fitness entry exams.
Prerequisites: E, R

204 CURRENT ISSUES IN POLICING SUMMER 3 (3-0)
History, philosophy and mechanics of several elements that comprise the criminal justice system. Related responsibilities and vocational opportunities are discussed. Designed to introduce students to criminal justice system.
Prerequisites: E, R

205 CRIMINAL INVESTIGATIONS SUMMER 3 (3-0)
Learn modern criminal investigation principles and practices, and observe and apply investigative techniques in a classroom setting.
Prerequisites: E, R

242 POLICE ORGANIZATION AND ADMINISTRATION
SPRING 3 (3-0)
Functional divisions of organization and operation of modern police department functions studied are management operations, communications, budgeting, public relations, recruiting, and training.

Prerequisites: E, R

245 REPORT WRITING FOR CRIMINAL JUSTICE
FALL 3 (3-0)
Learn to write clear, concise, complete, and accurate police and corrections reports. Students will frequently be required to observe or participate in incidents related to law enforcement and corrections, record observations through the use of field notes and memory, and then accurately write reports based on those observations and interactions.
Prerequisites: E, R

251 SEMINAR IN CJ & PUBLIC SAFETY SPRING 3 (3-0)
This is an internship course taught in a hybrid format. Students will be required to meet in class during the first week and last week of the semester. Students will be required to obtain a 12-week internship and work in that capacity for a minimum of four hours per week. Students must have this internship pre-approved by the assigned instructor. Internship attendance will be tracked and weekly logs must be written. NOTE: This is a capstone course. Students must have the program faculty adviser's permission to register.
Prerequisites: E, R

252 CRIMINAL PROCEDURES SPRING 3 (3-0)
Study of Anglo-American system for detecting, proving and punishing perpetrators of crime. Legal protection of citizens from improper searches, arrests and coerced confessions by constitution, statute and case law. Rules of evidence in assisting judicial search for truth covered.
Prerequisites: E, R

263 LEGAL ISSUES IN CORRECTIONS SUMMER 3 (3-0)
This course is intended to give the student an understanding of legal issues in corrections. Topics will include constitutional law; law and the court process; sentencing; probation; parole; prisons; search and seizure; U.S. and State courts and court cases; Section 1983; and Prisoner's rights. Cases and statutes will be read and analyzed for impact on corrections. The role of corrections officers in complying with the law will be discussed.
Prerequisites: E, R

CULINARY MANAGEMENT (CULI)

120 PROFESSIONAL COOKING I FEE 3 (1-4)
This course is designed to give the student an introduction to the professional kitchen and preparation techniques. The student will gain competency in knife skills, food safety practices, fiber component of vegetables, selection and USDA grades of meat, poultry and seafood and their composition, structure and classification; factors affecting tenderness, storage and cooking techniques.
Prerequisites: HOSP 110, can be taken concurrently

140 OVERVIEW OF THE CHOCOLATE INDUSTRY 3 (3-0)
This course will introduce students to multiple aspects of the fine chocolate industry from the cacao bean origin to the bar and praline state. The class will identify key factors during the preparation, distribution, and marketing of chocolate throughout the world in a variety of settings including retail establishments, specialty stores, and fine dining venues.
Prerequisites: E, M, R

142 CHOCOLATE AND CONFECTIONS 3 (1-4)
Students will learn to prepare multiple types of confections and chocolate bonbons, molded and cut bonbons, dragees, fudge, caramelized confections among others. Students will be introduced to customized chocolate production and large volume chocolate preparations using modern chocolate tempering equipment as well as artisanal methods. Fillings, bonbon mold decoration techniques, and other finishing decorations. Formulation of fillings and glaze
Prerequisites: E, M, R

144 RETAIL AND ONLINE CHOCOLATE SHOP OPERATIONS 3 (3-0)

Students will be exposed to different types of venues where chocolate and confections items are sold, understand the shelf-life, production approach, and logistics involved with local and worldwide distributions as well as the process to develop brand identity for multiple types of confectionary items.
Prerequisites: E, M, R

153 NUTRITION FALL 3 (3-0)
Characteristics, functions and major nutrient groups and how to maximize nutrient retention in food preparation and storage. Students learn nutrient needs through life cycles and apply principles to menu planning and food preparation.
Prerequisites: E, R

163 SUSTAINABLE COOKING PRACTICES
FALL FEE 3 (1-4)
Students will be introduced to multiple aspects of sustainable cooking including local sourcing, farm to table cooking, sustainable food supply and procurement. Students will be introduced to various healthy cooking and food preservation techniques such as sous-vide cooking, curing, dehydrating, fermentation and canning.
Prerequisites: CULI 120

200 CULINARY MANAGEMENT INTERNSHIP FEE 1 (0-2)
Student will complete an internship in a variety of culinary settings recommended by the internship coordinator site that meets or exceeds American Culinary Federation Accreditation Criteria for a minimum of 400 documented hours. Hotels, Restaurants, Catering Companies are only a few of many establishments expected to be an internship site. Students must meet with Culinary Program faculty prior to enrollment.
Prerequisites: CULI 220 or CULI 280

210 CAFÉ AND RESTAURANT OPERATIONS FEE 3 (1-4)
This course is designed to give the student an introduction to the requirements and techniques of running a restaurant kitchen. The student will prepare food and cook ala carte items and specials one day a week in our own student run restaurant. The student will rotate throughout a number of cooking stations which require various cooking techniques.
Prerequisites: CULI 120

220 PROFESSIONAL COOKING II FEE 3 (1-4)
This course reinforces knowledge and skills achieved in Professional Cooking I and helps the student build confidence in techniques of advanced cookery while cooking from menus that exemplify American and regional cuisines. Students participate in food preparation at an advanced level, and attention is given to portion control, plate presentation and team work.
Prerequisites: CULI 120

254 HOSPITALITY COST CONTROL SYSTEMS 3 (3-0)
Capstone course in financial control for hospitality student. Areas covered include room, food and beverage control systems, operating budget, income and cost control, menu pricing and practical application.
Prerequisites: E, M, R

280 GARDE MANAGER FEE 3 (1-4)
This course provides the student with a foundation in Garde Manger including history, ingredients, procedures, culinary terms and equipment. Emphasis is placed on eye appeal, texture, color contrast, artistic touch, harmony of combinations, taste, as well as the processing, production and storage of ingredients, salt dough pieces and mirrors for buffets may be used, and professional competition skills are presented. Speed, timing and teamwork are emphasized in this course.
Prerequisites: HOSP 110 and CULI 220

285 FUNDAMENTALS OF BAKING FEE 3 (1-4)
This course reinforces knowledge and skills achieved in Professional Cooking I and helps the student build confidence in techniques of baking from menus that exemplify American and regional pastries. Students participate in baking at a beginning level, and attention is given to portion control, presentation and team work.
Prerequisites: CULI 120

286 ADVANCED PASTRY TECHNIQUES
FALL FEE 3 (1-4)

This course reinforces knowledge and skills achieved in Introduction to Professional Cookery and helps the student build confidence in techniques of advanced cookery while cooking from menus that exemplify American and regional cuisines. Students participate in food preparation at an advanced level, and attention is given to portion control, plate presentation and team work.
Prerequisites: HOSP 285

290 FOOD TECHNOLOGY FEE 3 (1-4)
This course introduces the students to the advantages of incorporating food technology in the designing and making of various food items including food 3-d printing, food packaging and customized presentation devices. Packaging, and special mold making designs will be covered in this hybrid class, which has a lab component.
Prerequisites: CULI 110 or CULI 185

DANCE (DANC)

101 BEGINNING BALLET 2 (2-0)
Basics of classical ballet training. Includes terminology, body positions, movement vocabulary, and principles of body alignment. May be repeated for a maximum of four credit hours.

102 BEGINNING JAZZ 2 (2-0)
Jazz dance: its technique, history and relationship to the fine and performing arts. Includes dance combinations, improvisations and strength and flexibility exercises as well as lectures and video. May be repeated for a maximum of four credit hours.

103 INTEGRATED MOVEMENT AND DANCE 2 (2-0)
This course introduces a variety of styles of dance to students with little or no dance experience. Emphasis will be placed on the fundamental technique, style, and skills of integrated movement. Students will also analyze and interpret classic and contemporary dance through video and live performance. This course is taught through studio practice, lectures, and discussions.

DENTAL ASSISTING (DENT)

165 INTRODUCTION TO DENTAL ASSISTING
FALL, SPRING, SUMMER FEE 3 (2-2)
Introductory course to dental assisting. Topics include dental teamwork, use of language, listening skills and personal oral hygiene. *Prerequisites: E, R, acceptance into Dental Assisting Program or permission of Dental Assisting Director. Transitional studies courses can be taken concurrently.*

166 CHAIRSIDE I
FALL, SPRING, SUMMER FEE 3 (2-2)
Introductory course in concepts of four-handed dentistry. Basic dental equipment, instrument identification, sterilization procedures, medical records history, infection control and vital signs presented.
Prerequisites: E, R, DENT 165 or permission of Dental Assisting Director. Transitional studies courses cannot be taken concurrently.

167 CHAIRSIDE II
FALL, SPRING, SUMMER FEE 3 (2-2)
Continuation of DENT166; includes identification of handpieces, proper mixing of dental materials, precautions in use of nitrous oxide, and assisting with topical and local anesthetics.
Prerequisites: E, R, DENT 165, DENT 166 or permission of Dental Assisting Director

168 CHAIRSIDE III
FALL, SPRING, SUMMER FEE 3 (2-2)
Continuation of DENT167, Chairside II. Topics addressed include performing chairside functions, fabricating custom trays, preparing final impressions, taking bite registrations, pouring and trimming study model, and use of various types of orthodontic appliances. *Prerequisites: E, R, DENT 167 or permission of Dental Assisting Director*

169 CHAIRSIDE IV
FALL, SPRING, SUMMER FEE 3(2-2)
Introduces the dental assistant's role in oral surgery, endodontics and pediatric dentistry.
Prerequisites: E, R, DENT 168 or permission of Dental Assisting Director

170 INTRODUCTION TO DENTAL OFFICE ASSISTING
FALL, SPRING, SUMMER FEE 2 (2-0)
Duties of dental office assisting including appointment maintenance, dental material inventory control, processing insurance forms and preparing professional written communications. Students may also register with permission of Director of Dental Assisting. *Prerequisites: E, R, DENT 169*

171 INTRODUCTION TO DENTAL RADIOGRAPHY
FALL, SPRING, SUMMER FEE 3 (2-2)
Study of the use of x-radiation in dentistry, processing and mounting radiographs, exposure of dental radiographs, radiation dosage and hazards. Protective measures for patient and operator stressed. Students must be 18 years of age or older to enroll in course. Permission of Director of Dental Assisting required.
Prerequisites: DENT 170

172 MEDICAL ISSUES IN THE DENTAL OFFICE
FALL, SPRING, SUMMER 2 (2-0)
Medical and dental emergencies and drugs encountered in treatment of dental patients.
Prerequisites: E, R, DENT 170 or permission of Dental Assisting Director

173 CLINICAL I
FALL, SPRING, SUMMER FEE 6 (1-15)
Students assigned in community dental offices for clinical experiences. Includes review for Dental Assisting National Board examination and professional activities. Weekly seminar held with college instructor.
Prerequisites: E, R, DENT 169, DENT 171 and DENT 172

174 REGISTERED DENTAL ASSISTANT I
FALL, SPRING, SUMMER FEE 3 (2-2)
Advanced functions of Michigan Registered Dental Assistant including placement and removal of temporaries and rubber dams. Students study state and national guidelines in infection control, hazard communication and waste disposal.
Prerequisites: E, R, successful completion and/or current enrollment in DENT 173 or permission of Dental Assisting Director

175 REGISTERED DENTAL ASSISTANT II
FALL, SPRING, SUMMER FEE 3 (2-2)
Continuation of RDA I includes advanced charting, extraoral and intraoral examination, suture removal and application of periodontal dressing, topical fluoride, and pit and fissure sealants. Ethics and jurisprudence presented. Simulated RDA written and clinical board given at end of course.
Prerequisites: E, R, DENT 174 or permission of Dental Assisting Director

176 CLINICAL II
FALL, SPRING, SUMMER FEE 5 (1-12)
Students assigned to community dental offices for clinical experience in expanded functions. Weekly seminar held with college instructor.
Prerequisites: E, R, successful completion of all dental assisting courses

177 DENTAL ASSISTING CLINICAL FEE 4 (2-6)
This course provides an opportunity for students to demonstrate their competence in performing chairside assisting functions in a licensed dental office or clinical setting. All students will be required to perform 300 hours of supervised dental assisting tasks including expanded functions. Students will also complete a board review in preparation for the Michigan State RDA exam, the Dental Assisting National Board CDA examination and professional activities.
Prerequisites: DENT 175

180 DENTAL RADIOGRAPHY

FALL, SPRING, SUMMER FEE 2 (1-2)
Application of skills and radiographic principles developed in DENT 171 by exposing radiographs on patients with emphasis on patient management and film placement techniques.
Prerequisites: DENT 171

181 RADIOGRAPHY FOR DENTAL ASSISTING FEE 8 (5-6)
Study of the use of x-radiation in dentistry, manual and automatic processing of dental films, exposure of dental images, radiation dosage and hazards as well as protective measures for patient and operator. Application of skills and radiographic principles by exposing images on patients with emphasis on patient management and receptor placement techniques. Students must be 18 years of age or older to enroll in this course. Permission to enroll can also be given by the Program Director.
Prerequisites: DENT 168, DENT 170, BIOL 110, HEAL 101, HEAL 103, HEAL 160

DIAGNOSTIC MEDICAL SONOGRAPHY (DMSO)

100 INTRODUCTION TO DIAGNOSTIC MEDICAL SONOGRAPHY FEE 3 (3-0)
Introduction to the physical and mathematical principles of ultrasonography. Review of: historical background; basic patient care skills; legal documentation; ethical principles and personal workplace safety.
Prerequisites: E, M, R, Entrance into the program.

101 GENERAL SONOGRAPHY I ABDOMEN 4 (4-0)
This course provides the student with abdominal sonographic cross sectional anatomy and pathology demonstrated in the transverse, longitudinal and coronal planes.
Prerequisites: E, M, R, DMSO 100

102 GENERAL SONOGRAPHY I OB/GYN
FALL 4 (4-0)
Introduction to: fetal and maternal cross-sectional anatomy and pathology; biological effects of fetal ultrasonography, prenatal diagnoses and syndromes.
Prerequisites: E, M, R, DMSO 100

103 SONOGRAPHY LAB APPLICATIONS I
FALL FEE 3 (0-6)
This course provides the student with lab applications in general abdominal and OB GYN sonographic cross sectional anatomy and pathology demonstrated in the transverse, longitudinal and coronal planes.
Prerequisites: E, M, R, DMSO 100

104 CLINICAL EXPERIENCE A
FALL FEE 2 (0-16)
The first in a five-semester sequence of scanning applications and techniques, for imaging related to abdomen, pelvic, small parts and gravid uterus.
Prerequisites: E, M, R, DMSO 100

200 GENERAL SONOGRAPHY II ABDOMEN
SPRING 3 (3-0)
Intermediate to advanced identification and interpretation of anatomy and pathology of the abdomen, venous system and small parts. Emphasis will be on abnormal anatomy/pathology with hepatic and renal transplant.
Prerequisites: E, M, R, DMSO 100, DMSO 101, DMSO 102, DMSO 103, DMSO 104

201 GENERAL SONOGRAPHY II OB/GYN
SPRING 3 (3-0)
A continuation of DMSO 102. Intermediate to advanced identification of an interpretation of cross sectional anatomy and pathology of the female pelvis and fetal and placental development.

Prerequisites: E, M, R, DMSO 101, DMSO 102, DMSO 103, DMSO 104

202 SONOGRAPHY LAB APPLICATIONS II
SPRING FEE 3 (0-6)
A continuation of DMSO 103, with lab applications in general abdominal, small parts and OB/GYN sonographic cross sectional anatomy and pathology demonstrated in the transverse, longitudinal and coronal planes.
Prerequisites: E, M, R, DMSO 101, DMSO 102, DMSO 103, DMSO 104

203 SONOGRAPHIC PHYSICS I
SPRING 3 (3-0)
The fundamental principles of acoustical physics; how sound is produced, manipulated and reacts with various mediums. Discussion and mathematical problem solving will be stressed in this course.
Prerequisites: E, M, R, DMSO 101, DMSO 102, DMSO 103, DMSO 104

204 CLINICAL EXPERIENCE B
SPRING FEE 2 (0-2)
Second in a five-semester sequence of clinical application involving intermediate scanning techniques including trauma and critical care patients, with imaging related to abdomen, pelvic, small parts and gravid uterus.
Prerequisites: E, M, R, DMSO 101, DMSO 102, DMSO 103, DMSO 104

213 SONOGRAPHIC PHYSICS II
SPRING 3 (3-0)
Focus will be a review of the Doppler Effect, in addition to fluid dynamics, hemodynamics, harmonics, artifacts and developing a quality assurance program.
Prerequisites: E, M, R, DMSO 224

214 CLINICAL EXPERIENCE C
SUMMER FEE 5 (0-40)
Third in a five semester sequence of clinical application involving advanced scanning techniques including trauma and critical care patients with imaging related to abdomen, pelvic, small parts and gravid uterus.
Prerequisites: E, M, R, DMSO 200, DMSO 201, DMSO 202, DMSO 203, DMSO 204

224 CLINICAL EXPERIENCE D
SUMMER, FALL FEE 5 (0-40)
The fourth in a five-semester sequence of clinical application. Students will be expected to perform completed exams within departmentally allowed timeframes. Introduction to peripheral vascular scanning as time allows.
Pre-requisites: E, M, R, DMSO 214

230 INTRODUCTION TO VASCULAR SONOGRAPHY & LAB APPLICATIONS 4 (3-2)
Introduction to non-invasive vascular scanning with focus on terminology, basic anatomy, generic protocols and enhanced lab applications.
Prerequisites: E, M, R, DMSO 224

234 CLINICAL EXPERIENCE E
FALL FEE 3 (0-24)
The final in a five-semester sequence of clinical application. Students will be expected to perform advanced exams within departmentally allowed timeframes. Introduction to peripheral vascular scanning as time allows.
Prerequisites: E, M, R, DMSO 224

240 SONOGRAPHIC REGISTRY REVIEW 2 (2-0)
This course provides the student with review and self-examination in preparation for the American Registry of Diagnostic Medical Sonography Examinations.
Prerequisites: E, M, R, DMSO 213, DMSO 230, DMSO 234

DRAFTING & DESIGN (DRAF)

102 MACHINE DRAWING
SPRING **FEE 3 (1-4)**
In this course, instruction will focus on mechanical concepts and the use of CAD to generate drawings and projects. Units of instruction will include sectional views, auxiliary views, threads/fasteners, weldments, advanced dimensioning/part tolerancing, geometric dimensioning and tolerancing, working drawings, assembly drawings and exploded views.
Prerequisites: ENGR 103 or ENGR 113

201 TOOL DESIGN I
SPRING **FEE 4 (2-4)**
A course concerned with the theory, principles and techniques for the design of cutting tools, jigs and fixtures, and related tooling. The use of current ANSI standards will be applied to all designs. The use of on-line part libraries, handbooks and various catalogs will be used. Students will construct all working and assembly drawings for their designs and be able to defend their design intent.
Prerequisite: ENGR 103 or ENGR 113

202 TOOL DESIGN II
SPRING **FEE 3 (1-4)**
Theory and practice of designing metal presswork dies, plastic injection molds or plastic compression molds. Students design and build individual designs. Course must be taken concurrently with MACH 220. May be offered in alternate formats.
Prerequisites: E, M, R, ENGR 103, DRAF 102, MACH 110

211 MACHINE DESIGN
SPRING **FEE 3 (1-4)**
Exit level course engages student in development of mechanical devices. Students will be involved with engineering of machinery and designing of mechanism, components and analysis of a project of their choosing. Student will create written proposals and problem statements as well as all necessary working drawings, assembly drawings, and parts manuals for their design. May be offered in alternate formats.
Prerequisites: ENGR 113, DRAF 102

DRAMA (DRAM)

110 PRINCIPLES AND PRACTICE OF ACTING I **3 (2-2)**
Principles of acting for the stage. Emphasis on performing through exercises and scene work. Movement and voice work covered. Brief study of general theatre language and terms.
Prerequisite: R

111 PRINCIPLES AND PRACTICES OF ACTING II **3 (2-2)**
Techniques and problems of a stage actor. Emphasis on performing scenes. Stresses character development and ensemble acting. Students develop audition pieces.
Prerequisites: DRAM 110 with a C or better

112 STAGECRAFT **3 (2-2)**
Basics of technical theatre production. Study of set design and construction, basic lighting and sound principles and scenery styles. Work required on department productions. Course may be repeated once for additional credit.

113 MUSICAL THEATRE PERFORMANCE I **3 (3-0)**
This is an introduction to the process of song, dance and text preparation for actors in the presentation of musical theatre performances. Emphasis will be given to the synthesis of text, song and dance in the communication of ideas as they are presented in a story, song, play or work of art.
Prerequisites: E, R

120 SCRIPT ANALYSIS **3 (3-0)**

The study of plays from the standpoint of the theatre artist. Emphasis on thorough examination of the script as a work intended for production.
Prerequisite(s): E, R

125 IMPROVISATION AND THEATRE GAMES 3 (3-0)
In this experiential workshop course, students will learn and build upon the tenets and rules of theatrical improvisation, with ultimate emphasis on applying these to one's own life. Through theatre games, and improvised experiences and performance, students will work toward freeing themselves physically, vocally, emotionally, and mentally, to stimulate creativity, imagination, self-expression, and the collaborative spirit. This course may be taken for credit multiple times.

175 SUMMER THEATRE WORKSHOP 6 (6-0)
Experience as part of a professional production company. An array of tasks and duties as part of a company. It is highly recommended that students not enroll in other classes during this 7-week period.

201 INTRODUCTION TO THEATRE 3 (3-0)
General theatre practice, dramatic types (comedy, tragedy, farce, etc.), areas of production, responsibilities and theatre history. Study of various dramatic types and periods, and attendance at theatrical performances. Semester culminates with class production of a project.
Prerequisites: E, R

202 THEATRE PRACTICUM 3 (3-0)
Supervised experience in one or more areas of theatre. The nature of involvement is determined by student theatre contract. Students may add class within one week after casting. Course may be repeated for credit.

220 INTRODUCTION TO THEATRE FOR YOUNG AUDIENCES & CREATIVE DRAMATICS 3 (3-0)
This course introduces students to the depth and possibilities of creative dramatics and the art of children's theatre. Students will learn about the history and significance of children's theatre/Theatre for Young Audiences and creative dramatics and conclude the course with a practical immersion in a facsimile classroom setting. This class is open to all majors.
Prerequisites: E, R

EDUCATION (EDUC)

101 FOUNDATIONS OF EDUCATION
FALL, SPRING 3 (3-0)
This is an introductory and exploratory course for students thinking about pursuing careers as teachers or paraprofessionals. Students will study a variety of topics, including the history of American education, the nature of American schools, social class and ethnic backgrounds of students, curriculum, disciplinary practices, teacher roles and responsibilities and current issues and problems in education.
Prerequisites: E, R

ELECTRONICS (ELEC)

100 DC ELECTRICITY
FALL, SPRING FEE 4 (3-2)
Fundamentals of direct current (DC) electricity. Concepts include voltage, current, resistance, power, Ohm's Law, electromagnetism and identification, and operation and characteristics of passive components. Circuit analysis introduced using Ohm's and Kirchoff's Voltage and Current Laws involving series, parallel and compound circuits. Circuit construction from schematics and use of basic test equipment in lab.
Prerequisites: R, M

106 A.C. ELECTRICITY FALL, SPRING FEE 3 (2-2)
Beginning course in alternating current (AC) electricity. Topics include average, effective, peak, period and frequency of sine wave. Reactance, impedance and phase relationship of current and voltage in R-C, R-L and RLC circuits. Resonance, time constants and complex numbers covered. Use of oscilloscope and meters in lab.

Prerequisites: R, M, ELEC 100

110 GENERAL ELECTRICITY FEE 3 (2-2)
An introductory course on electricity for students with little or no previous electrical training. The course covers common: AC and DC current, multi-meter operation/symbols, schematics/print reading, circuits, familiarity with common hand tools, and safe work practices. Practical laboratory experiments will reinforcing the above.

111 SEMICONDUCTORS
FALL, SPRING FEE 4 (0-5)
Study of commonly used solid state devices including diodes, special application diodes, bipolar function transistors, field effect transistors, MOSFET, UJT, triac, thyristors and power control circuits. Discussion of most commonly used semiconductor devices and their theory of operation. Emphasis on characteristics of operation and application. Includes troubleshooting.
Prerequisites: E, M, R, ELEC 100, ELEC 106

113 DIGITAL ELECTRONICS
FALL, SPRING FEE 3 (2-2)
Study of basic building blocks of modern digitally operated electronic equipment, operation of digital logic gates, number systems, flip-flops, TTL/CMOS, ripple counter, synchronous counter, shift register and other sequential logic operations. Various digital equipment, basic computer operations and troubleshooting included.
Prerequisites: E, M, R, ELEC 100, ELEC 106, ELEC 111

116 LINEAR ELECTRONICS
FALL, SPRING FEE 3 (2-2)
Study of operational amplifiers, filter, voltage comparators, drivers and converters. Typical op-amp circuits include inverting and non-inverting amplifiers, integrators and comparators. Filter circuits covered include low, high and band pass; typical oscillator circuits covered will be wien-bridge, LC and multivibrators. Power supply circuits such as rectifiers, regulators and filtering are part of course.
Prerequisites: E, M, R, ELEC 100, ELEC 106, ELEC 111

151 TRANSFORMERS, MOTORS AND MOTOR CONTROLS FEE 2 (1-2)
Course will focus on principles and applications of motor controls common in the electrical industry. Students will learn to read, develop and interpret ladder diagrams. Students will be introduced to the National Electrical Code. Students will learn to wire industry standard control circuits and components. Students will complete lab exercises to provide a hands-on learning experience to establish relationships between the theory and practical application of the material presented.
Prerequisites: ELEC 100 and ELEC 106 or ELEC 110

152 ELECTRICAL MOTOR CONTROLS II
FALL, SPRING FEE 2 (1-2)
Course will continue to build upon knowledge and skills obtained in ELEC 151 Transformers, Motors and Controls with a focus on advanced principles and applications of motor control common in the electrical industry. Students will develop and interpret complex ladder diagrams. Students will be introduced to the operation and use of programmable logic controllers (PLCs) and variable frequency drives (VFDs) in motor control. Students will complete lab exercises to provide a hands-on learning experience to establish relationships between the theory and practical application of the material presented.
Prerequisites: ELEC 151

EMERGENCY MEDICAL SERVICES (EMT)

142 MEDICAL FIRST RESPONDER 5 (4-2)
Entry level course for the emergency medical service. Students will learn how to provide initial care to individuals with a variety of medical conditions. Teaches patient assessment, access, stabilization and treatment of patients, communication basics, and transportation considerations. Upon completion, students may be recommended for the National Registry Emergency Medical Technician (NREMT) Emergency Medical Responder exam.
Prerequisites: R

152 MEDICAL FIRST RESPONDER TO EMT BRIDGE 5 (4-2)

This course is for currently licensed Medical First Responders in the emergency medical service. This course will expand the knowledge and skills of an Emergency Medical Responder (EMR) by offering additional learning toward an Emergency Medical Technician (EMT) outcome. Students will learn the basic concepts which are needed to function as an EMT such as patient assessment, access, stabilization and treatment of patients, communication basics, and transportation considerations. Thirty-six (36) hours of arranged clinical time is required. Upon completion, students may be recommended for the National Registry Emergency Medical Technician (NREMT) Basic Emergency Medical Technician exam.
Prerequisites: R

162 BASIC MEDICAL EMERGENCY MEDICAL TECHNICIAN 10 (8-4)
This is an entry-level course in emergency medical services. Students will learn patient assessment, access, stabilization and treatment of patients, communication skills, and transportation considerations. Thirty-six (36) hours of arranged clinical time is required. Upon completion, students may be recommended for the National Registry Emergency Medical Technician (NREMT) Basic Emergency Medical Technician exam.
Prerequisites: R

ENERGY (ENGY)

111 ENERGY GENERATION & DISTRIBUTION
FALL, SPRING 3 (3-0)
This course is designed to introduce students to the energy industry by examining the industry from a production to consumption view. Students will explore the industry from a historical perspective by studying the evolution of energy production, as well as the transmission and distribution aspects of providing power to civilization. Current energy industry production and distribution technology, methods and fundamental concepts will be studied. In addition, students will examine present and future energy options to meet the needs of society by exploring renewable resources such as wind, geothermal, solar and other emerging energy sources. Students will examine the operation of the "machine" that is the energy grid and begin to understand the many parts and entities involved with controlling the machine. Students will be introduced to some of the governing bodies associated with the energy industry such as the Federal Energy Regulatory Commission (FERC), the Nuclear Regulatory Commission (NRC) and the Department of Energy (DOE).
Prerequisites: E, M, R

185 LINE WORKER ORIENTATION
SUMMER 1 (1-0)
This course provides prospective line worker apprenticeship candidates with an overview of the work they will be required to do as an apprentice and journeyman line worker. Students are introduced to the physical aspects and mental discipline required to perform the duties of a line worker with demonstrations and physical tests.

186 LINE WORKER SUMMER FEE 12 (12-4)
This course is designed to provide students with basic knowledge, pole climbing skills and basic Ground Worker/Utility Worker knowledge necessary to progress through the Line Worker certificate program.
Prerequisite: ENGY 185

188 LINE WORKER FIELD EXPERIENCE
SUMMER 2 (0-2)
This field experience is a planned work activity that is designed to introduce the student to the primary technical areas of the line worker field. This will help the student select possible career paths for full-time employment upon graduation.
Prerequisites: ENGY 185, 186

190 INTRODUCTION TO THE UTILITY INDUSTRY
SUMMER 3 (2-2)
This course will provide a basic understanding of the overall electric power system, utility safety and basic use of line worker tools; pole climbing will also be introduced.
Prerequisites: ENGY 185, may be taken concurrently with ENGY 191, ENGY 192, ENGY 193.

191 CLIMBING & WORKING IN ELEVATED WORK SITES
SUMMER 3 (2-2)

This course focuses on how to safely and effectively ascend and descend wooden poles using pole climbing gaffs, hooks, belts, fall arrest systems and associated equipment and ladders.
Prerequisites: ENGY 185, May be taken con-currently with ENGY 190, ENGY 192, ENGY 193

192 UTILITY CONSTRUCTION FUNDAMENTALS
SUMMER 3 (2-2)
This course orients students, in an outdoor lab setting, to the proper and safe construction and maintenance of overhead electric systems. Focus will include diagnostic equipment of transformer function, installation, selection and troubleshooting.
Prerequisites: ENGY 185, May be taken concurrently with ENGY 190, ENGY 191, ENGY 193

193 UTILITY OVERHEAD CONSTRUCTION
SUMMER 3 (2-2)
Proper overhead construction techniques will be demonstrated and practiced. Topics will include tool selection, pole selection and setting, rigging, safety procedures and maintenance techniques. *Prerequisites: ENGY 185, may be taken concurrently with ENGY 190, ENGY 191, ENGY 192*

205 ENERGY FIELD EXPERIENCE
FALL, SPRING 2 (2-0)
This field experience is a planned work activity that is designed to introduce the student to the primary technical areas within a power plant. During the field experience, students will have introductory instruction in the general operations of a power plant. They will then experience the various technical areas by rotating through the departments at the power plant. This will help the student select possible career paths for full-time employment upon graduation. Students will spend a minimum of 30 hours in the plant.
Prerequisites: ENGY 100 with a grade of C or better or ENGY 111 with a grade of C or better and ENGY 116 with a grade of C or better

ENGINEERING (ENGR)

113 ENGINEERING DESIGN & GRAPHICS
FALL, SPRING FEE 4 (2-4)
Beginning engineering drawing course that introduces principles of computer aided drafting, basic 3D solid modeling, orthographic projection, sectional views, dimensioning techniques and auxiliary view construction. Textbook assignments, handout assignments and chapter tests are used to support and access student learning.
Prerequisites: E, M, R,

210 ADVANCED CAD TECHNIQUES
FALL, SPRING FEE 3 (1-3)
Advanced CAD Techniques is a course designed to expose the students to commonly used design software. Topics include threads and fasteners, the application of tolerances, ordinate dimensioning, baseline dimensioning, hole charts, creating a CAD part template and drawing template, and assigning physical properties to a 3-dimensional part.
Prerequisite: ENGR113

ENGLISH (ENGL)

010 FOUNDATIONS OF COLLEGE WRITING
FALL, SPRING, SUMMER 3 (3-1)
This course focuses on learning and practicing the foundational processes of written communication necessary for college writing, including critical reading and thinking, planning, drafting, incorporating reader feedback, revising, editing, and basic techniques for incorporating sources and citation. Students will be expected to learn how to achieve a high level of quality for complete, well-organized essays that fully communicate a coherent position to readers.
Prerequisites: Compass writing score of 0-42 and Compass reading score of 50 – 67 or READ 083

020 ACADEMIC LITERACY 4 (4-0)
This introductory academic literacy course will focus on learning and practicing the fundamental processes of reading comprehension and written communication. These processes include strategies necessary to deal with college level vocabulary,

comprehension of college level texts, the application of critical reading and thinking to the preparation and planning of essays, drafting essays, understanding reader feedback, revising, and editing, proofreading, and correcting final drafts. Students will be expected to learn how to achieve a high level of quality in their writing and demonstrate a fundamental ability to construct full essays based on their experience and reading texts.
Prerequisites: Writeplacer of 3 or less OR Accuplacer Next Gen Reading 237-249 OR Accuplacer Next Gen reading 236 or Less with Co-Requisite enrollment in READ 096

093 FOUNDATIONS OF COLLEGE WRITING
FALL, SPRING, SUMMER **4 (4-0)**
This course focuses on learning and practicing the foundational processes of written communication necessary for college writing, including critical reading and thinking, planning, drafting, incorporating reader feedback, revising, editing and basic techniques for incorporating sources and citation. Students will be expected to learn how to achieve a high level of quality for complete, well-organized essays that fully communicate a coherent position to readers.
Prerequisites: Compass Writing of 25 or Asset Writing of 36 or ENGL091with a C or better AND R or Concurrent Enrollment in READ 087.

099A COLLEGE WRITING ENRICHMENT
SPRING **3 (3-0)**
This is a companion course that offers learning and writing support with a linked ENGL 101 class. This class focuses on expository writing and the closely related activities of critical reading and thinking. Primary attention is given to the formal elements of short essays based upon or incorporating documented source material. (Passing this class **and** co-requisite English 101 section allows the student to take English 102 or 103, thus completing the first year English Composition requirement. Compass writing score of 0-42 plus Multiple Measures Assessment. Co-requisite with corresponding ENGL 101 ALP section. Successful completion of 099A and co-requisite ENGL 101 will meet the Reading prerequisite.)
Prerequisites: Compass writing score of 43-77 and Compass reading score of 68-77 or READ 083; or ENGL 010.

101 ENGLISH COMPOSITION
FALL, SPRING, SUMMER **3 (3-0)**
First course in two-semester English sequence focuses on expository writing and closely related activities of critical reading and thinking. Primary attention given to formal elements of short essays based upon or incorporating documented source material. (This sequence can be completed by taking either ENGL 102 or 103).
Prerequisites: E, R

102 ENGLISH COMPOSITION
FALL, SPRING, SUMMER **3 (3-0)**
Extension and intensification of elements of expository writing and critical reading and thinking covered in ENGL 101. Particular emphasis given to formal, stylistic and rhetorical considerations and techniques involved in developing longer critical essays that incorporate documented evidence from broad range of source materials.
Prerequisite: ENGL 101

103 TECHNICAL WRITING
FALL, SPRING, SUMMER **3 (3-0)**
Helps students write with greater skill, confidence and effectiveness on jobs. Writing assignments develop ability to analyze specific organization, purposes and situations and to use appropriate content, organization, style, form and format. Writing assignments include job application letter and resume, summary, process explanation, proposal, various short reports, research report, and a formal report.
Prerequisites: E, R and ENGL 101

201 GENDER AND LGBTQ+ LITERATURE **3 (3-0)**
Explores literature with a focus on gender and LGBTQ+ identity. There is a special emphasis on cultural values, history, and changing views of gender and sexual expression and expectation in various forms of literature.
Prerequisites: E, R

203 MASTERPIECES OF ENGLISH LITERATURE I
ON DEMAND **3 (3-0)**

Examples of the major types of English literature are studied. The study focuses on appreciation of thought and expression. The work begins with the Anglo-Saxon period and ends with the eighteenth century. Literary types studied include the epic, the ballad, the tale, the allegory and the play.
Prerequisites: E, R

204 MASTERPIECES OF BRITISH LITERATURE II
EVEN YEARS **3 (3-0)**
Study of British literature of the Romantic, Victorian and Modern eras from 1750 to the present. Representative authors' works are read and evaluated to understand background and impact, characteristics and aesthetic value and how they represent their times.
Prerequisites: E, R

205 INTRODUCTION TO SHAKESPEARE
SPRING **3 (3-0)**
Shakespeare's greatest plays and a selection of his sonnets are read intensively and discussed. The universality of Shakespeare's thought will be emphasized, as will the qualities that make his work applicable to the modern day. For instance, characterization will be stressed more than plot. The course will lead to a greater understanding and appreciation of Shakespeare's writing.
Prerequisites: E, R

206 MODERN DRAMA
SPRING **3 (3-0)**
Contemporary dramatic writing by reading modern plays representative of various countries, such as Russia, France, South Africa and Norway as well as England and America. Also, examples of chief dramatic types that have flourished from Ibsen to present day: realism, naturalism, symbolism and expressionism. Develops appreciation of drama and theatre.
Prerequisites: E, R

208 LITERARY INTERPRETATION
FALL, SPRING **3 (3-0)**
Study of literature to develop sensitivity and skill in critical interpretation of poetry, drama and prose fiction. Includes characteristics of different literary genre, their analysis and increased reading and interpretation skills.
Prerequisites: E, R

209 AMERICAN NOVEL
FALL **3 (3-0)**
Major American novels since 1850 in terms of setting, characterization, plot, tone, point of view, theme, imagery, symbolism and style. Social, historical, psychological and intellectual significance of works are considered. Novels studied include selection of works by authors from 1850 to the present.
Prerequisites: E, R

210 AMERICAN LITERATURE TO 1865
FALL **3 (3-0)**
Survey of literature of pre-American revolution texts to the Civil War. Emphasis on disclosure of liberty and conquest, and the development of an American voice. Examines American literature in terms of cultural, historical and intellectual roots. Emphasis on the issues of race, gender and class along with the study of writings that reflect major literary and social movements.
Prerequisites: E, R

211 AMERICAN LITERATURE 1865 TO PRESENT
SPRING **3 (3-0)**
A study of major elements of American literature from the Civil War to the present. Emphasis on origins and nature of modern literature. Examines American literature of period in terms of cultural, historical and intellectual roots. Study of writings which reflect major literary and social movements.
Prerequisites: E, R

214 CHILDREN'S LITERATURE
FALL, SPRING **3 (3-0)**

Folk and fairy tales, poetry, mythology, realistic fiction and minority group literature appropriate for children. Emphasis on selection and presentation of literature appropriate for children of preschool age through junior high level.
Prerequisites: E, R

215 POETRY
ON DEMAND 3 (3-0)
Appreciation and understanding of poetry. Study of important aspects of the poem: images, figures, symbols, rhythm, sound and tone. Emphasis on twentieth-century poetry. Recommended for English majors.
Prerequisites: E, R

216 LITERATURE OF BLACK AMERICA
SPRING 3 (3-0)
Fiction and non-fiction literary works by black American authors (narratives, short stories, essays, poems, speeches, memoirs, plays and novels). These works, from the heritage of black Americans, are part of American literary heritage. Course will feature a thematic or special topic selection of works by a variety of recognized authors.
Prerequisites: E, R

217 CREATIVE WRITING
FALL, SPRING 3 (3-0)
Imaginative writing, i.e., writing of original poetry, fiction, drama and creative non-fiction (memoir). Study and application of specific techniques in each genre. Conducted on workshop basis. Students expected to produce a portfolio of finished pieces in the four genres.
Prerequisites: E, R

220 CONTEMPORARY FICTION ON DEMAND 3 (3-0)
Central themes and fictional approaches evident in contemporary fiction.
Prerequisite: E, R

ENGLISH FOR ACADEMIC PURPOSES (EAP)

091 COLLEGE WRITING FOR NON-NATIVE ENGLISH SPEAKERS (NNES) 3 (3-0)
This class is designed for non-native English speakers and is a companion course that offers learning and writing support with a linked ENGL 101 class. The class focuses on augmenting students' critical reading, thinking, and writing development in a college setting by providing classroom instruction and activities specific to critical reading, mastering grammatical structures, developing academic vocabulary, and socialization of U.S. academic culture. The course emphasizes developing academic reading and writing strategies. Special focus is paid to sentence types, multi-clause structures, conjunctions, adjective and adverbial clauses, and punctuation to enable students to become more confident self-editors and present their ideas more clearly to an academic reader audience.
Prerequisites: ACCUPLACER Next GEN score of at least 237; Write-Placer placement test score of at least 4.
Co-requisite: Enrollment with corresponding ENGL 101 section

092 EAP SPEAKING AND LISTENING 3 (3-0)
This advanced language course helps ESL students sharpen their listening comprehension skills by teaching them how to prepare for and listen to academic lectures while at the same time acquiring a variety of techniques for taking notes that will promote retention of the material. Additionally, the course focuses on expansion of academic vocabulary and academic discussion skills and strategies to help students gain confidence in their English speaking skills when interacting with classmates, instructors, and support staff. Students must speak English as a second or additional language.
Prerequisites: Accuplacer ESL 80 OR TOEFL iBT Exam- Overall score: 35-59 and Listening: 4-14 and Speaking 14-17 OR TOEFL ITP: 417-500 OR IETLS Exam 5.0-5.5 OR MET Overall score: 38-45 OR Pearson PTE score of 35-45

093 EAP READING 3 (3-0)
This is an advanced language course with the primary goal for ESL students to develop reading strategies that enable them to read and comprehend academic materials. Students will learn reading strategies that enable them to engage and react to different text forms and topics that are both concrete and abstract in nature. Through in-class exercises and a variety of assignments, students learn to use reading skills to infer, analyze and respond to a text in a classroom setting. A focus on

academic vocabulary is an important component in the course. Additional projects will include a novel study and/or independent reading. Students must speak English as a second or additional language.
Prerequisites: Accuplacer ESL 80-110 OR overall TOEFL iBT score of 35-59 and/or a subskill score of 4-14 for the Reading section OR overall TOEFL ITP score of 430-499 OR overall IELTS score of 5.0 or 5.5 and/or a subskill score of 5.0 or 5.5 for IELTS Reading OR overall MET score of 38-45; overall Pearson PTE score of 35-45

ENOLOGY (ENOL)

101 WINEMAKING AND FERMENTATION
FALL 3 (3-0)
An overview of wine production. Topics include: factors affecting harvest decisions, winery safety, winery sanitation, initial grape processing, red winemaking, white winemaking, fermentation, filtration, fining, and bottling.
Prerequisites: E, M, R

105 WINES OF THE WORLD I FEE 1.5 (0.5-2)
This course is an overview of the major wine making regions of the world. Students will develop sensory skills through guided tastings. Lectures will focus on grape varieties, climactic considerations, vineyard and winemaking practices, and key laws governing wine production and labeling. Wines from southwest Michigan and other new world wine regions are also presented.

106 WINES OF THE WORLD IIFEE 1 (0.5-1)
This course is an overview of the major wine making regions of the world. Students will develop sensory skills through guided tastings. Lectures will focus on grape varieties, climactic considerations, vineyard and winemaking practices, and key laws governing wine production and labeling. Wines from southwest Michigan and other new world wine regions are also presented.

111 WINERY HOSPITALITY CO-OP 2 (0-6)
This work-based learning course consists of participation in tasting room operations and direct to consumer wine sales at an approved local winery.

190 ENOLOGY CO-OP I 2 (0-6)
This work-based learning course consists of participation in harvest and crush operations at Lake Michigan Vintners (the teaching winery), or other approved facility.

191 ENOLOGY CO-OP II 2 (0-6)
This work-based course offers hands-on learning while working at a selected winery and receiving supervision from a professional winemaker. Students will gain experience with wine transfers, wine filtration, and bottling. With permission of Wine and Viticulture Technology lead faculty, work site and work site hours may vary.
Prerequisites: ENOL 101, ENOL 190

210 WINE ANALYSIS AND QUALITY CONTROL FEE 4 (3-2)
This is an advanced enology course. Students will develop an understanding of wine chemistry and the concepts and methods of wine chemical analysis.
Prerequisites: E, M, R, AGRI 110 or CHEM 104 and ENOL 101

220 WINERY OPERATIONS MANAGEMENT 3 (3-0)
This course provides an overview of the wine business. Topics include winery business models, wholesale and direct to consumer sales, licensing, legal compliance, and record keeping. Factors affecting winery profitability and sustainability are investigated. Guest lecturers will be invited to offer relevant presentations during the semester.
Prerequisite(s): E, M, R

290 ENOLOGY CO-OP III 4 (0-12)
This work-based course offers hands on learning while participating in harvest activities at a selected winery and receiving supervision from a professional vintner. Work site hours may vary. Work site approval by the instructor is required.
Prerequisites: E, M, R, ENOL 101, ENOL 190, ENOL 191, ENOL 210

FOREIGN LANGUAGE (FORL)

101 ELEMENTARY FRENCH I
FALL **4 (4-0)**
For students with limited background in modern foreign languages. Basic grammatical principles, elementary conversation, simple writing and dictation, some discussion of culture and geography of France. Additional work with tapes or cassettes is required.
Prerequisites: E, R

102 ELEMENTARY FRENCH II
SPRING **4 (4-0)**
Continuation of FORL 101. Basic grammatical principles; conversation of more advanced level, continued writing, dictation and cultural study. Continued use of tapes or cassettes required.
Prerequisites: E, R, FORL 101

121 ELEMENTARY SPANISH I
FALL **4 (4-0)**
For students with limited or no background in modern foreign languages. Basic grammatical principles, elementary conversation and simple writing. Some additional work with tapes or cassettes. Culture and geography of Spanish-speaking countries.
Prerequisite: E, R

122 ELEMENTARY SPANISH II
SPRING **4 (4-0)**
Continuation of FORL 121. Study of basic grammatical principles is completed with continued conversation, writing, dictation and cultural study. Continued audio work required. Successful completion of at least one year high school Spanish with a C or better.
Prerequisites: E, R, FORL 121 with a C or better.

123 SPANISH FOR THE WORKPLACE I
FALL, SPRING **4 (4-0)**
This course offers an introduction to the Spanish language with particular emphasis on applying acquired knowledge within the realm of the workplace.

124 SPANISH FOR THE WORKPLACE II
FALL, SPRING **4 (3-1)**
This course is a continuation of basic Spanish with particular emphasis on applying acquired knowledge within the realm of the workplace.
Prerequisites: FORL 123 or two years of high school Spanish or one year of College Spanish or permission of the instructor.

181 ELEMENTARY RUSSIAN IFEE 4 (2-2)
Courses concentrate on functional communication with emphasis on outcome-based goals such as being able to speak in basic sentence patterns, ask questions, engage in telephone conversations, make requests, give orders, etc., in situational introductions of reality. Communication is emphasized; grammar is introduced to support this process.
Prerequisites: E, R

182 ELEMENTARY RUSSIAN II **FEE 4 (2-2)**
Courses concentrate on functional communication with emphasis on outcome-based goals such as being able to speak in basic sentence patterns, ask questions, engage in telephone conversations, make requests, give orders, etc., in situational introductions of reality. Communication is emphasized; grammar is introduced to support this process.
Prerequisites: E, R, FORL 181

188 ELEMENTARY JAPANESE I **FEE 4 (2-2)**
Courses concentrate on functional communication with emphasis on outcome-based goals such as being able to speak in basic sentence patterns, ask questions, engage in telephone conversations, make requests, give orders, etc., in situational introductions of reality. Communication is emphasized; grammar is introduced to support this process.
Prerequisites: E, R

189 ELEMENTARY JAPANESE II FEE 4 (2-2)
Courses concentrate on functional communication with emphasis on outcome-based goals such as being able to speak in basic sentence patterns, ask questions, engage in telephone conversations, make requests, give orders, etc., in situational introductions of reality. Communication is emphasized; grammar is introduced to support this process.
Prerequisites: E, R, FORL 188

195 ELEMENTARY ITALIAN I FEE 4 (2-2)
Courses concentrate on functional communication with emphasis on outcome-based goals such as being able to speak in basic sentence patterns, ask questions, engage in telephone conversations, make requests, give orders, etc., in situational introductions of reality. Communication is emphasized; grammar is introduced to support this process.
Prerequisites: E, R

196 ELEMENTARY ITALIAN II FEE 4 (2-2)
Courses concentrate on functional communication with emphasis on outcome-based goals such as being able to speak in basic sentence patterns, ask questions, engage in telephone conversations, make requests, and give orders, etc., in situational introductions of reality. Communication is emphasized; grammar is introduced to support this process.
Prerequisites: E, R, FORL 195

198 ELEMENTARY ARABIC I 4 (3-2)
For students with limited or no background in modern foreign languages. Basic grammatical principles, elementary conversation, and simple writing. Culture and geography of Arabic-speaking countries.
Prerequisites: E, R

221 INTERMEDIATE SPANISH I
FALL 4 (4-0)
Review of basic grammatical functions, more detailed writing and advanced composition. Reading of selections from Spanish authors. Classes may be conducted in Spanish.
Prerequisites: E, R, FORL 122 or successful completion of at least two years high school Spanish

222 INTERMEDIATE SPANISH II
SPRING 4 (4-0)
Continuation of FORL 221. Emphasizes ability to speak, read and write in Spanish.
Prerequisites: E, R, FORL 221

251 ADVANCED ORAL AND WRITTEN SPANISH
ON DEMAND 3 (3-0)
Concentration on improvement in written and oral expression in Spanish based on selected readings in modern Spanish literature. Lectures, discussion, resumes, student presentations and short papers in Spanish, with extensive and intensive reading assignments. Classes conducted in Spanish.
Prerequisites: E, R, FORL 222 or equivalent

FRENCH (FRE)

101R ELEMENTARY FRENCH I 4 (4-0)
Basic grammar, pronunciation and vocabulary of the French language. Includes the study of French culture, practice of listening, speaking, reading, and writing skills. This course is delivered through a partnership with Rio Salado College.

102R ELEMENTARY FRENCH II 4 (4-0)
Continued study of grammar and vocabulary of the French language along with the study of French culture. Emphasis on speaking, listening, reading and writing skills. Completion of prerequisites within the last three years is required or by permission of Department or Division. This course is delivered through a partnership with Rio Salado College.
Prerequisite: FRE 101R

201R INTERMEDIATE FRENCH I 4 (4-0)

Review of essential grammar of the French language and study of French culture. Continued practice and development of reading, writing, and speaking skills. Completion of prerequisites within the last three years is required or two years of high school French with an average of "C" or better, or permission of Department or Division. This course is delivered through a partnership with Rio Salado College.
Prerequisite: FRE 102R

202R INTERMEDIATE FRENCH II **4 (4-0)**
Review of grammar, continued development of French language skills, and continued study of the French culture. Completion of prerequisites within the last three years is required with a grade of "C" or better, or three years of high school French with an average of "C" or better or permission of Department or Division. This course is delivered through a partnership with Rio Salado College.
Prerequisite: FRE 201R

GEOGRAPHY (GEOG)

100 WORLD REGIONAL GEOGRAPHY
SPRING **4 (4-0)**
Introductory course for both working knowledge and appreciation of contemporary world geography. Emphasis on geographical characteristics, relative world importance and major problems of selected world regions.
Prerequisites: E, R

101 HUMAN GEOGRAPHY
SPRING **4 (4-0)**
Broad approach to human geography that deals with fundamental relationship of humans to land and why people live where they do and as they do. Proposes that each society interprets earth and humans from the viewpoint of its particular culture. Cultural factors studied with examples from modern societies.
Prerequisites: E, R

102 ELEMENTS OF PHYSICAL GEOGRAPHY
FALL, SPRING **4 (3-2)**
Includes study of planetary relations, atmosphere, air masses, climates, water resources, landforms, soils and vegetation. Demonstrates the basic relationship among these topics. Impact of human activities on environment emphasized. Laboratory work integral to course and used to reinforce important topics.
Prerequisites: E, R

GRAPHIC DESIGN (GRDN)

101 DIGITAL STUDIO I
FALL, SPRING **FEE 3 (2-4)**
This course focuses on developing the skills necessary for producing print-ready communications: graphic design principles, visual comps, print production development, and project management skills (e.g. interviewing and scheduling, peer review and revision). Project activities focus on developing effective communications that can be deployed in print, on the web, or in a video. Students develop a variety of graphics, a logo, a business card and a client advertisement. Students produce supporting design documents and visual comps that clients review. The semester culminates with a portfolio project during which students reflect on the skills and topics covered thus far and begin to explore the career areas that interest them in design.
Prerequisites: E, M, R

110 INTRODUCTION TO GRAPHIC DESIGN
FALL, SPRING **FEE 3 (2-4)**
This course investigates the graphic design profession. Students engage in simulation of client pitches, participate in group critiques and brainstorming sessions, create design briefs, thumbnail sketches, mood boards and "comps." Conceptual design and client research is emphasized. Students evaluate their career goals through readings and discussion on design specialties and schools.
Prerequisites: E, R

130 PHOTOGRAPHY I
FALL, SPRING **FEE 3 (2-4)**
Beginning with a basic introduction to black and white photography using chemical methods, the class will then move into digital techniques. Upon completion of this class, students will have a basic knowledge of the chemical darkroom; software for archiving, altering and storage of digital images; the camera; light metering, lighting, and flash use; as well as in-camera, darkroom and digital image manipulation. This course is a foundation course in the creation, use and selection of images for advertising and design.
Prerequisites: E, M, R

131 PHOTOGRAPHY II
SUMMER **FEE 3 (2-4)**
Students explore the materials, techniques, processes and ideas of advanced experimental photography using film (Silverprints, infrared, photo silk screen) advanced lighting and digital techniques (complex image manipulation, working across multiple programs and media). Previous relevant experience can serve as course prerequisites with permission of the instructor.
Prerequisites: E, M, R, GRDN 101 Digital Studio with a C or better and GRDN 130 Photography I with a C or better

140 PRODUCTION SKILLS FOR GRAPHIC DESIGN
SPRING **FEE 3 (2-4)**
This course emphasizes the practice of functional design by developing the student's knowledge of the production processes in graphic media. Designing a message to work efficiently within the production process and on budget while employing original thought.
Prerequisites: E, R, GRDN 101, GRDN 110, GRDN 130, or instructor's consent

200 PRINCIPLES OF TYPOGRAPHY
FALL **FEE 3 (2-4)**
This course is an introductory study to the typographic arts from the invention of writing to the advent of the computer age. It infuses an understanding of the historical and sociological pressures driving the development of written language with practical exercises. Emphasis will be placed initially on understanding type as an abstract design element. Once mastered, this principle will be used to communicate more complex ideas and compositions in real-world applications. Previous relevant experience can serve as course prerequisites with permission of the instructor.
Prerequisites: E, M, R, GRDN 101 with a C or better and ART 109 with a C or better

220 DIGITAL STUDIO II
SPRING **3 (2-4)**
This class builds on the design and development skills of Digital Studio I by focusing on longer projects as well as more in-depth content and advanced computer techniques. Students continue to work in teams producing communications such as brochures, newsletters and annual reports. They develop graphic and print production skills that solve specific communication challenges for clients and audiences. They build technical skills to address project needs and track complex projects. The class culminates with a portfolio redesign using the students themselves as the client and their next step as designers determining the audience. Although not required, it is suggested students complete or take concurrently GDRN 130 and GDRN 200. Previous relevant experience can serve as course prerequisites with permission of the instructor.
Prerequisites: E, M, R, GRDN 101 Digital Studio I with a C or better and ART 109 Basic Design I with a C or better

HEALTH (HEAL)

101 INTRODUCTION TO ALLIED HEALTHCARE CAREERS 2 (2-0)
This course provides an overview of the evolving healthcare system in the United States and introduces students to a variety of allied healthcare careers, including the expectations and demands of each.

103 MEDICAL TERMINOLOGY
SPRING **2 (2-0)**
This course will provide the basic terminology required for healthcare professionals. Students will cover the basic structure of medical terms, including prefixes, suffixes, combining forms and plurals as they pertain to various body systems. By the end of the course, students will have a working knowledge of medical vocabulary.

Prerequisite: R

113 NUTRITION AND DIET THERAPY
FALL, SPRING, SUMMER 3 (3-0)
Basic principles of human nutrition including nutrients and allowances for various ages and normal conditions. Use of diet therapy in disease and abnormal conditions. Course directed to students interested in health-related professions including nursing and dietetics.
Prerequisites: E, M, R

121 CALCULATIONS FOR HEALTHCARE PROFESSIONALS1 (1-0)
Calculations for Healthcare Professionals is an introduction of the basic principles of dosage calculation as it applies to medication administration. This course involves quantitative reasoning, critical thinking and professional application of medication dosages for various drug routes and weight-based calculations involved in direct patient care.
Prerequisites: E, M, R, MATH 122 or MATH 123

130 PHLEBOTOMY TECHNICIAN
FALL, SPRING, SUMMER FEE 5 (3-4)
This course prepares students for employment as a phlebotomy technician in clinical laboratories. Students will learn law and ethics for phlebotomists, infection control standards and safety guidelines, specimen collection techniques, and quality assurance methods. This course requires the completion of a minimum of 100 hours of supervised clinical practice in addition to classroom lectures and lab demonstrations. Upon successful completion of this course and clinical practice, students will be eligible to sit for the National Healthcareer Association certification exam.
Co-requisites: HEAL 101, HEAL 103, and BIOL 110

131 PHLEBOTOMY TECHNICIAN EXTERNSHIP
FALL, SPRING, SUMMER 5 (2-3)
The Phlebotomy Technician Externship course provides an opportunity for students to expand on the knowledge and skills learned in the Phlebotomy Technician course by working in a laboratory setting with varying patient populations. Students can expect to become proficient in blood drawing skills and interacting with the patient population during this required 100-hour externship. Students will also review material learned in HEAL 130 and prepare for the National Healthcareers Association Certified Phlebotomy Technician (CPT) examination.
Pre-requisites: HEAL 101, HEAL 103, HEAL 130, BIOL 110

140 ELECTROCARDIOGRAPHY TECHNICIAN (EKG)
FALL, SPRING FEE 4 (2-4)
This course is designed to provide an in depth understanding of the cardiovascular system, vital signs, and EKG techniques and interpretation. Students will learn heart physiology, the most commonly prescribed cardiovascular medications, and how to assess patients while performing an EKG. Students will obtain competency in the basic techniques of EKG application, interpretation of arrhythmias, dysrhythmias, EKG analyses and the effects of ischemia and myocardial infarction on the electrical system of the heart.
Prerequisites: BIOL 110, HEAL 101, HEAL 103

160 INTRODUCTION TO DENTAL ASSISTING FEE 3 (3-0)
This is an introductory course which will prepare students for entry into the Dental Assisting program. Topics presented include dental terminology, head, neck and dental anatomy, teamwork, role of the dental assistant, dental ethics and law, use of language, listening skills, and oral hygiene.

201 INTRODUCTION TO PUBLIC HEALTH 3 (3-0)
This course will provide an introduction to public health and the essentials of public health practice. Students will learn the basic public health functions and principles, historical context, the core disciplines of public health, essential functions of public health systems, and health communications.
Prerequisites: E, R

202 INTRODUCTION TO COMMUNITY HEALTH 3 (3-0)

This course introduces students to community health. Health issues with a community focus will be presented and students will learn about public health approaches that include: the history of community health, social determinants of health, epidemiology, environmental health, mental health, drug abuse, and maternal, infant, and child health.
Prerequisites: E, R

HISTORY (HIST)

101 HISTORY OF WESTERN CIVILIZATION I
FALL **4 (4-0)**
Explores evolution of Western cultural heritage from roots in the ancient world to the Italian Renaissance. Examines character and achievements of ancient civilizations of Mesopotamia, Egypt, Greece and Rome. Traces the rise and spread of great Western religions- Judaism, Christianity and Islam. Concludes with analysis of essential features of early and late medieval civilization, and changes wrought in European society by the Renaissance.
Prerequisites: E, R

102 HISTORY OF WESTERN CIVILIZATION II
SPRING **4 (4-0)**
Examines developments in the European world from 1500 to 1920. Begins with analysis of forces that shaped early modern society: Protestant Reformation, commercial revolution, rise of absolute monarchies and nation states and the scientific and intellectual revolution of 17th and 18th centuries. Explores the impact of two upheavals; The French Revolution and Industrial Revolution, on events and ideologies of 19th century. Among topics considered are growth of liberalism, socialism, Marxism, nationalism and scientific secularism and their social and political consequences. The study of causes and effects of World War I.
Prerequisites: E, R

201 AMERICAN HISTORY
FALL, SPRING **3 (3-0)**
United States history from the colonial period through Reconstruction. Topics include the process and problems of colonization, difficulties encountered in developing workable political structure, the process of democratization, socio-economic change, territorial expansion, rivalries leading to Civil War and the impact of the war. Special attention is paid to the modern legacy from America's past.
Prerequisites: E, R

202 AMERICAN HISTORY
FALL, SPRING **3 (3-0)**
United States history from Reconstruction to the present. Topics include conquest of the West, industrialization and its impact, various movements to reform America and the increasingly important role this country plays in the international community. Special attention is paid to the modern legacy from America's past.
Prerequisites: E, R

204 MODERN EAST ASIA
FALL **3 (3-0)**
Explores traditional cultures of China and Japan, their interaction with the West in the 19th and 20th centuries, and contemporary events and conditions in both nations. Examines how traditional political systems, social structures, economic systems and religions and philosophies were progressively modified under the impact of modernization but continue to influence contemporary culture. Studies the effects of Western encroachment on East-West relations in the modern period, and features the evolution of Communist China and Japan's imperialist experiment.
Prerequisites: E, R

205 AFRICAN AMERICAN HISTORY **3 (3-0)**
Reviews theories surrounding the early presence of black Africans in Ancient America. Presents an overview of the developments that led to the African slave trade and slave systems in North and South America. The challenges, contributions and culture of African Americans in North America from pre-Revolution to post-World War I are included.
Prerequisites: E, R

208 NON-WESTERN WORLD: LATIN AMERICA

ON DEMAND **3 (3-0)**
Latin America's history from its pre-Columbian roots to contemporary patterns. Topics include: Colonial Era discoveries, conquests and traits of Spanish colonization. Problems common to Latin American republics including, social and economic inequalities, recurrent revolutions and relations between U.S. and the Hispanic world.
Prerequisites: E, R

209 WOMEN IN THE WESTERN WORLD
SPRING **3 (3-0)**
Examines the experience of women in selected samples of Western cultures from the ancient world to modern times. Explores how societies create and modify definitions of gender-appropriate roles and behavior. Investigates how definitions affect women as family members, workers and participants in society. Analyzes how women respond historically to challenges and constraints of their lives and what insights, past experiences and modern feminist theory offer for an understanding in the present.
Prerequisites: E, R

210 THE CIVIL WAR AND RECONSTRUCTION
SPRING **3 (3-0)**
The history of the United States Civil War and Reconstruction period. Topics include the causes of the war, slavery, military history, major battles, the impact of the war on slavery, the politics of Reconstruction and the promise and problems of a biracial South. Special attention is paid to the legacy from the Civil War and Reconstruction on 21st-century America.
Prerequisites: E, R

HONORS (HONR)

The Honors Program at Lake Michigan College is open to all students who meet the requirements for admission. Honors courses are available in most academic areas and will be designated on the student schedule and transcript. The Honors Colloquium is required of all Honors students Fall and Spring semester. For more information please visit (www.lakemichigancollege.edu/academics/language/honors).

241 HONORS COLLOQUIUM
FALL, SPRING **1 (1-0)**
The Honors Colloquium, offered every FALL and SPRING semester, involves an intensive study/research on a topic for that year to go along with the theme(s) of the public lectures for that year. All honors students are required to register for the Colloquium every semester they are in the Program. The Colloquium topic will be announced each year. The Colloquium incorporates open discussion of the main theme and mutual criticism and the study/research projects related to the main theme being done by the participants. The Colloquium includes attendance at the public lectures and discussion with these lecturers.

HOSPITALITY (HOSP)

110 SANITATION
FALL, SPRING **1 (1-0)**
Sanitation policies necessary to effectively operate a commercial food service facility. Students successful in the course will receive Educational Foundation of National Restaurant Association Certification in Applied Food Service Sanitation and Michigan State Certification.

111 RESPONSIBLE BEVERAGE SERVICE
FALL, SPRING **1 (1-0)**
This class explores the service policies and practices necessary to effectively serve alcohol in a hospitality establishment. Upon successful completion, students will receive ServSafe Certification in Applied Alcohol Service Training.

115 SAFETY AND LEGAL OVERVIEW
FALL **3 (3-0)**
Course provides awareness of rights and responsibilities that law grants or imposes in the hospitality industry.
Prerequisites: E, R

117 EVENT MANAGEMENT 3 (3-0)
Overview of the planning and implementation of meetings and events that includes types of meetings and events, site selection, marketing, media technology, food and beverage, budget, reservations, and evaluation.

120 PROFESSIONAL COOKING I FEE 2 (1-3)
This course is designed to give the student an introduction to the professional kitchen and preparation techniques. The student will gain competency in knife skills; food safety practices; fiber component of vegetables; selection and USDA grades of meat, poultry and seafood and their composition, structure and classification; factors affecting tenderness; storage; and cooking techniques.

130 GUEST SERVICE AND ETIQUETTE 3 (3-0)
This course provides the foundation for modern hospitality guest service, professional etiquette, and food and beverage service techniques. Classroom activities focus on lifelong guest service relationship building strategies, fine-tuning the students own style of professional interactions and behaviors, as well as learning modern dining room techniques and standards. Proper grooming, dress, and communications are emphasized.

150 INTRODUCTION TO HOSPITALITY CAREERS
FALL, SPRING 3 (3-0)
Covers career opportunities in restaurants, hotels, institutional feeding, travel and tourism, and hospitality management for those considering the hospitality industry as a career.

200 HOSPITALITY MANAGEMENT INTERNSHIP
FALL, SPRING, SUMMER 3 (3-0)
Supervised work experience integrates academic study with hospitality industry experience in hotel/motel or restaurant work site. Students work 120 hours at assigned hospitality management sites and complete 15 hours of campus class time. Students must meet with Program Coordinator prior to enrollment.
Prerequisites: HOSP 110, HOSP 115, HOSP 150, HOSP 252

201 RESTAURANT OPERATIONS
SPRING 3 (3-0)
Overview of restaurant operations that includes menus, cost control, financial operations, training, staffing, equipment and product purchasing, marketing, regulations, sanitation and customer service.
Prerequisites: E, M, R

202 INTRODUCTION TO CASINO MANAGEMENT 3 (3-0)
This course provides an overview of casino operations and management. Topics include gaming trends in the United States, government regulations, staffing, credit, security, marketing, entertainment, and casino games.
Prerequisites: E, M, R

250 FOOD PREPARATION SKILLS
SPRING FEE 2 (0-4)
Proficiency in tool, equipment usage, standardized recipes found in a commercial kitchen and learn to insure a high level of guest satisfaction. Emphasis on soup, sauces, entrees, salads, fruits and vegetables.
Prerequisites: M, R

251 MARKETING OF HOSPITALITY SERVICES
FALL 3 (3-0)
Marketing mix related to hospitality service sector. Students learn why marketing is a hot topic in the hospitality industry. Implementation of marketing concepts in a competitive climate in the hospitality industry is essential to a successful student.
Prerequisites: E, M, R

252 HUMAN RESOURCES 3 (3-0)
Prepares student for transition from employee to supervisor. Students evaluate styles of leadership and develop effective skills in human relations and personnel management.

253 TOURISM

SPRING **3 (3-0)**
Understanding of tourism, its nature, history and organization. Topics include cultural aspects, sociology, psychology and motivation, economics, forecasting demand, consumers, research, and planning and development for tourism industry.
Prerequisites: E, M, R

255 HOTEL MANAGEMENT AND OPERATIONS
FALL **3 (3-0)**
Provides knowledge of the management of flow of operations to all hotel departments. Includes finance, front office, housekeeping, maintenance, marketing, engineering, information management, security, and food and beverage. Utilizes real-world case studies that correlate management problems with problem solving techniques.
Prerequisites: E, M, R

275 BEVERAGE MANAGEMENT
FALL **FEE 3 (3-0)**
Overview of beverage management that includes menus, cost control, financial operations, training, staffing, equipment and product purchasing, guest service, marketing, mixology, regulations, sanitation and beverage service.
Prerequisites: E, M, R

295 HOSPITALITY MANAGEMENT INTERNSHIP II **3 (3-0)**
The second hospitality management internship is a source of learning and enhancement to the student's academic experience and career goals. Achieved through experiential education, the student is engaged in a partnership between LMC and leading hospitality industry partners. Hospitality Internship II is designed to be supervisory in nature requiring supervising of people, and/or managing specific projects at the property. This unique learning experience will be guided by these work related experiences as well as academic reflection and learning designed to enhance the student's knowledge and readiness to transfer into a great career in the hospitality industry.
Prerequisite: HOSP 200

HUMANITIES (HUMN)

105 AWARENESS OF THE FINE ARTS **FEE 1 (1-0)**
Interdisciplinary study to develop awareness of interrelationships of various fine arts and investigate impact upon contemporary society from variety of perspectives. Various methods of instruction used, including independent reading or research, lecture and discussion, projects associated with field trip, or travel of recognizable educational value. If trip is major thrust of course, includes pre-trip preparation with readings, videos and written assignments and post-trip evaluation such as written assignment, journal or test.

201 INTRODUCTION TO THE ARTS **3 (3-0)**
This cross-disciplinary course is intended to enhance individual critical sensibility and responsiveness to the arts. This course consists of two complimentary components: the first, an introductory survey of influential theories on criticism and on the nature of art; and the second, a survey of the distinguishing formal characteristics of major artistic media.
Prerequisites: E, R

207 INTRODUCTION TO STORY AND MEDIA
FALL **3 (3-0)**
Explores how nature and substance of stories humankind has used to express and define values have been shaped by various written and visual media used to communicate insights.
Prerequisites: E, R

208 INTERPRETING FILM AND FICTION
FALL **3 (3-0)**
Approaches to find and test meanings in films, short fiction, novels and plays. Particular works in media considered in terms of critical literacies each requires.
Prerequisites: E, R

209 INTRODUCTION TO THE ART OF CINEMA

FALL **3 (3-0)**
The social, cultural and artistic nature and significance of motion pictures, in addition to critical exploration of current films, touch-stone films used to document historical development of cinematic techniques and genres.
Prerequisites: E, R

210 ARTS IN THE MODERN WORLD
FALL **3 (3-0)**
Team-taught, cross-disciplinary introduction to major concepts, media and arts that both shape and reflect modern and post-modern culture.
Prerequisites: E, R

211 STUDIES IN FILM ART
SPRING **3 (3-0)**
Critical exploration of general concepts of genre, style, theme and technique of related films. Specific focus and films vary each semester, with emphasis indicated in class schedule.
Prerequisites: E, R, HUMN 209 or consent of instructor

212 ARTS AND IDEAS I
FALL **3 (3-0)**
Survey of literature and philosophical works that form Western cultural heritage. Works representative of attitudes and artistic expression of major cultural periods examined for what they reveal about values of their cultures and relevance to life in 20th century. Contributions of these cultural periods considered: early Judeo-Christian religious thought and experience; philosophical insights and literary traditions of classical Greece and Rome; medieval synthesis of classical attitudes and Christianity; and culmination of these attitudes in Renaissance Humanism.
Prerequisites: E, R

213 ARTS AND IDEAS II
SPRING **3 (3-0)**
Continuation of HUMN212 which is not prerequisite. Contributions of these cultural periods considered: Enlightenment, Romanticism, modern and contemporary times.
Prerequisites: E, R

221 PORTRAITS OF THE ARTIST
SPRING **3 (3-0)**
Major concepts that define artists in terms of unique identities, social roles and responsibilities to contemporary audiences and posterity.
Prerequisites: E, R

294 FIELD EXPERIENCE IN THE FINE ARTS **3 (3-0)**
Travel course of interdisciplinary nature where the world of theatre, music, dance and visual arts are explored in a metropolitan setting. Course may visit literary sites and participate in multicultural and international activities. Students assigned pre-trip readings, videos and written assignments; may complete trip journal; and have post-trip written assignment, test or other means of evaluation.

INDUSTRIAL MAINTENANCE TECHNOLOGY (INMT)

204 BASIC HYDRAULICS AND PNEUMATICS
FALL, SPRING **FEE 2 (1-2)**
Basic industrial fluid power systems common to field of industrial automation. Course includes basic principles, components, standards, symbols, cylinders, intensifiers, valves, motor circuits and related electrical control.
Prerequisites: M, R.

205 HYDRAULICS AND PNEUMATICS MAINTENANCE
FALL FEE 2 (1-2)
Troubleshooting, preventive maintenance and repair methods for industrial fluid power systems common to field of industrial automation. Topics include pumps, cylinders, intensifiers, valves, motor circuits and related electrical control.
Prerequisites: M, R, INMT 204

206 HYDRAULIC AND PNEUMATIC CIRCUITRY
SPRING FEE 2 (1-2)
Practical hydraulic and pneumatic power and control circuitry; selection of control methods and component sizing for desired function, timing, sequence, speed and pressure requirements. Considerations such as cost, efficiency, energy consumption and maintainability with practice in connecting circuits and testing proper function.
Prerequisites: M, R, INMT 204

240 PREDICTIVE AND PREVENTIVE MAINTENANCE
FALL, SPRING FEE 3 (2-2)
Predictive maintenance, team-driven maintenance tasks, and corrective maintenance to provide comprehensive support for all plant production and manufacturing systems. Emphasize regular evaluation of critical plant equipment, machinery and systems to detect potential problems and develop appropriate maintenance timelines to prevent problems from occurring.
Prerequisite: E, M, R, INMT 204

INFORMATION TECHNOLOGY SYSTEMS (ITS)

120R LEGAL, ETHICAL, AND REGULATORY ISSUES 3 (3-0)
Exploration of legal and ethical issues unique to information security. Analysis of professional ethical codes and their application to information security practitioners. Federal and state laws as they relate to information security. This course is delivered through a partnership with Rio Salado College.

240 ETHICAL HACKING AND NETWORK DEFENSE 3 (3-0)
Preparation for the EC Council Certified Ethical Hacking examination. In depth exploration of how to effectively protect computer networks from risks ranging from malicious infiltration to cyberwarfare. Includes examination of ethical hacking, relevant tools and methodologies, and its importance to network security. Resources to identify new computer network vulnerabilities and counter security strategies will be discussed as well as an overview of relevant computer crime laws and penalties. This course is delivered through a partnership with Rio Salado College.
Prerequisite: CIS 156

INSURANCE (INS)

100R INSURANCE INDUSTRY PROFESSION 3 (3-0)
Introduction to the insurance industry profession and environment. Includes identification of personal career goals, effective workplace behaviors and professionalism in the workplace in addition to strategies for problem solving and conflict management. Also covers the importance of integrity and ethical behavior in the insurance industry. This course is delivered through a partnership with Rio Salado College.

INS 200R PRINCIPLES OF PROPERTY AND LIABILITY INSURANCE 3 (3-0)
Basic principles of insurance. Introduction to insurance contracts. Overview of company functions and operations including ratemaking, underwriting, claims, adjusting, and marketing. This course is delivered through a partnership with Rio Salado College.

205R PERSONAL INSURANCE3 (3-0)
Analysis of personal loss exposures and personal insurance coverages including homeowner's, other dwelling coverages, personal liability, auto, life, health, and government programs. This course is delivered through a partnership with Rio Salado College.
Prerequisite: INS 200R

210R COMMERCIAL INSURANCE 3 (3-0)
Analysis of commercial coverages including property, business income, inland marine, ocean marine, crime, boiler, general liability, auto, and worker's compensation. Analysis of loss exposures and explanation of coverage parts. This course is delivered through a partnership with Rio Salado College.
Prerequisite: INS 200R

220R CLAIM HANDLING PRINCIPLES AND PRACTICES 3 (3-0)
Introduction to the claim settlement process including skills for a claims adjuster/examiner. Covers structure of claim departments, handling claims, investigating claims, setting and maintaining loss reserves, and good faith claims. Communication and negotiating techniques are emphasized. This course is delivered through a partnership with Rio Salado College.
Prerequisites: INS 100R, INS 200R

MACHINE TOOL TECHNOLOGY (MACH)

110 MACHINE TOOL I
FALL, SPRING FEE 3 (1-4)
Introductory course includes machining theory, demonstrations and shop experience. Basics in safety, blueprint reading, layout, band sawing, machine setup, lathe work, milling machine work and surface grinding. Machine theory and machine application comply with National Institute for Metalworking Skills (NIMS) Level I Machining Skill Standards.

120 MACHINE TOOL II
FALL, SPRING FEE 3 (1-4)
Advanced course covers metals, their composition and heat treatment, machining of threads and tapers on a lathe, milling of gears and other advanced machining and precision machining techniques will be introduced. Machine theory and machine applications comply with National Institute for Metalworking Skills (NIMS) Level I and Level II Machining Skill Standards.
Prerequisite: MACH 110

130 PRECISION INSPECTION
FALL, SPRING FEE 3 (2-2)
Methods of inspecting industrial products. Emphasis on measuring devices such as sine bar, gage blocks, micrometers, vernier scales, electronic comparator and coordinate measuring machine. Students will develop skills in basic blue print reading, geometric dimensioning and tolerancing, understanding datums, and using the inch and metric systems.
Prerequisites: M, R

140 INTRODUCTION TO NUMERICAL CONTROL (NC) COMPUTER NUMERICAL CONTROL (CNC)
FALL, SPRING FEE 2 (1-2)
Numerically controlled machines for metal cutting. Required course for students enrolled in Machine Tool program, also recommended as introductory experience for employees attending factory training schools in future. Systems studied include microcomputer-controlled machines and CAD/CAM systems.
Prerequisites: M, R

150 INTRODUCTION TO CAM
FALL, SPRING, SUMMER FEE 2 (1-2)
Introductory course which included the basic concepts of CAM usage and progresses and Geometric definition, 2D Toolpaths, 3D Contouring and Surface Machining.
Prerequisites: M, R

241 CNC PROGRAMMING I
FALL, SPRING, SUMMER FEE 2 (1-2)
Second of three courses in CNC sequence and required for students in Machine Tool program. Course teaches students to program numerically controlled machine tool and machine shape called out on part print. Programs for three axis machines prepared and used to make completed parts. Students learn to select appropriate fixtures, tools, inserts, speeds, feeds and depth of cuts. Laboratory concentrates on preparation and debugging of tool path, tool application, selection of speeds and feeds, and auxiliary machine functions. Employs special features of computerized machining such as contour interpolations, absolute incremental switching, inch/metric selection, and tool offsets.

Prerequisites: M, R, MACH 140

242 CNC PROGRAMMING II
FALL, SPRING **FEE 2 (1-2)**
Third of three courses in CNC sequence. An elective course for students in Machine Tool Program. Content designed to provide opportunity for student to gain advanced programming and machining skills. Students will employ special advanced features of computerized machining such as polar coordinate programs and special machine programming functions. *Prerequisites: M, R, MACH 241*

MANUFACTURING TECHNOLOGY (MANU)

111 MANUFACTURING PROCESSES I
FALL, SPRING **3 (2-2)**
Introductory course includes historical perspective of manufacturing, materials processing, product development, material selection, and business principles and functions as related to manufacturing. May be offered in alternate formats.
Prerequisites: M, R

112 INTRODUCTION TO FABRICATION
FALL, SPRING, SUMMER **FEE 4 (3-1)**
Students will learn to use commercially available technologies to conceptualize, design, develop, fabricate and test objects. The lab features advanced computer software and contemporary tools for cutting, milling, electronics, engraving and other processes of rapid and automated prototyping. Products and processes are typically individualized but can be developed entrepreneurially for commercial production.

120 FUNDAMENTALS OF PROGRAMMABLE CONTROLLERS
FALL, SPRING **FEE 2 (1-2)**
Introductory course to familiarize students with programmable controllers. Units include logic, input/output capabilities, programming and entering and editing programs.
Prerequisites: M, R

122 INTRODUCTION TO ROBOTICS
FALL, SPRING **FEE 2 (1-2)**
An introductory course designed to familiarize students with types of robots, axis designation, applications, terminology, drive systems and control systems as related to industrial robots.

222 INDUSTRIAL ROBOTICS
FALL, SPRING **4 (3-2)**
This course is designed to provide students with basic operational knowledge and skills in working with robots. This course consists of classroom instruction and hands-on laboratory activities designed to reinforce the learning process and prepare students to perform basic robot manipulation.
Prerequisites: MANU 122

224 ROBOTICS INFRA-RED SYSTEMS
FALL, SPRING **2 (1-2)**
This course is designed to provide students with basic operational knowledge and skills in working with FANUC robots equipped with Infra-Red (iR) Vision navigation capabilities. This course consists of classroom instruction and hands-on laboratory activities designed to reinforce the learning process and prepare students to perform basic robot manipulation. This course covers the basic tasks and procedures required for an operator, technician, engineer or programmer to set up, teach, test and modify iRVision applications on a Robot Controller. This course is intended for the person who must install, set-up, program and troubleshoot a FANUC America iRVision system.
Prerequisites: MANU 222 with a C or better

260 AUTOMATION FOR MANUFACTURING **FEE 3 (2-2)**
This course offers an in-depth study of fundamentals of automation and robotics. Topics of study to include areas such as the physical structure of robots, drive systems, sensors, end effectors, and the programming of industrial robots. Major topics also

include: safety issues in automation and sensors in automation. Also covers fixturing and mechanical mechanisms used in automation.
Prerequisites: MANU 120, MANU 122

261 AUTOMATION FOR MANUFACTURING II FEE 3 (2-2)
This course offers an in-depth study of fundamentals of automation and robotics. Topics of study to include areas such as the physical structure of robots, drive systems, sensors, end effectors, and the programming of industrial robots. Major topics also include: safety issues in automation and sensors in automation. Also covers fixturing and mechanical mechanisms used in automation.
Prerequisites: MANU 260

MATHEMATICS (MATH)

023A FOUNDATIONS OF QUANTITATIVE REASONING3 (3-0)
This course is designed to provide a just-in-time approach to support non-STEM major
students currently enrolled in MATH 123, Quantitative Reasoning. The course focuses on developing numeracy and quantitative literacy, improving critical thinking and problem-solving skills, as well as cultivating various learning strategies for mathematical success and confidence. Conceptual understanding of applications are emphasized using Microsoft Excel as a tool.
Prerequisite(s): R, NGQA of 230 or Higher
Co-requisite: MATH 123

095 MATH LITERACY FOR COLLEGE STUDENTS
FALL, SPRING, SUMMER 4 (4-0)
Math Literacy for College Students is a one semester transitional studies math course integrating numeracy, proportional reasoning, algebraic reasoning, and functions. Students will develop conceptual and procedural tools that support the use of key mathematical concepts in a variety of contexts. Throughout the course, college success content will be integrated with mathematical topics. Credit earned does not count toward any degree. Upon successful completion of the course, students may take Quantitative Reasoning (MATH 123), or Intermediate Algebra (MATH 122).
Prerequisite: R, Classic Accuplacer 58 or NEW SAT 23 (or 460) or ACT 18 or NGQA 230
Co-requisite: MATH 095A if NGQA score is below 230

095A MATH LITERACY- ENRICHMENT
FALL, SPRING, SUMMER 2 (2-0)
Math Literacy Enrichment is intended for students who need extra support to be successful in MATH 095. Content will focus on the basic Arithmetic and Pre-Algebra content needed to be successful in MATH 095 and beyond. Study skills and time management will also be addressed.
Prerequisite(s): NGQA below 230 or HS GPA below 2.0 and concurrent enrollment in MATH 095

100 APPLIED MATHEMATICS
FALL 4 (4-0)
Basic mathematics needed in occupational fields such as machine tool, electronics, industrial manufacturing, service and maintenance, etc. Topics include fractions, percent, decimals, angular measurement, square root, basic geometry, formulas and basic algebra conversions. Practice and practical applications
Prerequisites: M, R

110 TECHNICAL MATHEMATICS I
SPRING 4 (4-0)
Introduction to mathematics applicable to technical areas. Includes topics in dimensional analysis, problem solving, approximate numbers, trigonometry of right angle and oblique triangles, vectors, radian measure, algebra and geometry applications and metric measurement and conversion.
Prerequisites: M, R, MATH 100 or MATH 128 or MATH 130 or MATH 135 with a grade of C or better

122 INTERMEDIATE ALGEBRA
FALL, SPRING, SUMMER 4 (4-0)

Provides students with sufficient algebraic knowledge and skills for success in subsequent mathematics or science courses. Brief review of four fundamental operations, real number system, factoring, fractions, linear and fractional equations and inequalities, linear and quadratic functions and their graphs, systems of equations, determinants and Cramer's Rule, exponents and radicals, quadratic equations.
Prerequisites: R, MATH 095 with C or better or associated placement test score(s)
NOTE: This is a renumbering of MATH 101.

123 QUANTITATIVE REASONING
FALL, SPRING, SUMMER **4 (4-0)**
Quantitative Reasoning is designed to provide students with relevant mathematics and critical thinking skills they will need for their future college courses, their careers and their civic lives. The design provides a thematic, contextual approach that covers the fundamental quantitative skill set in depth. Topics include ratios, rates, percentages, units, descriptive and inferential statistics, linear and exponential modeling, correlation, logic and probability. This project-based course uses Microsoft Excel and emphasizes conceptual understanding and applications. Reading of current newspaper articles and exercises involving personal finance are incorporated to place the mathematics in real-world context.
Prerequisites: R, M, MATH 095 with a C or better

128 PRE-CALCULUS ALGEBRA
FALL, SPRING, SUMMER **4 (4-0)**
This course in college algebra prepares the student for calculus. Topics include: review of exponents and factoring, equations, graphs and functions, composite functions, inverse functions, exponential and logarithmic functions, systems of equations, linear programming, introduction to matrix algebra, complex numbers, sequences, and the binomial theorem.
Pre-requisite: MATH 122 or MATH 123 and MATH 128A
Co-requisite: MATH 128A **NOTE:** This is a renumbering of MATH 109.

128A PRE-CALCULUS ALGEBRA ENRICHMENT
FALL, SPRING, SUMMER **1 (1-0)**
Provides students with structured support to build on algebraic knowledge for success in Pre-Calculus Algebra. Pre-Calculus Algebra enrichment is designed for the student who has taken MATH 123 and has sufficient knowledge in basic algebra, but needs a review of concepts from intermediate algebra, or for students who have successfully taken MATH 122 previously and would benefit from a refresher. Topics include: factoring polynomials, simplifying expressions, solving equations, solving inequalities, functions and their graphs, and systems of equations.
Prerequisites: R, AA (Advanced Algebra) 237-249, SAT 27.5, SAT Math Section 550, Accuplacer College Level Math 55, ACT Math 23, Compass Algebra 66, MATH 122, MATH 123 Co-Requisite: MATH 128

129 FINITE MATHEMATICS
FALL, SPRING **4 (4-0)**
Finite Mathematics is designed to give business, economics, management, life science and social science students a firm background in finite math. Topics include: linear Functions; Mathematical Modeling of Linear Functions; Polynomial Functions (quadratic, cubic); Exponential and Logarithmic Functions; Inequalities; Mathematics of Finance; Counting Principals, Linear Programming; Linear Programming using Simplex Method and Revised Simplex Method; Systems of Linear Equations and Matrices; Measures of Central Tendency; Measures of Dispersion; Graphing Statistical Data; Simple Probability - Including Independent Events, Mutually Exclusive Events, Conditional Probabilities; Series and Sequences.
Prerequisites: R, MATH 122 or MATH 123

130 PRE-CALCULUS TRIGONOMETRY
FALL, SPRING **3 (3-0)**
Fundamental concepts of trigonometry and elementary applications of results. Topics include angle measure, fundamental identities, variation and graphs of trigonometric functions, right angle trigonometry, equations and polar coordinates. For students who intend to take calculus, this course may be taken after or concurrently with Math 128.
Prerequisites: R, MATH 122 with C or better, or associated placement test score(s)
NOTE: This is a renumbering of MATH 105.

135 PRECALCULUS ALGEBRA/TRIG
FALL, SPRING **5 (5-0)**

This course is designed to provide the student with basic algebraic and trigonometric concepts necessary for calculus. Topics include: real numbers, inequalities, coordinate systems, functions, polynomials, solutions of polynomial equations, exponential and logarithmic functions, trigonometry and trigonometric functions.
Prerequisites: R, MATH 122 with C or better or associated placement test score(s)

151 CALCULUS I
FALL, SPRING **5 (5-0)**
Study of calculus of single variable. Topics include limits, derivative and integral properties of algebraic and transcendental functions and elementary applications of derivatives and integrals.
Prerequisites: R, MATH 128 and MATH 130 with C or better or MATH 135 with C or better or associated placement test score(s)

152 EARLY MATHEMATICAL REASONING **3(3-0)**
Young children are naturally curious about how numbers work. In this course we will discuss ways that teachers can build off of that natural intuition to develop children's ability to count and represent their count, decompose and recompose numbers, and reason using numerical properties. We will also consider how children first identify and describe shapes and discuss ways that teachers can utilize hands-on, exploratory activities to foster the development of that thinking by encouraging them to characterize, sort, and classify shape according to important attributes.
Prerequisite(s): E, R, MATH 123

200 MATHEMATICS FOR ELEMENTARY TEACHERS
FALL, SPRING **4 (4-0)**
For students preparing to teach grades K-6. Gives prospective teachers thorough understanding of important mathematical concepts, terminology and relationships. Helps students see how these concepts are presented to children at each grade level. Students expected to observe teaching of elementary children in actual classroom.
Prerequisites: R, MATH 095 or associated placement test score(s)

201 CALCULUS II
SPRING **5 (5-0)**
Continuation of MATH151. Topics include analytic geometry, techniques and applications of integration, infinite series, polar coordinates and vectors in two space.
Prerequisites: R, MATH 151 with C or better.

202 CALCULUS III
FALL **5 (5-0)**
Calculus with multiple independent variables. Topics include three dimensional vectors, partial derivatives, multiple integrations and vector analysis.
Prerequisites: R, MATH 201 with C or better

205 TECHNICAL MATHEMATICS II **4 (4-0)**
Applied course for students in engineering and industrial technologies. Includes selected topics from analytic geometry, derivatives, integrals and their applications.
Prerequisites: MATH 110 or MATH 130

210 GEOMETRY FOR ELEMENTARY TEACHERS
FALL, SPRING **4 (4-0)**
This course explores the fundamental ideas of planar and spatial geometry. Content includes the analysis and classification of geometric transformations; symmetry and similarity; and an overview of measurement. The course also includes an introduction to the use of computers in the teaching and learning of informal geometry. This course was specifically designed to transfer to Western Michigan University's elementary education program and may not transfer to other institutions.
Prerequisites: R, MATH 095 with C or better or Accuplacer 71 on Elem Alg or SAT 530 (26.5) or ACT Math 20 or compass math 46 or pre Alg and 48 Alg.

216 INTRODUCTION TO STATISTICS **3 (3-0)**
Statistical decision-making is surveyed. The topics include sampling techniques, tabular and graphical data, measures of central tendency and variability, simple probability, probability distributions (binomial, normal, t, chi-square and F), Central Limit Theorem, correlation and regression, estimation, hypothesis testing, analysis of variance and index numbers.

Prerequisites: E, R, MATH 122 or MATH 123 or MATH 128 or MATH 129 or equivalent

226 TEACHING OF WHOLE NUMBERS AND OPERATIONS 3 (3-0)
In-depth explorations of the mathematical content and methods relevant to the development of Grade PK-6 children's understanding, thinking processes, strategies, and problem-solving skills in the area of whole number concepts and operations. Field experience with children held in an elementary school.
Prerequisite(s): E, R, MATH 122 or 123

252 DIFFERENTIAL EQUATIONS
SPRING 4 (4-0)
Ordinary differential equations. Topics include equations with equations separable, homogeneous equations, exact equations, integrating factors, linear equations with constant coefficients, simultaneous linear equations and Laplace transformation. Applications to physics and engineering.
Prerequisites: R, MATH 201 with a C or better or MATH 202 with a C or better

253 NUMBER AND COMPUTATION I 3 (3-0)
In this course we will discuss ways that teachers can develop children's ability to reason numerically as they explore our number system. We will focus on developing our own procedures for addition and subtraction and making links between invented methods and conventional algorithms. The overall emphasis is placed on conceptual understanding through the use of hands-on activities as well as strategies to develop and assess children's understanding. Attention will be given to the affordances and limitations of different representations (e.g. base-ten blocks and number lines).
Prerequisite(s): E, R, MATH 123, MATH 152

254 NUMBER AND COMPUTATION II 3 (3-0)
In this course we will discuss ways that teachers can develop children's ability to reason numerically as they continue to explore our number system. We will focus on developing our own procedures for multiplication and division and making links between invented methods and conventional algorithms. The overall emphasis is placed on conceptual understanding through the use of hands-on activities as well as strategies to develop and assess children's understanding. Attention will be given to the affordances and limitations of different representations (e.g. base-ten blocks, discrete arrays, and area models).
Prerequisite(s): E, R, MATH 123, MATH 253

265 PROBABILITY AND STATISTICS FOR ELEMENTARY/MIDDLE SCHOOL TEACHERS
FALL, SPRING 4 (4-0)
This course explores the basic concepts of statistics and probability appropriate for elementary and middle school teachers. Topics include statistical techniques for organizing, summarizing, presenting and interpreting data; sampling techniques; simulation methods; counting techniques; and analytic methods in probability. Graphing calculators are used to reinforce major course ideas.
This course is designed specifically to transfer Western Michigan University's elementary education program and may not transfer to other institutions.
Prerequisites: R, MATH 200 with a C or better

MEDICAL ASSISTING (MEDA)

102 LAW AND ETHICS FOR MEDICAL ASSISTING
SPRING 3 (3-0)
Students will learn about the scope of practice of a medical assistant and be introduced to the legal and ethical issues associated with the Medical Assisting profession.
Prerequisites: BIOL 110, HEAL 101, HEAL 103

104 MEDICAL OFFICE PROCEDURES I
SPRING 4 (4-0)
In this course students are introduced to administrative procedures and different forms of communication utilized in a medical office setting. Students will learn computer concepts, effective communication skills and techniques, proper telephone etiquette, scheduling, patient registration, and daily operations in a medical office environment. Compliance with the Health Insurance Portability and Accountability Act (HIPAA) is also addressed in this course.

Prerequisites: HEAL 101, HEAL 103, BIOL 110, BIOL 205, BIOL 206

202 HUMAN DISEASE OVERVIEW
SUMMER, SPRING **3 (3-0)**
This course covers common diseases associated with human body systems. Topics will include diagnostic procedures and treatment modalities, and appropriate methods of patient instruction and education as they relate to diseases and disorders. Students will also learn about nutrition and health promotion.
Prerequisites: HEAL 101, HEAL 103, BIOL 110

203 PHARMACOLOGY FOR MEDICAL ASSISTING
SUMMER, SPRING **3 (3-0)**
This course covers theoretical and practical instruction for the administration of medications, identification of commonly administered drugs, their uses and effects on the body, and their interaction with other prescription and non-prescription drugs. Emphasis will be placed on classifications, uses, routes of administration, dosages and side effects. Students will be expected to perform basic math, calculation of drug doses and become familiar with immunization schedules.
Prerequisites: MEDA 102, MEDA 202, MEDA 204

204 MEDICAL ASSISTANT CLINICAL LAB I
SUMMER, SPRING **FEE 4 (2-4)**
This course covers basic clinical procedures and fundamental principles utilized in the medical setting. Student will learn how to work with physicians and prepare patients for physical examination. Topics include patient history and assessment, vital signs, infection control and aseptic techniques, safety and first aid, CPR/AED training and patient education.
Prerequisites: BIOL 110, HEAL 101, HEAL 103

211 MEDICAL OFFICE PROCEDURES II
FALL, SUMMER **3 (3-0)**
This course is a continuation of Medical Office Procedures I. Students will cover more complex medical office functions, including finances, practice management and banking procedures. Students will acquire and apply knowledge of the electronic health record as it relates to patient accounts, the financial practices of the medical office, human resources management and marketing for the medical office.
Prerequisites: MEDA 102, MEDA 104, MEDA 202, MEDA 204

212 MEDICAL CODING
FALL, SUMMER **3 (3-0)**
Students will incorporate their knowledge of medical terminology as it relates to disease diagnosis and treatment, management of patient information and medical claims processing. Emphasis will be placed on developing a working knowledge of diagnostic and procedural terms utilizing the International Classification of Disease (ICD) and the American Medical Association's (AMA) current Procedural Terminology (CPT).
Prerequisites: MEDA 102, MEDA 104, MEDA 202, MEDA 204

214 MEDICAL ASSISTANT CLINICAL LAB II
FALL, SUMMER **FEE 5 (3-4)**
This course will build upon skills learned in Clinical Lab I. Students will learn how to coordinate laboratory testing for patients, develop skills necessary to perform diagnostic screening procedures, patient care, assisting with specialized exams, accurately perform an EKG, and blood drawing techniques.
Prerequisites: MEDA 102, MEDA 104, MEDA 202, MEDA 204

221 MEDICAL ASSISTANT EXTERNSHIP
SPRING, FALL **3 (0-6)**
The externship provides an opportunity for the student to experience working in a licensed healthcare practitioner's office or other clinical setting. Students will have the opportunity to work with established partner sites or find their own externship site with approval of the Program Director. The student will be required to perform 200 hours of supervised clinical and administrative medical assisting tasks in an ambulatory care or hospital setting. During the externship, the student will be evaluated by the physician or another qualified designated staff member.
Prerequisites: MEDA 203, MEDA 211, MEDA 212, MEDA 214

222 MEDICAL ASSISTANT CERTIFICATION REVIEW
FALL, SPRING **FEE 3 (3-0)**
This course is designed to review all Medical Assisting program standards in preparation for the National Certified Medical Assisting Examination.
Prerequisites: MEDA 203, MEDA 211, MEDA 212, MEDA 214

MUSIC (MUSI)

100 BEGINNING APPLIED MUSIC **FEE 1 (0-.5)**
Beginning applied music classes are individual instruction, intended for personal enrichment.

100A BEGINNING APPLIED VOICE **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Voice lessons.

100B BEGINNING APPLIED PIANO **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Piano lessons.

100C BEGINNING APPLIED ELECTRIC/ ACOUSTIC GUITAR **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Electric/Acoustic Guitar lessons.

100D BEGINNING APPLIED CLASSICAL GUITAR **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Classical Guitar lessons.

100E BEGINNING APPLIED TRUMPET, CORNET **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Trumpet, Cornet lessons.

100F BEGINNING APPLIED ORGAN **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Organ lessons.

100G BEGINNING APPLIED JAZZ PIANO **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Jazz Piano lessons.

100H BEGINNING APPLIED VIOLIN **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Violin lessons.

100I BEGINNING APPLIED VIOLA **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Viola lessons.

100J BEGINNING APPLIED CELLO **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Cello lessons.

100K BEGINNING APPLIED STRING BASS **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning String Bass lessons.

100L BEGINNING APPLIED ELECTRIC BASS **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Electric Bass lessons.

100M BEGINNING APPLIED FLUTE **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Flute lessons.

100N BEGINNING APPLIED OBOE **FEE 1 (1-0)**
Individual instruction, intended for personal enrichment. Beginning Oboe lessons.

100O BEGINNING APPLIED BASSOON FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Bassoon lessons.

100P BEGINNING APPLIED CLARINET FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Clarinet lessons.

100Q BEGINNING APPLIED SAXOPHONE FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Saxophone lessons.

100R BEGINNING APPLIED FRENCH HORN FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning French Horn lessons

100S BEGINNING APPLIED TROMBONE FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Trombone lessons.

100T BEGINNING APPLIED EUPHONIUM-BARITONE FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Euphonium, Baritone lessons.

100U BEGINNING APPLIED TUBA FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Tuba lessons.

100V BEGINNING APPLIED PERCUSSION FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Percussion lessons.

100W BEGINNING APPLIED HARP FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning Harp lessons.

100X BEGINNING APPLIED MUSIC COMPOSITION FEE 1 (1-0)
Individual instruction, intended for personal enrichment. Beginning music composition lessons.

101 CONCERT CHOIR
FALL, SPRING 2 (0-4)
Varied range of sacred and secular music for purpose of study and performance. Choir performs in regular concerts each semester. Opportunity for small ensemble participation. Open to all students and community members with vocal ability through audition. May be repeated for credit.

103 SYMPHONIC WIND ENSEMBLE (TAILWINDS- SOUTHSHORE CONCERT BAND)
FALL, SPRING FEE 2 (0-4)
Music ranging from traditional through contemporary styles. Open to all students and community members, through audition, with interest in performing concert band music. May be repeated for credit.

104 JAZZ BAND
FALL, SPRING 1 (0-2)
Music in all styles of jazz and rock idioms. Includes techniques of rehearsing stage band, playing of student arrangements and performance of jazz compositions and arrangements in concert and various rock idioms. Open to all students by audition. May be repeated for credit.

106 VOCAL CHAMBER ENSEMBLE (SOUNDWAVES) 1 (2-0)
A varied range of sacred and secular vocal music is covered for the purpose of study and performance. The ensemble performs in regular concerts each semester. Open to all students and community members with vocal ability through audition. May be repeated for credit.

107 STRING ENSEMBLE FEE 1 (2-0)

This group performs string music of various periods and combinations. Open to all students by audition. May be repeated for credit.

108 SHOW CHOIR
FALL, SPRING **FEE 2 (0-2)**
Musical theatre and jazz music; open through audition. Performs regularly during semester, accompanied by small instrumental ensemble. Staging and choreography as important parts of performances. May be repeated for credit.

109 MUSIC APPRECIATION
FALL, SPRING **3 (3-0)**
Exposure to various compositions and techniques from major periods of music history beginning with antiquity, including 20th century contemporary works and a brief look at jazz. For non-Music majors.
Prerequisites: E, R

110 INTRODUCTION TO MUSIC THEORY **2 (2-0)**
Music notation, sight-reading, keyboard and music terminology. For students to learn fundamentals of music as well as prospective Music majors or minors who have little or no theoretical training.

113 VOICE CLASS
FALL, SPRING **2 (2-0)**
Fundamentals of vocal production including posture, breathing and diction. Students perform in class on regular basis. Open to all students as well as Music majors and minors.

114 PIANO CLASS I
FALL, SPRING **2 (2-0)**
Beginning piano class for students with little or no prior musical experience. Focus on learning to read music as well as harmonization and transposition.

115 PIANO CLASS II
FALL, SPRING **2 (2-0)**
Continuation of Piano Class I, with emphasis on increased keyboard facility through technical study, acquisition of simple repertoire, harmonization and transposition. *Prerequisite: MUSI 114*

117 SYMPHONIC WIND ENSEMBLE (SOUTHSHORE CONCERT BAND)
FALL, SPRING **1 (2-0)**
This group performs regular public concerts. It performs the best in wind ensemble music, with particular emphasis on compositions expressly for the wind and percussion instrument medium. May be repeated for credit

118 INTRODUCTION TO MUSIC TECHNOLOGY **2 (1-1)**
This is an introduction to the use of computer in music and multimedia production including Musical Instrument Digital Interface (MIDI), sequencing, audio recording and synthesis. Transferability of this course is not guaranteed.
Prerequisites: E, R

119 MUSIC RECORDING & SEQUENCING **3 (2-2)**
This class is a continuation of MUSI 118 that will take an in-depth look at sequencing and recording techniques using sequencing software. Topics include: acoustics, sound design, soft synths, microphones, syncing with visual media, studio setup techniques, and mixing/editing/mastering.
Prerequisite: MUSI 118

120 APPLIED VOICE **FEE 2 (2-0)**
College level applied music class, requires an audition or permission of instructor to qualify and includes individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100A and MUSI 113

122 APPLIED MUSIC COMPOSITION **FEE 2 (2-0)**

College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100X

130 APPLIED PIANO FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100B, MUSI 115

133 APPLIED JAZZ PIANO FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100 and MUSI 115

134 APPLIED ORGAN FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

140 APPLIED TRUMPET, CORNET FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

142 APPLIED FRENCH HORN FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

144 APPLIED TROMBONE, EUPHONIUM, BARITONE FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

146 APPLIED TUBA FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

150 APPLIED FLUTE FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

152 APPLIED OBOE FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

154 APPLIED BASSOON FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

156 APPLIED CLARINET FEE 2 (2-0)

College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

158 APPLIED SAXOPHONE FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

160 APPLIED PERCUSSION FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

162 BASIC MUSIC I 3 (3-0)
A study of traditional harmony through analysis and part writing including a review of fundamentals, diatonic triads in inversion, cadences and non-chord tones. For music majors and minors.
Prerequisites: E, R, MUSI 110
Co-requisites: MUSI 114, MUSI 164

163 BASIC MUSIC II
SPRING 3 (3-0)
Continuation of MUSI 162. The study of diatonic and chromatic harmony through analysis and part writing, including diatonic and secondary 7th chords, the Neapolitan chord, augmented sixth chords and modulations to foreign keys.
Prerequisites: E, R, MATH 095 with a C or better or associated placement test score, MUSI 162 with a grade of C or higher
Co-requisites: MUSI 115 and MUSI 165

164 AURAL COMPREHENSION I 1 (0-2)
Sight-reading, prepared performance and improvisation of melodies using solfege syllables, dictation, recognition of musical events and ensemble skills. The course concentrates on diatonic melodies, simple and compound divisions of beat, intervals and triads.
Prerequisites: Acceptance into MUSI 162
Co-requisites: MUSI 114, MUSI 162

165 AURAL COMPREHENSION II FEE 1 (0-2)
A continuation of MUSI164. Sight-reading, prepared performance and improvisation of melodies using solfege syllables, dictation, recognition of musical events and ensemble skills. This course concentrates on diatonic melodies, simple and compound division of the beat, triads and seventh chords and harmonic dictation.
Prerequisites: MUSI 164
Co-requisites: MUSI 115, MUSI 163

170 APPLIED VIOLIN FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisites: MUSI 100

172 APPLIED VIOLA FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform to a jury.
Prerequisite: MUSI 100

174 APPLIED CELLO FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisite: MUSI 100

176 APPLIED ELECTRIC BASSFEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisite: MUSI 100

178 APPLIED ACOUSTIC/ELECTRIC GUITAR FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisite: MUSI 100

180 APPLIED CLASSICAL GUITAR FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisite: MUSI 100

181 APPLIED STRING BASS FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisite: MUSI 100

182 SONGWRITING 3 (3-0)
A study of the methods and techniques of songwriting and lyric creation through analysis and applied application.

184 WORLD MUSIC 3 (3-0)
This course seeks to deepen students' understanding of society and culture through the examination of music from throughout the world, specifically, music of non-Western origin. Music from diverse backgrounds are studied in terms of structure, social use, aesthetics and cultural impact.
Prerequisites: E, R

185 GUITAR ENSEMBLE FEE 1 (1-0)
Group instruction in guitar fundamentals for the student who has had little or no previous experience. The course will provide basic instruction in using the guitar as an accompanying instrument and as a solo or melody-playing instrument, and will provide the fundamentals of music reading. The student will be required to have access to a Classical or Folk type guitar.

186 GUITAR CLASS II 1 (1-0)
A continuation of Guitar Class I. Instruction will be provided on bar chords, transposition, improvisation, tablature and various strumming techniques. The student will be required to have access to a Folk or Classical type guitar.
Prerequisites: MUSI 185 or permission of the instructor

187 HISTORY OF ROCK MUSIC
FALL, SPRING 3 (3-0)
The course seeks to deepen students' understanding of modern society and culture through the examination of rock and roll music. The development and evolution of the music's diverse styles are explored within the context of sociological and political events.
Prerequisites: E, R

188 APPLIED HARP FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform a jury.
Prerequisite: MUSI 100

189 ROCK/POP MUSIC ENSEMBLE
FALL, SPRING 1 (0-2)
This ensemble performs music in all styles of pop and rock idioms. Techniques of popular music performance and student generated arrangements serve as the foundation of this course. Open to all students. May be repeated for credit.

190 PERCUSSION ENSEMBLEFEE 1 (0-2)
This course provides students with the opportunity to learn percussion techniques and literature through rehearsal and performance in a chamber setting. The repertoire is diverse, including pieces for keyboard percussion, non-pitched percussion works, and compositions featuring the entire family of percussion instruments. Open to music majors and non-music majors with an interest and background in percussion.

200 MUSIC FOR THE ELEMENTARY TEACHER
FALL, SPRING 3 (3-0)
Designed for elementary education majors and assuming little or no musical background, this course will develop skill in the teaching and the performing of music in the elementary classroom setting. Students will develop fundamental musical skills, organize and develop musical activities and lesson plans, as well as explore the integration of music across the curriculum and in specialized areas.
Prerequisites: E, R

213 MUSIC HISTORY I
FALL 3 (3-0)
Survey course of music in the Western world from antiquity through twentieth century. Covers Middle Ages, Renaissance, Baroque and early classical periods.
Prerequisites: E, R

214 MUSIC HISTORY II
SPRING 3 (3-0)
Survey course of music in the Western world from antiquity through twentieth century. Covers later classical period, Romantic period and twentieth century. American composers of twentieth century emphasized.
Prerequisites: E, R

218 MUSIC NOTATION & EDITING 2 (2-0)
This is an experiential course in the use of computers in music notation and editing in preparation for publication. The course will also explore the copyright and publishing processes used in the music industry, basic orchestration layout and arrangement of scores, and the application of MIDI in industry standard notation software.
Prerequisite(s): MUSI 118

220 APPLIED VOICE FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury. May be repeated three times for credit.
Prerequisite: MUSI 120

222 APPLIED MUSIC COMPOSITION FEE 2 (2-0)
College level applied music class, requires an audition or permission of instructor to qualify and include individual instruction for Music majors or highly-proficient musicians. All students are required to perform for a jury.
Prerequisites: MUSI 122

230 APPLIED PIANO FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 130

233 APPLIED JAZZ PIANO FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 133

234 APPLIED ORGAN FEE 2 (2-0)

College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 134

240 APPLIED TRUMPET, CORNET FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 140

242 APPLIED FRENCH HORNFEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 142

244 APPLIED TROMBONE, EUPHONIUM, BARITONE FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 144

246 APPLIED TUBA FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 146

250 APPLIED FLUTE FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 150

252 APPLIED OBOE FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 152

254 APPLIED BASSOON FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 154

256 APPLIED CLARINET FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 156

258 APPLIED SAXOPHONE FEE 2 (2-0)

College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 158

260 APPLIED PERCUSSION FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 160

262 BASIC MUSIC III 3 (3-0)
A continuation of MUSI 163. A study of the principles and techniques of organization in tonal music, including fugue, binary and ternary forms, sonata, theme and variation, rondo and one-part forms through analysis and composition.
Prerequisites: E, R, MUSI 163
Co-requisite: MUSI 264

263 BASIC MUSIC IV 3 (3-0)
A continuation of MUSI262. A study of the organizational techniques of 20th century music, including the extension of chromaticism in late 19th century music, impressionism, pandiatonicism, polytonality, modality, 20th century tonality, atonality, serial techniques and minimalism.
Prerequisites: E, R, MUSI 262
Co-requisite: MUSI 265

264 AURAL COMPREHENSION III 1 (0-2)
A continuation of MUSI165. Sight-reading, prepared performance and improvisation of melodies, using solfege syllables, dictation, recognition of musical events and ensemble skills. This course concentrates on chromatic melodies with modulation, changing and composite meters and harmonic dictation.
Prerequisites: MUSI 165
Co-requisite: MUSI 262

265 AURAL COMPREHENSION IV 1 (0-2)
A continuation of MUSI 264. Sight-reading, prepared performance and improvisation of melodies using solfege syllables, dictation, recognition of musical events and ensemble skills. This course concentrates on modes, asymmetrical meters, altered chords and interval music.
Prerequisites: MUSI 264
Co-requisite: MUSI 263

270 APPLIED VIOLIN FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 170

272 APPLIED VIOLA FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 172

274 APPLIED CELLO FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 174

276 APPLIED ELECTRIC BASSFEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 176

278 APPLIED ELECTRIC/ACOUSTIC GUITAR FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 178

280 APPLIED CLASSICAL GUITAR FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 180

281 APPLIED STRING BASS FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 181

288 APPLIED HARP FEE 2 (2-0)
College level Applied Music classes are for Music majors and other accomplished musicians. Successful completion of two previous semesters of study in instrument or permission of instructor a prerequisite for all classes. All students are required to perform for a jury.
Prerequisite: MUSI 188

NURSING (NURS)

131 NURSING PHARMACOLOGY I 2 (2-0)
Nursing Pharmacology I is an introduction of the basic principles of nursing pharmacology including; pharmacodynamics, pharmacokinetics, and pharmacotherapeutics of select drug classifications, and legal and ethical issues of pharmacology. These principles are based on integrating concepts of the nursing role which include; patient-centered care, personal/professional development, evidence-based practice, information management, teamwork and collaboration, and quality improvement and safety. Course objectives reflect the nursing program outcomes of nursing judgement, spirit of inquiry, promotion of holism, and professional identity. Acceptance into nursing program or permission by instructor/program director is required for this course
Prerequisites: BIOL 205, BIOL 206, MATH 122 or 123, ENGL 101, CHEM 104, HEAL 121

136 NURSING PHARMACOLOGY II 2 (2-0)
Pharmacology II continues and expands upon concepts introduced in Pharmacology I. This course focuses on the study of selected medication classifications and the nurse's role in safely administering and monitoring their side effects. Principles are based on integrating concepts of the nursing role which include; patient-centered care, personal/professional development, evidenced-based practice, information management, teamwork and collaboration, and quality improvement and safety. Course outcomes reflect the nursing program outcomes of nursing judgement, spirit of inquiry, promotion of holism, and professional identity. Acceptance into nursing program or permission by instructor/program director is required for this course.
Prerequisites: NURS 131, NURS 180, PSYC 201.

180 NURSING FUNDAMENTALS
FALL 6 (4-6)
The focus in this course is to introduce the concepts of the nursing role which include patient-centered care, personal/professional development, evidence-based practice, information management, teamwork and collaboration, and quality improvement and safety. Students will integrate theoretical concepts, skills, and principles which are fundamental to the

care of individuals with common health problems. Beginning medical-surgical concepts are introduced. Application of knowledge includes planned experiences in the classroom and clinical settings, which include the simulation environment as well as acute and long-term care facilities in the community. These experiences provide students the opportunity to demonstrate the skills and attitudes that encompass the role of the nurse. Acceptance into the nursing program or permission of instructor/program director is required.
Prerequisites: E, M, R, BIOL 205, 206, MATH 122/123, ENGL 101, and CHEM 104

181 MEDICAL-SURGICAL NURSING I 5 (2.5-2.5)
Students in this course will continue to interpret concepts of the nursing role introduced in previous nursing courses. Patient-centered care, evidence-based practice, and information management will be applied to the care of patients with selected conditions. Teamwork and collaboration as well as quality improvement and safety will be incorporated throughout the course. Students will progress in the growth of nursing judgment and in personal/professional development. Clinical learning will take place in simulation and acute care settings and will focus on core values that embody the knowledge, skills, and attitudes of the nursing profession. Acceptance into the nursing program or permission of instructor/program director is required.
Prerequisites: NURS 131, NURS 180, PSYC 201

182 COMMUNITY MENTAL HEALTH NURSING 3 (1.5-1.5)
Utilizing a systematic and multidisciplinary approach, students in the course will assist mentally ill individuals and others with disrupted homeostasis in meeting emotional health care needs in the hospital and in community agencies over a seven week period. Critical thinking, the nursing process, and concepts of caring will be used to provide client-centered care. Using effective communication, students will manage care for culturally diverse individuals, families, and significant others. Students, as future members of the nursing profession, will accept accountability for the ethical, legal, and professional dimensions of nursing practice.
Prerequisites: NURS 131, NURS 180, PSYC 201

288 CURRENT ISSUES IN NURSING
SPRING 1 (1-0)
Current Issues in Nursing is a capstone class intended to expand on the socialization of the student into the role of Member of a Profession. Contemporary trends and issues in nursing are discussed with a brief historical perspective. Levels of educational preparation for nursing with scope of practice for the levels, along with the need for lifelong learning, are presented along with ethical and legal issues. Licensure issues, professional organization and employability skills complete the preparation for the professional role.
Prerequisites: E, M, R, READ 110, CIS 102, CHEM 105, BIOL 205, BIOL 206, ENGL 101, ENGL 102, PSYC 201, PSYC 203, NURS 130, 180, 185, 186, 187; NURS 280, 281, 282

289 CURRENT ISSUES IN NURSING
SPRING 1 (1-0)
Current Issues in Nursing is a capstone class intended to expand on the socialization of the student into the role of a professional nurse. Contemporary trends and issues in nursing are discussed with a brief historical perspective. Scope of Practice, Code of Ethics, and legal issues are presented and discussed as they apply to current nursing and healthcare issues. Licensure, professional organization membership, employability skills, levels of educational preparation for nursing, and an emphasis for lifelong learning complete the preparation for the professional role. Acceptance into the Nursing Program or permission of the Instructor/Nursing Program Director is required.
Prerequisites: E, M, R, MATH 122/123, CHEM 104, BIOL 205, BIOL 206, ENGL 101, ENGL 102, PSYC 201, NURS 130, NURS 135, NURS 180, NURS 185, NURS 186, and NURS 187

290 ADVANCED HEALTH ASSESSMENT 1 (1-0)
Students in this course will build upon basic nursing assessment skills introduced and developed in prior nursing courses. Students will expand focused assessment skills related to pathophysiology and human development.
Prerequisite: NURS 136, NURS 181, NURS 182

291 MEDICAL-SURGICAL NURSING II 4 (2-6)
Students in this course will develop nursing judgement and a professional identity based upon a spirit of inquiry and promotion of holism. Building upon the integrating concepts of quality improvement and safety, informatics, and evidence-based practice learned in previous nursing courses, students will continue their personal and professional development by enhancing their knowledge of the care of patients with selected conditions. Clinical learning, provided in the simulation laboratory, acute care,

community, and specialty settings, will focus on the utilization of teamwork and collaboration to deliver patient-centered care based on core values that embody the knowledge, skills and attitudes of the nursing profession.
Prerequisite: NURS 136, NURS 181, NURS 182

292 MATERNAL AND CHILD NURSING 5 (3-6)
Utilizing a systematic and multidisciplinary approach, students in the course will care for maternal and child individuals' physical and emotional health in the hospital and in community agencies over a seven week period. Critical thinking, the nursing process, and concepts of caring will be used to provide client-centered care. Using effective communication, students will manage care for culturally diverse individuals, families, and significant others. Students will accept accountability for the ethical, legal, and professional dimensions of nursing practice as future members of the nursing profession.
Prerequisite: NURS 136, NURS 181, NURS 182

293 MEDICAL-SURGICAL NURSING III 4 (2-6)
Med-Surg III expands upon student understanding and adoption of nursing roles as provider of care, manager of care and member of the profession. Students continue to relate concepts of client-centered care, communication, critical-thinking, accountability and competency learned from previous nursing courses to the care of individuals along the health continuum and across the lifespan with common conditions. These conditions include acute cardiovascular impairment and endocrine disorders. Also included in this course are nursing leadership and nursing management concepts.
Prerequisite: NURS 290, NURS 291, NURS 292

294 MEDICAL-SURGICAL NURSING IV 5 (2.5-7.5)
Students in this course will mature in their nursing judgment and demonstrate a professional identity based upon a spirit of inquiry and promotion of holism. Building upon the integrating concepts of quality improvement and safety, informatics, and evidence-based practice established in previous nursing courses, students will continue their personal and professional development by enhancing their knowledge of the care of multiple patients with selected conditions. Clinical learning, provided in the simulation laboratory, acute care, community, and specialty settings, will focus on the utilization of teamwork and collaboration to deliver patient-centered care based on core values that embody the knowledge, skills and attitudes of the nursing profession.
Prerequisite: NURS 290, NURS 291, NURS 292

PHARMACY TECHNICIAN (PHAR)

201 PHARMACY TECHNICIAN FOUNDATIONS 3 (3-0)
An introduction to various roles and responsibilities of a pharmacy technician. Students will learn good communication and interpersonal skills; professional attitudes and behaviors; a methodical, detail-oriented approach to tasks; and a high standard of ethical conduct. Compliance with the Health Insurance Portability and Accountability Act (HIPAA) is also covered.
Prerequisite: E, R Co-requisite: BIOL 110, HEAL 101, and HEAL 103

211 PHARMACEUTICAL CONCEPTS & CALCULATIONS
SUMMER 3 (3-0)
This course will provide practice in pharmacy math calculations, conversions, measurements and equations for preparation of doses, parenteral solutions and compounded products. Pharmacy operations, inventory applications and purchasing needs in a pharmacy environment are covered.
Prerequisites: PHAR 201

212 PRESCRIPTION PROCESSING & SIMULATIONS
SUMMER FEE 4 (2-4)
This course covers lab procedures and skills to prepare patient specific medications for distribution. Preparing, storing and distribution of medication products are covered. Topics include application of theoretical and practical aspects of procurement, billing, reimbursement and inventory management in a pharmacy environment.
Prerequisites: PHAR 201

221 PHARMACY TECHNICIAN CLINICAL LAB 4 (2-4)

This course is designed to allow students to experience common duties performed by pharmacy technicians in retail and hospital pharmacy in a simulated classroom environment. Topics will include application of rules and regulations, reviewing and processing prescriptions, use of electronic medication databases, non-sterile compounding and aseptic technique.
Prerequisites: PHAR 201

222 PHARMACY TECH EXAM REVIEW
SPRING **3 (3-0)**
This course provides the student with review of key concepts and self-examination in preparation for the Pharmacy Technician Certification Board (PTCB) examination.
Prerequisites: PHAR 221

223 PHARMACY TECHNICIAN EXTERNSHIP **4 (2-4)**
This course provides an opportunity for students to experience working in a pharmacy environment where they can practice the use of dispensing medication, communicating with patients, pharmacy organization, stock and inventory, bar-coding, automated dispensing technology, unit-dose packaging, and experience daily duties of pharmacy technicians while working with potential employers.
Prerequisite: PHAR 221

PHILOSOPHY (PHIL)

101 INTRODUCTION TO PHILOSOPHY
FALL, SPRING **3 (3-0)**
Nature of philosophy by consideration of major types of philosophical questions such as the principles of rational belief, the existence of God, pursuit of a good life, nature of knowledge, problem of truth and verification, and relationship of people to state. Establishes frames of reference so students can begin asking philosophical questions.
Prerequisites: E, R

102 INTRODUCTION TO LOGIC
FALL, SPRING **3 (3-0)**
Ways people reason and come to conclusions. Helps students to understand and evaluate other people's arguments. Focus on ways to test reliability of own reasoning and construct sound arguments.
Prerequisites: E, R

215 INTRODUCTION TO RELIGIOUS THOUGHT
FALL **3 (3-0)**
History, scope, subject matter and goals of world religions. Basic concepts common to most major religions. Recommended for sophomores.
Prerequisites: E, R

250 SOPHOMORE SEMINAR IN PHILOSOPHY
SPRING **3 (3-0)**
Special themes within philosophy of interest to non-Philosophy majors. Themes include Problems in Philosophy of Science, Issues in Business Ethics, Introduction to Medical Ethics, Man and Machines - A Philosophy of Technology, or Philosophy of Law. Semester class schedule indicates theme to be covered.
Prerequisites: E, R sophomore standing or permission of instructor

PHYSICAL EDUCATION & WELLNESS (PHED)

102 INTERMEDIATE VOLLEYBALL **1 (0-2)**
For students with experience playing power volleyball. Advanced offenses and defenses. Competitive tournaments run throughout class.

105 BOWLING **SPRING** **1 (1-1)**
Emphasis will be placed on fundamental skills including footwork, approach, delivery, timing, release and scoring.

106 INTERMEDIATE BOWLING
SPRING **1 (1-1)**
Designed for the bowler who possesses basic techniques. Emphasis will include spare angles, ball drilling, lane maintenance, ball adjustment for strikes and correction of form.
Prerequisite: PHED 105

107 GOLF **1 (1-1)**
Emphasis will be placed on proper use of irons, woods and putting with proper stance, approach, grip, full swing and body positioning. Opportunity for actual play on golf course will be made available.

118 PHYSICAL CONDITIONING
FALL, SPRING, SUMMER **1 (0-2)**
Knowledge and appreciation of continued state of physical fitness. Personal fitness program developed and implemented. Actual implementation of individual's personal fitness program.

124 WEIGHTLIFTING
FALL, SPRING, SUMMER **1 (0-2)**
Taught in classroom and gym. Classroom portion emphasizes human musculature as related to weight resistive programs. Lifting portion involves both weight training and cardiovascular with emphasis being total fitness.

125 INTERMEDIATE WEIGHTLIFTING
FALL, SPRING, SUMMER **1 (0-2)**
Continuation of basic course. Individual programs designed based upon student goals. Opportunity to develop strength or body building programs utilizing universal equipment and/or free weights.
Prerequisite: PHED 124

127 INTRODUCTION TO BASKETBALL **1 (0-2)**
Introduction to the sport of basketball. Includes all skills necessary to play the game as well as some defensive and offensive strategies.

130 BACKPACKING **1 (0-2)**
Fundamental knowledge in areas of wilderness ethics, equipment selection and usage, food selection and preparation, physical conditioning, limited first aid, clothing requirements, campsite selection and maintenance, proper fire consideration and trip organization. Students required to take part in weekend backpacking trip.

134 FUNDAMENTALS OF BASEBALL
FALL **1 (0-2)**
This class provides basic instruction in the fundamental skills of baseball including hitting, fielding, catching and throwing. Game-like situations will also be practiced. The student will gain knowledge of the rules of baseball.

136 BEGINNING YOGA **1 (0-2)**
Yoga for Beginners teaches basic postures and breathing exercises. Students are encouraged to develop a greater body-mind alliance, which is often not addressed in our culture. The combination of relaxation, general body toning, flexibility, and meditation gives the student an awareness of their enhanced human potential. Concepts of yoga philosophy are discussed, which provides the basis for the practice of these techniques.

145 TOTAL FITNESS I
FALL, SPRING, SUMMER **1 (0-2)**
This is an individualized course which offers an introduction to and participation in multi-station aerobic super-circuit utilizing sub maximal weights with multiple repetitions. The class utilizes an open lab concept where students satisfy requirements of the class by attending open hours. The average workout time for all stations including warm-up and cool down is 50 minutes. The course is taken for college-credit with a letter grade assigned.

146 TOTAL FITNESS II
FALL, SPRING, SUMMER **1 (0-2)**

This class is designed for students who have successfully completed PHED 146 Total Fitness I or PHED 212 Health and Fitness and desire to continue to utilize the Wellness Center while earning college credit. This is an individualized course which offers a continuation of exercise with a multi-stations aerobic super-circuit or a specialized individual program.
Prerequisites: PHED 145 or PHED 212 The average workout time for all stations including warm-up and cool down is 50 minutes. The course is taken for college-credit with a letter grade assigned.

147 HIGH INTENSITY INTERVAL TRAINING I 1 (0-2)
This exercise class focuses on instructor–led, high intensity interval training activities with short recovery time periods between circuit stations. This is a non-traditional strength training class which will help participants in good condition to reach their full cardiovascular and muscular endurance potential. Equipment that will be used includes but is not limited to weighted ropes, sandbags, TRX Trainers, kettle bells, club bells and chains. Participants should be in good physical condition.

148 HIGH INTENSITY INTERVAL TRAINING II 1 (0-2)
This exercise class is a continuation of PHED 147 High Intensity Interval Training I and focuses on instructor-led high intensity interval training activities with short recovery time periods between circuit stations. Participants should have experience with HIIT training and be in good physical condition.
Prerequisite: PHED 147

200 HEALTHFUL LIVING
FALL, SPRING, SUMMER 1 (1-1)
The purpose of this course is to acquaint the student with concepts of wellness and the relationship between physical activity and optimal health and fitness. Topics include CV disease, exercise, nutrition, weight management, behavior modification, stress, cancer, addiction and sexually transmitted infections.

201 FOUNDATIONS OF PHYSICAL EDUCATION
FALL 3 (2-1)
Orientation to physical education and recreation as a profession. Emphasis on basic philosophy, principles and interpretation of well-balanced programs. Skill readiness of professional students determined by testing program.

208 INTRODUCTION TO ELEMENTARY PHYSICAL EDUCATION
FALL 2 (2-0)
A study of developmental movement, theories of play, activities, and media necessary to provide for a well-balanced elementary program. Emphasis will also be placed on the role of physical education at the elementary level, and practical experiences in its activities. This course is designed for students interested in becoming elementary classroom and special education teachers. Students completing this course will be able to: identify the developmental stages of children, select appropriate games and activities for different stages of development, develop physical activity that aligns with grade level curriculum, and recognize and plan adaptations for children with special needs.

209 INTRODUCTION TO COACHING SPORTS
FALL 3 (3-0)
Basic principles and theory of coaching; includes State Athletic Handbook, budgets, scheduling, equipment, administration and organization, conditioning, motivation, public relations, team selection, liability and athletic training.

210 ATHLETIC TRAINING
SPRING 2 (1-2)
Knowledgeable background and experience in prevention, immediate treatment and rehabilitation of injuries commonly sustained by participants in athletics.
Prerequisite: E

212 HEALTH AND FITNESS
FALL, SPRING, SUMMER 3 (2-2)
This course combines classroom experience and personal exercise. Students establish knowledge of wellness, physical fitness, CV disease, nutrition, weight management, behavior modification, stress, cancer, addiction and sexually transmitted infections. Students implement an individualized exercise program and are required to exercise two days per week in the specified fitness center.

213 ORGANIZATION & ADMINISTRATION OF INTRAMURAL SPORTS 2 (2-0)
Philosophy, objectives, rules, policies, regulations and other administrative details of intramural programs. Covers tournament procedures and organization.

214 PERSONAL HEALTH
FALL, SPRING 3 (3-0)
This course provides an understanding of the responsibility we have for our own health. Topics include CV disease, exercise, nutrition, weight management, behavior modification, stress, cancer, substance abuse, mental and emotional health, sexuality, contraception, infectious and non-infectious disease, personal safety, death and dying.

216 HEALTH ISSUES: STRESS MANAGEMENT
FALL, SPRING 2 (2-0)
Physiological responses to stress and developing techniques for better stress management.

217 HEALTH ISSUES: SELF-ESTEEM
FALL, SPRING 1 (1-0)
Assists in growth in ability to love and care for oneself and others. Techniques practiced daily to enhance self-esteem and variety of self-esteem issues presented.

PHYSICAL SCIENCE (PHSC)

101 PHYSICAL SCIENCE: CHEMISTRY AND PHYSICS
FALL, SPRING FEE 4 (3-2)
Provides students the opportunity to explore the connections of chemistry and physics as it relates to a variety of occupations. Integrated areas covered include the fundamental principles of light, sound, motion, energy, electricity, magnetism, states of matter, semiconductors, digital imaging, instrumentation components and block diagrams, and scientific conversion/units. This course will require some online work and out-of-class testing.
Prerequisite: E, R and MATH 095 (C or better), or a College assessment score qualifying for MATH 122 or higher

104 PHYSICAL GEOLOGY
FALL, SPRING FEE 4 (3-2)
Study of geologic processes. Topics include rock and mineral identification, topographic maps, plate tectonics and rock cycle, earthquakes and earth's interior, role of wind and water, glaciation, deserts, mass wasting, shorelines, resources, geologic time and astrogeology. Includes a two hour laboratory experience per week.
Prerequisites: E, M, R

180 PHYSICAL SCIENCE IN ELEMENTARY EDUCATION
FALL, SPRING FEE 3 (2-2)
This is a laboratory-based course specifically designed for prospective elementary teachers. This course will aid students in developing meaningful and functional understanding of key physics concepts and their interrelations.
Prerequisites: E, M, R

190 EARTH SCIENCE FOR ELEMENTARY/MIDDLE SCHOOL TEACHERS I
FALL FEE 3 (2-3)
A laboratory-based earth science course designed for pre-science elementary and middle school teachers. The intent of this course is to acquaint future teachers with the important concepts of earth science, and to provide the basic tools of independent, creative inquiry that teachers can take into the classroom. Emphasis will be given to study of the oceans, climate, weather, solar system and space. This course will explore the practice of science by incorporating inquiry-based activities into the pedagogy. This course is specifically designed to transfer to Western Michigan University's Elementary Education program and may not transfer to other institutions.
Prerequisites: E, M, R

205 WEATHER AND CLIMATE
SPRING FEE 4 (3-2)

This laboratory-based course provides students with the opportunity to investigate the causes and the characteristics of the Earth's weather and climate. Topics covered include: earth-sun relations, oceanic circulation, structure of the atmosphere, heating of the atmosphere and surface, global warming and the greenhouse effect, climate change, stability, moisture, cloud formation, precipitation, air pressure and wind, mid-latitude cyclones, global patterns of wind and precipitation, meteorological maps, severe weather, El Nino and La Nina, fronts and air masses, weather forecasting and the scientific process. Students are expected to have the ability to use the internet.
Prerequisites: E, M, R

226 INTEGRATED PHYSICAL SCIENCE FOR PK-3 GRADE TEACHERS 3 (2-3)
This course promotes mastery of physical and earth science concepts necessary to teach PK-3 science. Through inquiry and discussions students develop reasoning and thinking skills. The course focuses on science teaching and learning that is connected to the other science disciplines.
Prerequisites: E, M, R,
Pre- or co-requisite: MATH 226

280 PHYSICAL SCIENCE FOR ELEMENTARY TEACHERS II
SPRING FEE 3 (2-3)
This is a laboratory-based course specifically designed for prospective elementary teachers. This course will aid students in developing meaningful and functional understanding of key physics concepts and their interrelations. This course is specifically designed to transfer to Western Michigan University's Elementary Education program and may not transfer to other institutions.
Prerequisites: E, M, R and computer literacy. PHSC 180 recommended

290 EARTH SCIENCE FOR ELEMENTARY / MIDDLE SCHOOL TEACHERS II
FALL FEE 3 (2-3)
A laboratory-based earth science course designed for preservice elementary and middle school teachers. The intent of this course is to acquaint future teachers with the important concepts of earth science, and to provide the basic tools of independent, creative inquiry that teachers can take into the classroom. Emphasis will be given to study the geology of Earth. This course will explore the practice of science by emphasizing inquiry-based activities. This course is specifically designed to transfer to Western Michigan University's Elementary Education program and may not transfer to other institutions.
Prerequisites: E, M, R

PHYSICS (PHYS)

101 GENERAL PHYSICS I
FALL FEE 5 (4-2)
Principles of Newtonian mechanics and kinetic theory. Recommended for Biology, Pre-Medical and Liberal Arts students. Includes a two hour laboratory experience per week.
Prerequisites: M, R, MATH 122 or MATH 128 concurrently or consent of instructor

102 GENERAL PHYSICS II
SPRING FEE 5 (4-2)
Principles of electricity and magnetism, light and modern physics. Continuation of Physics 101. Includes a two hour laboratory experience per week.
Prerequisite: PHYS 101

104 INTRODUCTION TO THE SKY AND SOLAR SYSTEM
FALL, SPRING 4 (3-2)
Introduction to the night sky and our solar system including cycles of the Sun, Moon, planets and constellations; the historical development of astronomy; basic properties of light and telescopes; nature and properties of the planets and the Sun; asteroids, meteorites and comets; and the origin and evolution of the solar system. Includes laboratory component designed to illustrate and explore the topics covered. Includes a two hour laboratory experience per week.
Prerequisites: E, M, R, MATH 095

110 TECHNICAL PHYSICS

FALL, SPRING **4 (3-2)**
Topics from general physics for students pursuing a technical program; emphasis on matter, force, power, basic machines, torque, power transmission and topics from heat, sound and light. Includes a two hour laboratory experience per week.
Prerequisites: M, R, MATH 110 or MATH 128 or MATH 130 or MATH 135 with a grade of C or better

201 ENGINEERING PHYSICS I (MECHANICS)
FALL **FEE 5 (4-2)**
Newtonian and Relativistic mechanics, kinetic theory and thermo-dynamics. Designed for Engineering, Mathematics, Physics and Chemistry transfer students. Includes a two hour laboratory experience per week.
Co-Requisite: MATH 201

202 ENGINEERING PHYSICS II (ELECTRICITY AND MAGNETISM)
SPRING **FEE 5 (4-2)**
Electricity, magnetism and light for Engineering, Mathematics, Physics and Chemistry transfer students. Includes a two hour laboratory experience per week.
Prerequisite: PHYS 201

POLITICAL SCIENCE (POSC)

101 NATIONAL GOVERNMENT
FALL, SPRING, SUMMER **3 (3-0)**
Examines the structure and operation of the national government, the meaning and practice of democracy, the various power relationships, civil liberties and civil rights, as well as the American method of conducting elections. The role of citizens and their choices is also examined.
Prerequisite: E, R

102 STATE GOVERNMENT
FALL, SPRING (SUMMER, ON DEMAND) **3 (3-0)**
Examines political decision-making and public policies of state governments, with particular emphasis on Michigan. Analyzes both the relationships of states with the national government as well as each other, and contrasts policies and political structures in each state.
Prerequisites: E, R

202 COMPARATIVE GOVERNMENTS
SPRING (ODD YEARS) **3 (3-0)**
Examines the similarities and differences that exist between the local governments, the public policies, the constitutions as well as the executive, legislative and judicial branches of key central (i.e., national) governments around the world. Particular emphasis is also placed on the literature that underscores the study of comparative governments.
Prerequisite: E, R

203 INTERNATIONAL RELATIONS
SPRING (EVEN YEARS) **3 (3-0)**
Examines the relations that exist among nation-states. Particular emphasis is placed upon the factors/variables contributing to national power, the instruments used by nation-states to promote their own interests and the methods used to control interstate relations such as international law, balance of power arrangements, pacific settlement of disputes and international organizations.
Prerequisites: E, R

204 POLITICAL PARTIES
FALL (EVEN YEARS) **3 (3-0)**
Examines the development, organization, function and activities of major and minor political parties, pressure groups (e.g., interest groups) and election administration in the United States.
Prerequisites: E, R

205 POLITICAL SCIENCE- SPECIAL TOPICS **3 (3-0)**

An in-depth study of specific topics in political science or direct involvement in a politically-oriented project. May be in a seminar format, active learning format or be research focused. Students may be involved in selecting projects and research topics. POSC 205 may be repeated in courses of differing topics for a maximum of 6 credits.
Prerequisites: E, M, R

250 INTRODUCTION TO SOCIAL SCIENCE RESEARCH
(ON DEMAND) 3 (3-0)
Examines the research process, from development of hypotheses to report of findings. Research strategies include survey research, experimental designs, interviewing, observation and content analysis. For Social Science majors who plan to transfer.
Prerequisites: POSC 101 or HONR 141, POSC 102 OR HONR 143, with B or better or instructor permission

260 INTRODUCTION TO PUBLIC POLICY
FALL (ODD YEARS) 3 (3-0)
Examines current political topics within the public policy realm. The student is expected to grasp the issue and/or policy of concern and all of its complexities as well as appreciate its significance to modern everyday life. Topics will vary over time and will be drawn from either an American or international perspective.
Prerequisites: E; R; POSC 101 or HONR 141or POSC 102 or HONR 143, with a B or better or permission of instructor

PSYCHOLOGY (PSYC)

201 INTRODUCTION TO PSYCHOLOGY
FALL, SPRING, SUMMER 3 (3-0)
Description, understanding and control of human behavior. Two-fold aims: increase student ability to understand self and others and make a more satisfactory adjustment to life and the introduction to the field of Psychology.
Prerequisites: E, R

202 INTRODUCTION TO BEHAVIOR ANALYSIS 4 (4-0)
This course introduces students to the principles of conditioning, learning and behavior analysis concepts that can be applied to many areas in psychology (i.e. clinical, research, industrial/organizational). Topics covered will address autism, psychoses, anorexia, phobia, ethics, religion, gender, procrastination, sexual behavior, drug use, speech pathology, developmental disabilities, social work, special education, behavioral medicine, animal training, juvenile corrections, and everyday life.
Prerequisites: PSYC 201 or concurrent enrollment

203 HUMAN DEVELOPMENT
FALL, SPRING 3 (3-0)
Physical, cognitive, social and emotional development from conception through death. Emphasis upon factors influencing development of personality.
Prerequisite: PSYC 201 or HONR 121 with C or better

204 CHILD DEVELOPMENT
FALL 3 (3-0)
Physical, social, intellectual and personality development from conception through adolescence. Emphasis upon factors influencing healthy development.
Prerequisites: E, R, PSYC 201 or HONR 121 with a C or better

205 INTERPERSONAL RELATIONS
FALL, SPRING 3 (3-0)
Interpersonal communication theory and practice to enhance effectiveness in interpersonal relations through better understanding of self and others. Topics include areas such as active listening behaviors, relationship development and conflict resolution.
Prerequisites: E, R, PSYC 201 or HONR 121

206 SOCIAL PSYCHOLOGY
SPRING 3 (3-0)
Topics related to social influences on the individual, emphasizing social psychological research.

Prerequisites: E, R, PSYC 201 or HONR 121 with a B or better

210 REGISTERED BEHAVIOR TECHNICIAN PRE-PRACTICUM 1 (0-2)
This pre-practicum training course is a supplement to PSYC 202, Introduction to Behavior Analysis. Students in this course will obtain relevant information about the practicum, receive basic training in Early Intensive Behavioral Interventions (EIBI), and will have the opportunity to observe their future practicum site.
Prerequisite(s): PSYC 202

211 REGISTERED BEHAVIOR TECHNICIAN PRACTICUM 4 (4-0)
Supervised experience in the application of behavior analysis and behavior management principles to improve the social, academic, and adaptive behavior of children diagnosed with developmental delays at a local autism center.
Prerequisite(s): PSYC 202, PSYC 210

212 REGISTERED BEHAVIOR TECHNICIAN SUPERVISION 3 (3-0)
This course is to be taken in conjunction with the Behavior Analysis Practicum for students completing the LMC Registered Behavior Technician (RBT) Certificate. This course will prepare students to pass their initial competency requirement as part of the RBT eligibility criteria as well as prepare students to sit for the RBT certification exam.
Prerequisite(s): PSYC 202, PSYC 210
Co-requisite: PSYC 211

230 PSYCHOLOGY OF STEREOTYPING & PREJUDICE
FALL 3 (3-0)
Reviews theories and research on racial, ethnic and religious stereotyping and prejudice. Examines the developmental roots of these attitudes and beliefs and explores their emotional and behavioral consequences. Conscious and implicit processes will be discussed.
Prerequisites: E, R

231 ABNORMAL PSYCHOLOGY
FALL, SPRING 3 (3-0)
Descriptions of cognitive, affective and behavioral disorders. Origins of specific disorders considered along with nature and problem of diagnosis and classification, and contemporary modes of treatment.
Prerequisites: E, R, PSYC 201 or HONR 121 with a C or better

250 INTRODUCTION TO SOCIAL SCIENCE RESEARCH 4 (4-0)
Research process from development of hypothesis to report of findings. Research strategies include survey research, experimental designs, interviewing, observation and content analysis. For social science majors who plan to transfer.
Prerequisites: Prerequisites: E, R, PSYC 201 or HONR 121 with a B or better

RADIOLOGIC TECHNOLOGY (RADT)

130 INTRODUCTION TO RADIOGRAPHY
FALL FEE 3 (3-0)
Introduction to radiography. Topics covered include historical perspective of radiography, medical ethics, patient care and radiation protection.
Prerequisites: E, M, R, acceptance into Radiologic Technology program

131 RADIOGRAPHIC POSITIONING I
FALL FEE 8 (6-4)
Radiographic positioning nomenclature used in positioning. Radiographic positioning for chest, abdomen, pelvis, upper extremity, lower extremity and related pathology.
Prerequisites: E, M, R

134 RADIOGRAPHIC PHYSICS
FALL 4 (4-0)

Physics as related to the operation of x-ray equipment. Topics include atomic theory, x-ray properties, necessary unites of measurement, electricity and electromagnetism, basic electrical circuit components and electrical circuitry.
Prerequisites: E, M, R, acceptance into Radiologic Technology program

138 CLINICAL EXPERIENCE I
SPRING **FEE 2 (0-16)**
Weekly 16-hour rotation through area hospitals during which student applies knowledge/skills learned in lecture and laboratory. Emphasis on patient care, communication and basic positioning skills.
Prerequisites: E, M, R, RADT 130, RADT 131, RADT 134, all with a grade of C or better

139 PHYSICS II COMMON EQUIPMENT **3 (3-0)**
Investigates common equipment and procedures employed in diagnostic radiology. Topics include radiographic technique, x-ray production, scatter control, direct and indirect digital imaging equipment, fluoroscopy and film screens.
Prerequisites: RADT 130, RADT 131, RADT 134

140 RADIOGRAPHIC POSITIONING II
SPRING **FEE 8 (6-4)**
Routine positioning of thorax, vertebral column, special views of body and related pathology.
Prerequisites: RADT 130, RADT 131, RADT 134

141 CONTRAST STUDIES
SPRING **FEE 3 (2-2)**
Anatomy and positioning of gastrointestinal, biliary, genitourinary systems, and related pathology.
Prerequisites: E, M, R, and RADT 130, 131, 134, all with a grade of C or better.

143 CLINICAL EXPERIENCE II
SUMMER **FEE 6 (0-18)**
Students continue to refine positioning skills from the first clinical semester, adding to their repertoire with positioning thorax, spine, lower extremity and contrast studies.
Prerequisites: RADT 138, RADT 139, RADT 140, RADT 141

144 RADIOGRAPHIC POSITIONING III
SUMMER **FEE 4 (3-4)**
Radiographic positioning and anatomy of the skull, facial bones, and related pathology.
Prerequisites: RADT 138, RADT 139, RADT 140

145 RADIATION PROTECTION AND BIOLOGY
SUMMER **2 (2-0)**
Focuses on principles of interaction of radiation with living systems and radiation protection responsibilities of radiographer for patients, personnel and public.
Prerequisites: E, M, R, RADT 138, 139, 140, 141 all with a grade of C or better

228 COMPUTER APPLICATIONS IN MEDICAL IMAGING **3 (3-0)**
Computer applications in the radiologic sciences related to image capture, display, storage and distribution. The content imparts an understanding of the components, principles and operation of digital imaging systems, image data management and data manipulation (post processing). Additional content provides basic concepts of patient information management including medical records management concerns and privacy and regulatory issues.
Prerequisites: E, M, R, RADT 143, 144, 145 all with a grade of C or better

229 CLINICAL EXPERIENCE III **FEE 4 (0-32)**
Supervised clinical practicum with emphasis on further gaining experience in fluoroscopy, portable radiography and trauma radiography. Students will be provided with some opportunities for observation in additional imaging modalities.
Prerequisites: E, M, R, RADT 143, 144, 145 all with a grade of C or better

232 CLINICAL EXPERIENCE IV
SPRING **FEE 3 (0-24)**

Students participate in a supervised clinical practicum which focuses on assisting transition into professional setting. In addition to diagnostic radiography, rotations may include observations in other imaging modalities.
Prerequisites: E, M, R and RADT 228, 229, all with a grade of C or better

241 SECTIONAL ANATOMY & MODALITIES
SPRING **3 (3-0)**
This course provides an overview of transverse, coronal and sagittal sectional anatomy of the human body. Special emphasis is placed on a study of the head and brain, thorax, abdomen and pelvis. The shoulder, elbow, hip and knee are also examined. Correlations between sectional CT, MRI and ultrasound images and radiographs are explored. Other radiographic modalities likely to be encountered in a hospital setting are also introduced.
Prerequisites: E, M, R, RADT 228, 229 with a grade of C or better

244 SENIOR REGISTRY **1 (1-0)**
This course is designed to review all Radiologic Technology program standards in preparation for the American Registry of Radiologic Technologists (ARRT) national certification.
Prerequisites: RADT 145, RADT 229, RADT 241

READING (READ)

083 READING STRATEGIES I
FALL, SPRING, SUMMER **4 (4-0)**
Provides techniques and strategies to help develop college-level vocabulary and reading proficiency. Emphasis on learning and practicing a combination of reading skills to improve reading comprehension and fluency. Computer assisted instruction occurs in the Reading Center.
Prerequisites: Accuplacer Reading 52-69 or Compass Reading 50-67 or Nelson Denny 8.7-10.0 With Co-requisite READ 096: Accuplacer Reading 0-51 or Compass Reading 0-49 or Nelson Denny 0-8.6

087 READING IMPROVEMENT III
FALL, SPRING, SUMMER **4 (4-0)**
Enables learners to acquire competencies needed for success in college courses. Emphasis on strategies necessary to deal with vocabulary required by college curriculum, content comprehension of college texts and other required readings, and ability to apply critical reading principals to reading materials. Computer assisted instruction occurs in the Reading Center.
Prerequisites: Accuplacer Reading 70-79 or Compass Reading of 68-77 or ND 10.1 or READ 083 with a C. or better

093 SUPER SPEED READING I1 (0-2)
Increases reading speed and comprehension. Utilizes individualized audio-visual techniques to fit needs, interests and abilities of student.

096 VOCABULARY POWER
FALL, SPRING **2 (2-0)**
Incorporates methods and strategies to develop vocabulary necessary to improve reading comprehension and communication skills.
Prerequisites: Compass Reading Score of 0-49 Co-requisite with READ 093

101 STUDY SKILLS
FALL, SPRING, SUMMER **3 (1-2)**
Assists students in developing better study skills. Emphasis on practical study techniques, note taking, textbook marking, test taking skills and time management.
Prerequisite: R

SOCIOLOGY (SOC)

101 INTRODUCTION TO SOCIOLOGY **3 (3-0)**

This class is an introduction to the scientific study of society and human interaction within the field of sociology. Students begin to learn the core components of sociological thought and research. They examine how societies evolve over time and how people create culture through interpersonal and group interaction. Students also learn how power dynamics play out between various groups and within social institutions such as politics, the economy, and the criminal justice system. This class is also a primer for understanding the social constructions and experience of race, gender, and class in social life.
Prerequisites: E, R

201 MODERN SOCIAL PROBLEMS
FALL, SPRING **3 (3-0)**
Contemporary social problems and related rehabilitative and ameliorative resources and approaches in solving problems, with emphasis on problems of inter-group and inter-culture conflicts regarding differing beliefs and value systems.
Prerequisites: E, R

202 MARRIAGE AND THE FAMILY
SPRING **3 (3-0)**
Personal, social and cultural factors relating to pre-marriage and marriage; emphasis on interpersonal aspects of marriage, parenthood and family living in a changing world. Students with sophomore standing preferred.
Prerequisites: E, R

204 THE FIELD OF SOCIAL WORK
FALL, SPRING **3 (3-0)**
The study of social work as a professional field. The philosophy, function, employment opportunities, patterns of specialization and methods of social work are surveyed.
Prerequisites: E, R

205 RACE AND ETHNIC RELATIONS **3 (3-0)**
Studies of divisions among people along racial and ethnic heritages in today's American society. Includes various ethnic groups from five categories: 1) European ethnics; 2) Hispanic ethnics; 3) Asian ethnics; 4) historically American subjugated ethnics; and 5) socio-religious ethnic minorities.
Prerequisites: E, R

210 SOCIOLOGY OF AGING
FALL, SPRING, SUMMER **3 (3-0)**
The study of the socio-cultural, economic and physical aspects of aging in the United States and other societies with an emphasis on the diversity of the aging process.
Prerequisites: E, R

215 INTERNET, SOCIETY, AND SOCIAL MEDIA, 3 (3-0)
In this course we trace the historical development of the internet and the creation of various social media platforms. We study the impact of the internet and social media on various parts of U.S. society, including friendships, romantic relationships, political participation, educational attainment, and economic opportunity. In this course we also review how the Internet impacts the experience of race, gender, and class during both on- and offline interaction. Lastly, we learn about new research methods for studying online communities and spaces.
Prerequisite: SOC 101

250 INTRODUCTION TO SOCIAL SCIENCE RESEARCH
SPRING **3 (3-0)**
Research process from development of hypotheses to report of findings. Research strategies include survey research, experimental designs, interviewing, observation and content analysis. For social science majors who plan to transfer.
Prerequisite: SOC 101 with B or better or instructor permission

SURGICAL TECHNOLOGY (SURG)

100 THE SURGICAL PATIENT **2 (2-0)**

This course provides an introduction to the role and function of the surgical technologist as a member of the surgical team. Lectures present all skills, procedures, and protocol necessary to participate in the operating room.
Prerequisites: SURG 101, SURG 102, SURG 103
Corequisite: SURG 110

101 SURGICAL ASEPSIS 2 (2-0)
This course defines and describes pathogenic microorganisms and the causes and prevention of infection in the hospital. The student will be introduced to sterilization, disinfection, and other methods of controlling microbial growth.
Prerequisites: MATH 122 or MATH 123, BIOL 110, HEAL 103
Corequisite: SURG 102

102 STERILE PROCESSING I 5 (4-2)
This course introduces individuals to basic skills needed in the Sterile Processing Department of health care facilities. Duties include processing of patient care equipment, supplies, and instruments for use in all departments. It also includes principles and practices of decontamination, cleaning, disinfection, sterilization, and distribution of medical/surgical supplies. Clinical component is included.
Prerequisites: MATH 122 or MATH 123, BIOL 110, HEAL 103
Corequisite: SURG 101

103 STERILE PROCESSING EXTERNSHIP 3 (1-4)
This course prepares individuals to function competently in the Sterile Processing Department in hospitals. It builds on the principles and practices taught in SURG 102 and includes discussion of professional work-place skills, resume writing, and interviewing skills, as well as on-the-job training and hands-on practice in a hospital. Successful completion of the course qualifies a student to take the National Certification Examination for Sterile Processing and Distribution.
Prerequisites: SURG 101, SURG 102
Corequisites: ENGL 101, PSYC 201

110 FUNDAMENTALS OF SURG TECH 3 (3-0)
Lectures will present the protocol and procedures directly affecting the care and safety of the patient. This includes the ethical, legal, and moral responsibilities of the technologist, the concepts of patient care, and preoperative routines, along with elements of proper documentation and risk management.
Prerequisites: SURG 103, ENGL 101, PSYC 210
Corequisites: SURG 100, COMM 101, Humanities

115 SURGICAL PHARMACOLOGY 2 (2-0)
This course introduces the student to basic types of anesthesia, anesthesia agents, indications and contraindications of medications, and the calculations of maximum dosages of various drugs. The student will become familiar with a wide array of pharmacological agents specifically related to the peri-operative care being provided for the surgical patient.
Prerequisites: SURG 100, SURG 110, COMM 101, Humanities
Corequisites: SURG 150, SURG 200, SURG 210, SURG 211

150 BASIC OPERATIVE PROCEDURES 2 (2-0)
This course introduces the student to basic types of surgical procedures with a primary focus on the sequential steps involved in these procedures. Surgical anatomy, physiology, and pathophysiology will be addressed relative to basic surgical intervention. Students will become familiar with instrumentation, anticipatory skills, and surgical asepsis and surgical conscience.
Prerequisites: SURG 100, SURG 110, COMM 101, Humanities

151 ADVANCED SURGICAL PROCEDURES 6 (6-0)
This course introduces the student to intermediate and advanced surgical procedures with a primary focus on the sequential steps involved in these procedures, higher difficulty cases, and specialized instrumentation. Surgical anatomy, physiology, and pathophysiology will be addressed. The biomedical sciences will also be addressed: robotics, physics, computers, and electricity.
Prerequisites: SURG 115, SURG 150, SURG 200, SURG 210, SURG 211
Corequisites: SURG 212, SURG 213

200 SURGICAL SPECIALTY/PROF PREP 2 (2-0)

This course focuses on preparing the student for life-long learning. Emphasis will be placed on advanced technologies, the future of tele-surgery, the operating room ten years out, and advances in specialty surgeries. Preparation for the national certification exam will be provided in a review of core components.
Prerequisites: SURG 100, SURG 110, COMM 101, Humanities
Corequisites: SURG 115, SURG 150, SURG 210, SURG 211

210 APPLIED SURGICAL TECHNIQUES I 2 (0-4)
This course covers the application of theory in the use of surgical supplies and equipment to prepare students to scrub in for actual surgical procedures. A specified number of competencies will need to be successfully completed to advance to SURG 211.
Prerequisites: SURG 100, SURG 110, COMM 101, Humanities
Corequisites: SURG 115, SURG 150, SURG 200, SURG 211

211 APPLIED SURGICAL TECHNIQUES II 3 (0-6)
This course prepares students for actual operating room experience through application of theory and clinical skills in mock surgical procedures. Basic surgical procedures will be presented, with some hands-on experience utilizing surgical simulators, along with additional competencies pertaining to circulating duties, disinfection, and sterilization.
Prerequisites: SURG 100, SURG 110, COMM 101, Humanities
Corequisites: SURG 115, SURG 150, SURG 200, SURG 210

212 APPLIED SURGICAL TECHNIQUES III 4 (0-8)
Students are assigned to hospitals and are provided with the opportunities to apply theory and clinical skills in basic and advanced surgical procedures and specialty areas.
Prerequisites: SURG 115, SURG 150, SURG 200, SURG 210, SURG 211
Corequisites: SURG 151, SURG 213

213 APPLIED SURGICAL TECHNIQUES IV 4 (0-8)
SURG 213 is the continuation of SURG 212 and continues a clinical session at a hospital. The course provides opportunities for the application of theory and clinical skills in basic and advanced surgical procedures and surgical specialty areas.
Prerequisites: SURG 115, SURG 150, SURG 200, SURG 210, SURG 211
Corequisites: SURG 151, SURG 212

TRADE RELATED INSTRUCTION (TRIN)

105 APPLIED TRIGONOMETRY II
FALL, SPRING 2 (2-0)
Oblique angle trigonometry which incorporates law of sines, cosines, cotangents and right triangles in solving practical shop problems.
Prerequisites: M, R, MATH 110 OR TRIN 107

107 APPLIED GEOMETRY/TRIGONOMETRY
FALL, SPRING 4 (4-0)
Second in series of applied mathematics courses that build upon concepts applicable to machine tool trades. Presents intermediate applications of geometry including propositions and axiom definitions, circles, areas, volume formulas and right angle trigonometry including right angles, interpolation and practical machining problem solving. Follows Duties and Standards for Level 1 Machining Skills as approved by National Institute for Metalworking Skills.
Prerequisite: MATH 100

129 ELECTRICAL CODE STUDY
(ON DEMAND) 2 (2-0)
Interpretation and application of State and National Electrical Code.
Prerequisites: M, R

134 METALLURGY AND HEAT TREATMENT
FALL SPRING 3 (3-0)
Acquaints students with properties of metals and heat treating methods.

Prerequisite: M, R

138 INDUSTRIAL SAFETY
FALL, SPRING **1 (1-0)**
Safety rules as applied to industry are discussed. OSHA standards and guidelines are presented.

143 INTRODUCTION TO MOLD MAKING
FALL, SPRING **3 (3-0)**
Course explains the "whys" underlying applied mold making and operation. Essential facts of cutting and forming operation are explained and related to the manner in which molds function. Primary mold components are discussed along with efficient working mold processes through films, videos and plant tours.
Prerequisites: M, R

144 BLUEPRINT READING & SKETCHING
FALL, SPRING **4 (3-1)**
Basics of interpreting working drawings, tolerancing, machining symbols, fasteners, sections, auxiliary views, developments, piping drawing, material specifications, casting drawings, assembly drawings, welding drawings and machine elements. Offers approximately one hour of practical interpretive sketching each class period.

145 GEOMETRIC DIMENSIONING & TOLERANCING
FALL, SPRING **2 (2-0)**
This course provides an in-depth study of interpreting geometric tolerancing as it is used on blueprints in today's industrial environment.
Prerequisite: TRIN 144

147 INTRODUCTION TO DIE MAKING
FALL **FEE 3 (3-0)**
Basic die construction facts around which a successful career in the field of die making can be established. Course will explain the "whys" underlying applied die making and operation. Essential facts of cutting and forming operation are explained and related in the manner in which dies function. Primary die components are discussed along with efficient working die processes through films, videos and plant tours.
Prerequisite: M

156 INDUSTRIAL RIGGING
SUMMER **2 (2-0)**
Industrial specialty course for industrial maintenance trades and trades that require basic understanding of techniques, methods and materials needed to perform rigging tasks safely. Basic principles and practices for industrial rigging tools and load configurations, machinery moving, foundations, cranes and hoists, cable, chain and wire rope sling, inspection and maintenance documentation, and OSHA/MIOSHA standards.
Prerequisite: M

211 SOLDERING **FEE 1 (1-0)**
Study survey course about terminology and types of solder, techniques of soldering and unsoldering terminals and components to circuit boards, and the various tools used in the soldering process. There will be assembly of sample circuit boards to learn the practice of proper techniques.

VITICULTURE (VITI)

110 ESTABLISHING A VINEYARD **FEE 3 (3-0)**
This course is an introduction to the practices for establishing a vineyard. Topics covered include site selection, the use of climatological data, vine varieties, soil preparation, vineyard layout, equipment and planting methods.

120 MAINTAINING A VINEYARD **FEE 3 (3-0)**
This course is designed to give the student a working knowledge to successfully take a producing vineyard from bud break to harvest. Topics covered include canopy management, weed control, irrigation, pest treatment, and disease prevention.

Prerequisites: VITI 110

130 WINE BUSINESS FEASIBILITY 3 (3-0)
This course provides a systematic look at the different components of a successful wine or vineyard brand and assists students in creating a plan for a profitable business. Students will be exposed to key aspects of the business, including the regulatory climate for making and selling wine or grapes, financial frameworks to develop a vineyard and/or winery or to create a virtual brand, and different models for profitability. Every student will be given the tools and frameworks to critically evaluate this competitive landscape and make decisions on a course of action.
Prerequisites: E, M, R

202 LEGAL ASPECTS OF VINEYARD AND WINERY OPERATIONS 3 (3-0)
This course will introduce students to the general concepts and issues relating to the creation and operation of a vineyard and winery. The course will explain general legal concepts, real estate issues, outline business formation and operation concepts, explore contracts and contract provisions, define employment relationships, discuss premises liability, identify governmental agencies and regulation, and describe legal issues and areas specifically related to the operation of vineyards and wineries.
Prerequisites: E, M, R

220 VINEYARD DISEASES AND INSECTS 3 (3-0)
This course is an introduction to the identification, life cycles and control of insects and diseases common to grape crops. It focuses on the fundamentals of entomology and plant pathology.
Prerequisites: E, M, R and BIOL 120

291 VITICULTURE CO-OP 2 (0-6)
This work-based course offers hands-on learning while working at a selected vineyard and receiving supervision from a professional viticulturist. With permission of Wine and Viticulture Technology Lead Faculty, work site and work site hours may vary. Students gain experience in vineyard management, including vine training and trellising, and vine canopy management.
Prerequisites: VITI 110, VITI 120

WELDING (WELD)

101 INTRODUCTION TO WELDING FEE 2 (1-2)
A hands-on survey course of common welding and cutting processes, including Gas Metal Arc Welding, Shielded Metal Arc Welding, Gas Tungsten Arc Welding, Oxy-Acetylene Welding, Oxyfuel Cutting, Plasma Arc Cutting, and Carbon Arc Cutting.

102 SHIELDED METAL ARC WELDING I (SMAW)
FALL, SPRING FEE 2 (2-1)
Covers the process commonly known as stick welding. Upon completion of this course, the student will be able to weld in all positions, read some basic weld symbols and have a basic understanding of written welding procedures.

103 GAS METAL ARC WELDING I (GMAW) FEE 2 (1-2)
Introductory course that teaches students to weld on carbon steel sheet/plate with the GMAW process using short circuit and axial spray transfer modes. The student will learn introductory welding terminology, electrode and shielding gas selection, and basic troubleshooting of welding parameters for the specified process.

104 WELDING BLUEPRINT READING & SYMBOLS
FALL, SPRING 2 (2-1)
Provides practice in reading blueprints. Topics include orthographic projection, auxiliary views, revolved sections, surface and centerline relationships, scale drawing and tolerances. The student interprets detailed weld symbols using the American Welding Society standard.

105 WELDING FABRICATION I
FALL, SPRING 2 (2-1)
Allows students to fabricate a part from a blueprint and weld the assembly with a specified welding process. Cutting and forming may be required prior to assembly. Depending on the size and complexity of the project, students may be asked to work in a team to complete an assignment.

Prerequisites: WELD 101 or INMT 109 and WELD 104 or INMT 110 all with a C or better

200 WELDING FABRICATION II
FALL, SPRING 2 (2-1)
Allows students to fabricate and weld parts from a simple sketch that requires mathematical calculations. Cutting and forming may be required prior to assembly. Depending on the project, students may be asked to work in a team to complete an assignment. As time allows, students may also design and fabricate an individual project.
Prerequisite: WELD 105 with a C or better

201 GAS METAL ARC WELDING (GMAW) II 2 (1-2)
Intermediate course that teaches students to weld on carbon steel and aluminum plate using the GMAW process, with emphasis placed on pulsed-spray and advanced transfer modes. The student will learn introductory welding terminology, electrode and shielding gas selection, and basic troubleshooting of welding parameters for the specified processes.
Prerequisites: WELD 103

202 GAS TUNGSTEN ARC WELDING FEE 2 (1-2)
Introductory course that teaches students to weld on carbon steel and aluminum sheet/plate using the GTAW process. The student will learn introductory welding terminology, electrode and shielding gas selection, and basic troubleshooting of welding parameters for the specified process.

203 GAS METAL ARC WELDING (GMAW) PRODUCTION FEE 2 (1-2)
Advanced course with emphasis on welder qualification to AWS Structural Welding Code – Steel and AWS Structural Welding Code – Sheet Steel using the Gas Metal Arc Welding process. Testing will consist of primarily 0.250" and 0.375" carbon steel groove welds in various positions.
Prerequisites: WELD 103, WELD 201

204 SHIELDED METAL ARC WELDING PRODUCTION FEE 1 (0-2)
Advanced course with emphasis on welder qualification to AWS Structural Welding Code – Steel using the Shielded Metal Arc Welding process. Testing will consist of primarily carbon steel groove welds in various positions using 6010 and 7018 electrodes.
Prerequisites: WELD 102

205 GAS TUNGSTEN ARC WELDING (GTAW) PRODUCTION) FEE 1 (0-2)
Advanced course with emphasis on welder qualification to AWS Structural Welding Code – Sheet Steel using the Gas Tungsten Arc Welding (GTAW) process. Testing will consist of primarily carbon steel groove welds in various positions. Students will also enhance aluminum and stainless steel welding skills with the GTAW process.
Prerequisites: WELD 202

ACADEMIC INFORMATION AND POLICIES

Information in this document is correct at the time of publication and is subject to change. For the most up-to-date information visit the Lake Michigan College website. Students attending LMC are responsible for knowing and adhering to all policies, rules, regulations, and all local, state and federal laws. Visit lakemichigancollege.edu/about/policies for the most up-to-date versions of Lake Michigan College policies.

Academic Honesty

https://www.lakemichigancollege.edu/policies/academic-honesty

The principles of truth and honesty are recognized as fundamental to a community of teachers and scholars. Lake Michigan College expects that both faculty and students will honor these principles and in doing so protect the integrity of College grades. This means that all academic work will be done by the student to whom it is assigned without giving or receiving unauthorized aid of any kind. Instructors will exercise care in the planning and supervision of academic work so that honest effort will be positively encouraged. Cheating and plagiarism are the two most obvious violations of academic honesty. In brief, plagiarism is borrowing ideas, words, organization, etc. from another source or person and claiming them as original.

Any dishonest activity may result in failure of specific assignments or an entire course. Flagrant and/or repeated violations of Academic Honesty will result in disciplinary action up to and including expulsion from Lake Michigan College.

Academic Progress and Intervention

https://www.lakemichigancollege.edu/policies/academic-intervention

Lake Michigan College (the College) is committed to supporting students in meeting educational goals. Academic progress is reviewed at the end of each term to ensure the student is meeting grade point average (GPA) and credit completion requirements, appropriately progressing toward program completion, and benefiting from continued enrollment.

Students not making acceptable academic progress are subject to the intervention processes outlined below, which were designed to help students evaluate their individual situations and return to good academic standing.

Students receiving certain forms of financial aid, participating in intercollegiate athletics, and/or enrolled in programs with specific academic criteria will be required to meet the standards of academic progress for those programs, in addition to the requirements outlined in this policy.

Academic status for each term the student enrolls is posted to the transcript of record for the student.

Good Academic Standing

Students making satisfactory academic progress and maintain a cumulative College GPA of 2.00 or higher after the completion of at least 12 credit hours are considered in Good Academic Standing with the College.

Academic Probation

Students whose cumulative College GPA falls below 2.00 are placed on Academic Probation. The student is notified in writing that he/she has been placed on Academic Probation and is then subject to the following:

- A registration hold is placed on the student's account.
- The student must meet with an academic advisor to develop an Academic Improvement Plan, which may include services and tools such as tutoring, mentoring, additional advising appointments, and/or progress reports. Students may be referred to additional offices for further discussion.
- Late registration is prohibited.
- Registration is restricted to no more than nine credit hours for the next enrolled term.
- The student may be prohibited from enrolling in online classes.
- A grade of "C" (2.00) or higher must be earned in each class for the next enrolled term.

Academic Warning

Students who have been placed on Academic Probation and whose term GPA falls below 2.00 during the probation period are placed on Academic Warning. The student is notified in writing that he/she has been placed on Academic Warning and is subject to the following:

- A registration hold is placed on the student's account.
- The student must meet with an academic advisor to review/update their Academic Improvement Plan, which may include services and tools such as tutoring, additional advising appointments, and/or progress reports. Students may be referred to additional offices for further discussion.
- Late registration is prohibited
- The student must attend and successfully complete a College Life Studies (CLS) course (if not previously completed) recommended by the advisor.
- The student is permitted to register for no more than six credit hours for the next enrolled term.
- The student may be prohibited from enrolling in online classes.
- A grade of "C" (2.00) or higher must be earned in each class for the next enrolled term, including the assigned CLS course.

Academic Dismissal

Students who have been placed on Academic Warning and whose term GPA falls below 2.00 during the Academic Warning period are placed on Academic Dismissal for one full term. The student is notified in writing that he/she has been placed on Academic Dismissal for the specified term. The student is subject to the following once the term of dismissal is completed and the student wishes to enroll again:

- A registration hold is placed on the student's account.
- The student must meet with an academic advisor to review/update her/his Academic Improvement Plan, which may include services and tools such as tutoring, additional

advising appointments, and/or progress reports. Students may be referred to additional offices for further discussion.
- Late registration is prohibited
- The student must attend and successfully complete a College Life Studies (CLS) course (if not previously completed) recommended by the advisor.
- The student is permitted to register for no more than six credit hours for the next enrolled term.
- The student may be prohibited from enrolling in online classes.
- A grade of "C" (2.00) or higher must be earned in each class for the next enrolled term.

Continued failure to make satisfactory academic progress may put the student at risk for dismissal from the College.

Academic Recognition

https://www.lakemichigancollege.edu/policies/academic-recognition

At Lake Michigan College (the College) academic recognition lists are published at the completion of each semester: President's List, Dean's List, and Part-Time Dean's List.

President's and Dean's List students must have been enrolled full-time and completed a minimum of 12 semester hours of 100-level or above courses in the semester. The President's List includes those students who have earned a semester grade point average (GPA) of 4.0 for the semester courses. Dean's List students are those who have earned a semester GPA of 3.50 or higher for the semester courses.

Part-Time Dean's List students include those students who have accumulated 12 or more semester credit hours of 100-level or above courses at the College. Part-Time Dean's List students must have been enrolled part-time completing between 6 to 11 semester hours of 100-level or above courses during the semester and have earned a semester GPA of 3.50 higher for the semester courses.

Grades for transitional studies courses (099 or below) and grades of W, S, U, IP, or TR (courses transferred into the College) are not computed in the GPA and therefore not included in the calculations for academic recognition.

Amnesty of Semester

https://www.lakemichigancollege.edu/policies/amnesty-of-semester

Amnesty of a Semester is the removal from consideration for student grade point average, program completion and graduation, all academic classes and the grades received for such classes during the college semester(s) for which amnesty is granted. Amnesty of a Semester, if granted, applies only to Lake Michigan College; there is no guarantee expressed or implied that Amnesty of a Semester will be recognized by any other institution.

A. Any student who has been enrolled in academic classes may apply for Amnesty of a Semester.
B. Amnesty of a Semester may be requested for one of the following:

1. A maximum of the first eighteen (18) semester hours of credit earned or failed during the first two (2) consecutive semesters of attendance at Lake Michigan College (may not use partial semester)
2. Any single semester of enrollment at Lake Michigan College totaling not more than 18 credit hours.

C. A minimum of one calendar year must elapse between the semester(s) being considered for Amnesty of a Semester and the granting of the request.
D. Amnesty of Semester will not be granted for a partial semester(s)
E. If granted, shall apply to all credits taken in the semester(s) for which Amnesty is granted, regardless of the grade received.
F. Amnesty of a Semester if granted, results in none of the affected coursework being counted for admission to restricted programs, graduation, and/or meeting program requirements at Lake Michigan College.
G. Amnesty of a Semester does NOT remove any course/grade at Lake Michigan College, which would normally be on a transcript, from the academic transcript. Any semester(s) for which Amnesty is granted shall be so identified on the transcript.
H. A student may be granted Amnesty of a Semester only once at Lake Michigan College.
I. Amnesty of a Semester is final and cannot be revoked or rescinded by the College or the student.
J. This policy does not supersede the Course Repeat Policy

Assurance of Academic Quality

https://www.lakemichigancollege.edu/policies/assurance-of-academic-quality

Lake Michigan College assures that students completing coursework with a grade of "C" or better in that course or earn an Associate Degree or Certificate, will be capable of performing the entry-level skills needed in the respective major or field of study.

If the student is subsequently judged by an employer to be lacking in technical job skills normally expected of an entry-level employee within his/her major, LMC will provide remediation at the employer's request, permitting the student to retake a specified course or courses up to 16 semester credit hours within two academic years without additional charge for tuition or fees.

The college provides the same assurance for its continuing education services and short-term training programs and activities for economic development, job upgrading, personal development, and public service. If a continuing education or short-term training student fails to achieve the learning objectives for a course or program, that student can repeat the module or program at no additional cost.

The College has articulation agreements with several universities. These agreements guarantee the transferability of the associate degree and/or specific courses. Students following the direction of College advisors are assured transferability of earned credits.

Lake Michigan College assures transferring institutions that students who are transferring are competent in courses completed with a grade of "C" (2.0) or better. LMC will, upon recommendation from the institution to which the student transferred, permit the student to

retake any course or courses in areas deemed deficient for up to 16 semester credit hours within two academic years. This retake shall result in no tuition charges for the student.

Career Education and Transfer Programs

https://www.lakemichigancollege.edu/policies/career-education-transfer-programs

Career Education Programs:
Lake Michigan College assures that the courses completed with a grade of "C" or better in an Associate in Applied Science, Associate in Applied Business, or Associate in Industrial Technology will provide entry-level skills needed for a particular occupation. To qualify, the student must:

- initiate the program of study after April, 1988 and complete within three years of initiation, with a GPA of 2.0 or better;
- follow the official LMC program guide sheet, dated 1987 or thereafter, for course selection;
- be employed full-time within one year of graduation.

Note: Some students may be employed while completing the requirements for an associate degree. The AOQ will apply if the position held at the time of graduation is compatible with the associate degree earned.

Retraining:
If the student is subsequently judged by an employer to be lacking in technical job skills normally expected of an entry-level employee within his/her major, LMC will provide further skill training up to 16 semester credit hours within two academic years without additional charge for tuition or fees.

- In order to be eligible for retraining, the employment must be certified by the Career Planning & Placement Office as being directly related to the graduate's program of study.
- The employer must provide written certification that the employee is lacking the entry level job skills that were identified, in writing, at the time of initial employment, and must specify the area(s) of skill deficiency within 90 days of the graduate's initial employment.
- The employer, the graduate and a college faculty advisor, with advice of appropriate teaching faculty, will develop an educational plan specifying up to 16 credit hours of retraining. Such courses must be those regularly offered by LMC.
- The retraining courses will be limited to 16 hours of registration regardless of outcome.

Transfer Programs:
Lake Michigan College assures that any course on the appropriate transfer guide sheet will transfer to the baccalaureate degree institution identified in the guide. To qualify, a student must:

- initiate a program of study beginning after April, 1988;
- earn a minimum grade of 2.0 in the course(s) taken for transfer credit;
- complete a program of study as planned and signed by the student and the A.O.Q. counselor;
- meet the admission criteria of the baccalaureate degree institution;
- transfer to a baccalaureate degree institution within one year of completing an Associate in Arts, Associate in Science, or Associate in Business Administration degree at Lake Michigan College.

Tuition Reimbursement:

If all conditions are met, Lake Michigan College will refund tuition for any course that is not acceptable for transfer by the baccalaureate degree institution.

Course Repeat

https://www.lakemichigancollege.edu/policies/repeating-courses

Any course in the College catalog may be retaken for a higher grade. However, a student is limited to three (3) attempts including completions, failures, and withdrawals. All course grades appear on the student's transcript, but only the highest grade earned is used for calculation of the GPA, to compute honor points, and to fulfill requirements for graduation. Financial aid may not be used to pay for more than one repeat of a course previously passed with a grade of C or higher. Only courses so specified in the catalog's course description can be taken more than once for additional credit. Course repeats may be prohibited for some Health Science programs.

Credential Completion and Graduation

https://www.lakemichigancollege.edu/policies/credential-completion-graduation-policy

Several requirements must be met both to complete a Lake Michigan College (LMC) degree or certificate and to officially graduate from a program. These requirements, as outlined below, must be satisfactorily met prior to credential conferral and will be verified for each student who applies for a degree or certificate.

Credential Completion

Lake Michigan College offers associate degrees and certificates. Each level of credential requires the following:

1. Associate Degree
   To earn an associate degree, a student must satisfactorily complete a minimum of 60 credit hours which apply directly to the degree. This degree has a residency requirement of 20 credit hours; i.e., a minimum of 20 credits must be conferred by LMC and cannot include credits earned through TR, CEL, AC, AP, CLEP, or credit by exam.
2. Certificate
   To earn a Certificate, a student must satisfactorily complete 1-59 credit hours, depending on the certificate program, which apply directly to the certificate. Certificates requiring 30 credits or more have a residency requirement of 15 credit hours; i.e., a minimum of 15 credits must be conferred by LMC and cannot include credits earned through TR, CEL, AC, AP, CLEP, or credit by exam. Certificates requiring less than 30 credit hours do not have a residency requirement, nor are they eligible for Honors recognition.

For any credential earned, the following requirements apply:

1. All credits earned toward a credential must be at or above 100-level coursework.
2. The student must have an active admission application on file and must be considered certificate or degree-seeking.
3. The student must have a cumulative LMC GPA of at least 2.00.
4. All degree and/or certificate program requirements, including transfer credits used toward program completion, must be completed by the last day of the semester in which the student is graduating, for fall and summer graduation applicants. Spring applicants may

finish any requirements during the immediately following summer term. Students who do not complete requirements by the end of the immediately following summer term must reapply for graduation. The College does not back-date degree or certificate conferrals.

All credentials which bear academic credit must be formally approved through the College's curriculum process and must be awarded through the graduation process in accordance with this policy and administered by the Registrar's Office.

Graduating from a Program

A student may graduate from a program under the catalog in effect at the time of matriculation or any subsequent catalog. However, no student may graduate from a program under a catalog that is more than 5 academic years old at the time of graduation.

Students who have completed, or are near completion of, their program requirements must apply for graduation by the published deadline in order to have their degree or certificate award conferred and receive their diploma. This requirement applies regardless of a student's intent to participate in the commencement ceremony.

A commencement ceremony is held once per year in May. Summer and fall graduates are invited to participate in the May ceremony.

Graduating with Honors

Honors status for graduation is based upon the student's cumulative LMC GPA and awarded according to the following scale:

Honors: 3.25-3.74 cumulative LMC GPA
High Honors: 3.75-3.99 cumulative LMC GPA
Highest Honors: 4.00 cumulative LMC GPA

Honors status as announced at the Commencement Ceremony does not include the current Spring semester, as final grade processing occurs after the ceremony takes place. A final Honors status will be determined at the time of degree conferral.

Additional Associate Degrees

A student may earn subsequent associate degrees if all requirements for the degree have been successfully completed, and provided the following conditions are met:

1. A minimum of 15 additional credits hours of coursework which applies specifically to the additional degree.
2. The additional degree is completed under the requirements in effect at the time of graduation (i.e. the current catalog) and in accordance with all applicable policies.

Credential Conferral

In order to maintain federal reporting compliance, all awards conferred will be posted within 30 calendar days of the end of the semester in which the student completes graduation requirements.

Credit for Experiential Learning

https://www.lakemichigancollege.edu/policies/credit-for-prior-learning

Recognizing that many opportunities exist for learning outside of a classroom, Lake Michigan College (LMC) seeks to provide a variety of evidence-based means by which students may obtain academic credit for experiential learning.

Lake Michigan College may provide any of the pathways to granting credit for experiential learning described in the following section. Regardless of the pathway option, credit awards must be based on appropriate documentation and/or demonstration of skills. Faculty recommend credit awards to the appropriate Academic Dean, who must approve all credit for experiential learning requests. Recommendations for academic credit must clearly align with LMC's curriculum and must be based on what the student has learned, rather than what the student has experienced.

Upon approval by the Academic Dean, credit for experiential learning is transcripted as "CEL" credit and may be used to satisfy LMC graduation requirements. Students must be informed that CEL credits may not transfer to other institutions, as it is the receiving institution that determines what credit will be accepted upon transfer.

While there is no maximum number of allowable CEL credits, a minimum number of credits must be earned at LMC as follows:

- For baccalaureate degrees, a minimum of 30 credits must be earned at LMC.
- For associate degrees, a minimum of 20 credits must be earned at LMC.
- For certificate programs requiring 30 or more credits, a minimum of 15 credits must be earned at LMC.

Credit for experiential learning is available for LMC certificate programs with fewer than 30 total credits only when students are seeking a higher-level credential within the same program area or discipline. Students should work closely with an advisor to assure that alternative credit requests do not exceed the above specified credit hour limits. Any exception to these standards must have the written approval of the Vice President of Academic Affairs.

Credit for Experiential Learning Pathways

The following options are approved pathways for CEL credit.

1) Portfolio course – Students may enroll in a credit for experiential learning portfolio course in which the student produces a portfolio of evidence documenting the rationale for their request, as well as evidence of experiential learning. The portfolio course is designed to guide students in analyzing and documenting acquired knowledge that demonstrates college-level learning. The portfolio is evaluated by a faculty member in the discipline for which the credit is being requested. Portfolio course tuition and fees apply.
2) Council for Adult and Experiential Learning (CAEL)/Learning Counts – Students may submit transcripts from the Council for Adult and Experiential Learning (CAEL) for evaluation by the Registrar's Office. Credit awarded through the evaluation of CAEL transcripts is treated as transfer credit. There is no charge by the College for this evaluation service.
3) Military training evaluation – Current and former military service members may submit a military transcript for evaluation by the Registrar's Office. Transcript evaluation is based on

recommendations by the American Council on Education (ACE). Credit awarded through the evaluation of military transcripts is treated as transfer credit. There is no charge by the College for this evaluation service.

4) Nationally standardized assessments – The College may award credit for certain nationally standardized tests, such as CLEP and DSST. A list of acceptable standardized assessments, required scores, and testing fees is available in the Testing Center.
5) Industry-recognized licensing or certification credential – Industry-recognized credentials are evaluated by a faculty member in the discipline for which the credit is being requested with recommendations to the appropriate Academic Dean for credit equivalencies. A list of common industry-recognized credentials that align with College courses is available in the Advising Office. Fees may apply.
6) LMC Challenge Exams – LMC departments may offer departmental challenge exams for some courses. A list of available challenge exams, required scores, and fees (if applicable) is available in the Advising Office and the Testing Center. Fees may apply.

Distance Education

https://www.lakemichigancollege.edu/policies/distance-education

All courses in which 75% or more of the course content is delivered online or via other distance delivery methods must comply with the procedural standards for course design, faculty training, course management, and course review set forth in the Distance Education Handbook. Distance education courses must be equivalent in content and student learning objectives to the same courses offered in face-to-face formats. Faculty teaching distance education courses must possess the same qualifications as those required for traditional sections of the same course and must complete the College's distance education training or equivalent. The Director of Distance Education must approve any course delivered under the auspices of this policy to assure that all standards for course design, delivery, faculty training, and course review have been met prior to offering the course via distance education. In addition, all distance education courses must comply with the federal definition of a credit hour, as documented in the Credit Hour Definition and Program Length policy.

Electronic Recording Devices in the Classroom

https://www.lakemichigancollege.edu/policies/electronic-devices-in-the-classroom

Audio and/or video recording of classroom proceedings or other academic proceedings will be permitted only with the consent of the instructor, speaker, and/or others involved, unless the student is hearing impaired or requires such accommodation for a documented disability.

The use of personal electronic devices in any teaching setting (e.g., classroom, clinical, field trip) will be permitted only with the consent of the instructor.

General Education Requirements for Graduates of Lake Michigan College

https://www.lakemichigancollege.edu/policies/general-education-requirements-for-graduates-of-lake-michigan-college

The General Education requirements for graduates of Lake Michigan College are as follows:

AA, AS, and ABA Degrees*****

- 2 courses (6 credits) in English/Communications
  - Must take English 101 or Honors 250 – AND
  - English 102 or Honors 251 – OR – Communication 100, 101, 102, 215, 225, 235

- 1 course (at least 3 credits) in Mathematics
  - Mathematics 122******, 123, 128, 129, 130, 135, 151, 201, 202, 216, 252; Business Administration 216

- 2 courses (at least 8 credits) in Natural Sciences (from at least two academic disciplines)
  - Agriculture 110
  - Biology 101, 107, 108, 110, 111, 112, 120, 204, 205, 206, 210, 212; Honors 101, 111, 112
  - Chemistry 101, 102, 104, 111, 112, 203, 204
  - Physical Science 101, 104, 205
  - Physics 101, 102, 104, 201, 202

- 2 courses (at least 6 credits) in Social Sciences (from at least two academic disciplines)
  - Business Administration (Economics) 200, 203, 204; Honors 202
  - Geography 100, 101, 102
  - History 101, 102, 201, 202, 204, 205, 207, 209, 210; Honors 214, 215
  - Political Science 101, 102, 202, 203, 204, 250, 260; Honors 141, 143, 205, 213
  - Psychology 201, 202, 203, 204, 205, 206, 230, 231, 250; Honors 121, 203, 231
  - Sociology 101, 201, 201H, 202, 204, 205, 210, 215, 250; Honors 130, 209

- 2 courses (at least 6 credits) in Humanities/Fine Arts (from at least two academic disciplines)
  - Art 101, 102, 200, 201, 202, 203, 204
  - American Sign Language 101R, 102R, 201R, 202R
  - English 201, 203, 204, 205, 206, 208, 209, 210, 211, 214, 214H, 215, 216, 217, 217H, 220; Honors 204, 208, 256, 258
  - Foreign Language 101-202 (excluding FORL 123, 124), 211, 212, 221, 222, 251, Honors 120, 122, 195, 196
  - French 101R, 102R, 201R, 202R
  - Humanities 105, 201, 207, 208, 208H, 209, 210, 211, 212, 213, 221, 294
  - Music 109, 184, 184, 213, 214
  - Philosophy 101, 102, 215, 250; Honors 171, 175
  - Drama 201

*Credit hours listed above are based on the minimum to be earned. For example, MATH courses have 3, 4, or 5 credits. Completion of the MTA requires 30 credits of coursework within the 5 MTA distribution areas.

**Course not MTA eligible

AAS and AGS Degrees*****

- 2 courses (6 credits) in English/Communications
  - Must take English 101 or Honors 250 – AND
  - English 102 (or Honors 251) or English 103 or Communication 100, 101, 102, 215, 225, 235

- 1 course (at least 3 credits) in Mathematics
  - Any 100-level course or higher in Mathematics discipline (including Business Administration 216)

- 1 course (at least 3 credits) in Natural Sciences
  - Any 100-level course or higher in one of the following disciplines:
    - Agriculture (AGRI 110 only)
    - Biology (or Honors 101, 111, 112)
    - Chemistry
    - Physical Science
    - Physics

- 1 course (at least 3 credits) in Social Sciences
  - Any 100-level course or higher in one of the following disciplines:
    - Business (200, 203, or 204 only)
    - Geography
    - History
    - Political Science
    - Psychology
    - Sociology

- 1 course (at least 3 credits) in Humanities/Fine Arts
  - Any 100-level course or higher in one of the following disciplines:
    - Art
    - American Sign Language
    - Any 200-level English course (or Honors 204, 208, 256, 258)
    - Foreign Language (or Honors 122, 195, 196)
    - French
    - Humanities
    - Music
    - Philosophy (or Honors 171, 175)
    - Dance
    - Drama

General Education Requirements Waiver for Degree Holders and MTA Completers

https://www.lakemichigancollege.edu/policies/general-education-requirements-waiver-for-degree-holders-and-mta-completers

All general education requirements for AA, AAS, ABA, AGS, and AS degrees will be waived for students who a) have earned an AA, ABA, AS, or an equivalent degree, or b) have completed the 30

credit hours specified in the Michigan Transfer Agreement (MTA). All general education requirements will also be waived for AAS and AGS degrees for students who have earned an AAS, AGS, or equivalent degree. All general education requirements for all degree types will be waived for students who have completed a bachelor's degree or higher. This waiver also applies to basic skills prerequisites, i.e., English (E), mathematics (M), and reading (R).

All transfer credits must be earned from a college or university regionally accredited by an accrediting body recognized by the U.S. Department of Education.

This policy does not waive other degree and program requirements as outlined in the College catalog—including, but not limited to—residency credit requirement, minimum GPA, minimum credit hour requirements, and program-specific admission requirements. This waiver does not apply to specific course prerequisites.

Grade Assignment and GPA

https://www.lakemichigancollege.edu/policies/assignment-of-a-grade

The following applies to all academic credit course offerings at Lake Michigan College.

Final Grades

Students who have completed all course requirements as defined by the instructor will be issued a final grade based upon the scale listed below. Final grades are posted to students' official transcript of record as submitted by the instructor.

Incomplete Grades

An "I" is computed in the GPA as an "E" and may affect financial aid, housing, or athletic eligibility. An "I" grade can be extended at the discretion of the instructor.

All grade changes must be made within one semester of their issuance.

See Registration Policy for information regarding Withdrawals ("W" grade). A "W" grade is not calculated in the GPA but may affect completion rate for financial aid. See financial aid policies for more information.

Mid Term Grades

Mid-term grades do not affect the GPA and are not posted to the student's official transcript of record.

Mid-term grades are used to help faculty, staff, and students track student progress and success in each class, as well as allow efficiency in Financial Aid processing decisions. Student accounts will be reviewed upon mid-term grade submission and the Financial Aid Office and Academic Advising staff will be notified of failing grades, withdrawals, or otherwise insufficient grades.

Reporting and Availability of Grades

Mid-term grades are submitted on the Monday of the mid-point of each part of term. Specific dates are listed in the Academic Calendar. Final grades are submitted on the Tuesday following the end of the full term. Specific dates are listed in the Academic Calendar.

All grades are submitted via WaveLink by the instructor of record for the class. Exceptions are made only in extreme situation such as the hospitalization or death of the instructor, in which case the Registrar may collect and enter the grades and document the exception.

Mid-term grades are available to students through WaveLink upon submission by the instructor. Final grades are available to students through WaveLink beginning the Thursday after the end of the full term. Specific dates are listed in the Academic Calendar.

Grade Point Average (GPA)

Grade point average (GPA) is used to determine a student's academic standing, financial aid eligibility (including grants, loans, and scholarships), eligibility for graduation, dean's list and other academic awards, second-admit program entrance, and often for transfer to a four-year university for further study.

Grades for courses below 100 level (transitional courses) are included in the GPA but cannot be used to fulfill graduation requirements.

Grade Scale and GPA Calculation

Letter grades are assigned a point value as indicated below. Cumulative GPA is calculated by multiplying the point value of each grade by the credit value of the course, adding the total number of points earned, and then dividing by the total number of credits. For information regarding how repeated courses affect the calculation of the cumulative GPA refer to the Course Repeat Policy.

Grade	**Points**
A+	4.00
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
D-	0.67
E	0.00

References: Course Repeat Policy
Registration Policy
SAP for Financial Aid Policy

Academic Recognition Policy
Credential Completion and Graduation Policy

Guided Educational Pathways Planning (GEPP) Course Requirement

https://www.lakemichigancollege.edu/policies/gepp

The Guided Educational Pathway Planning (GEPP) 100 course is a required, non-credit course designed to provide students with an introduction to their Educational Pathway, a cluster of majors aligned with similar career interests and pathways. Students will explore characteristics necessary for success in their education, careers, and life. Students will articulate long- and short-term career and life goals in order to identify an aligned educational pathway to meet those goals. Students will research current trends within their chosen career field and develop a personalized academic plan to achieve their goals with support from an Academic and/or Faculty Advisor.

All incoming students are required to enroll in the GEPP 100 course unless the student meets one or more of the following exemptions:

1. Students in specific, employer-sponsored programs
2. Early College students
3. Guest and/or Personal Interest students
4. Students enrolled in HEAL 101
5. International Students enrolled in English for Academic Purposes (EAP) courses
6. Academic Advisor recommendation. This exemption is used in rare cases when a transfer in students enters with a well-established pathway, demonstrated that he/she has researched career options, has a clear career goal(s) in mind, understands the nature of the field he/she has chosen to pursue, AND understands the educational pathway to reaching their career goal(s).

International Students who complete EAP coursework and ready to enroll in credit bearing courses will then be required to complete GEPP 100. Any student can enroll in GEPP 100 regardless of their exemption status.

Students who do not complete the course in their first attempt are automatically re-enrolled in the course. Students who do not complete the course in their second attempt will have a hold placed on their account preventing them from registering for any credit bearing courses until they have completed the course.

The GEPP 100 course supports Guided Pathways reforms, which include mapping pathways to student end goals, helping students choose and enter a program pathway, keeping students on path, and ensuring students are learning.

Placement Testing

https://www.lakemichigancollege.edu/policies/assessment-placement

The purpose of placement testing at Lake Michigan College (LMC) is to ensure that students are placed in courses that will support their success. English (E), mathematics (M), and reading (R) represent basic prerequisite skills that are required for most college-level courses*. Students are assessed in these three areas using standardized test (e.g., SAT, ACT), Accuplacer or similar

placement assessments, and/or Multiple Measures Assessments (MMA). Multiple measures assessments potentially include high school GPA, course history and grades, and/or LMC-designed assessments. Decisions regarding what measures are appropriate, as well as minimum proficiency scores for each measure and how long each test's scores can be used, are made by English, Mathematics, and Reading faculty in collaboration with the Director of Advising, the English as a Second Language (ESL) Program Specialist, and the Director of the Testing Center.

Any standardized test scores that students have on file with a recognized testing provider (e.g., College Board, ETS, and Cambridge Assessment) must be submitted to the College directly from the testing provider. In most cases, test scores are valid for five years; however, expiration dates of some scores may vary by test type or by department (e.g. nursing).

** Students who do not achieve the necessary minimum scores on English (E), Mathematics (M), and/or Reading (R) placement tests will be placed in and must pass appropriate Transitional courses before they will be able to register for courses that require an E, M, or R pre-requisite. Further detail and history of Transitional and College-level course placement can be found in the Lake Michigan College Placement Guide (see separate document).*

Placement Test Administration

Placement tests offered at Lake Michigan College or proxy sites must be administered by trained and qualified individuals approved by the Director of the Testing Center. Assessments designed by LMC (e.g. Multiple Measures) must be completed at least five business days before the start of the term in which the student intends to enroll in classes.

Placement Test Retesting

Students may retest in each test subject once during the first testing term. To allow for adequate review, a retest may only occur after a 48-hour waiting period from the time in which the test was initially taken. Same-day retesting is not permitted.

Once the term has started, students may not retest to modify their schedule for that term (e.g. to change their math placement). Students who have not started a course sequence that satisfies E or R pre-requisites and/or have not entered any LMC math sequence may retest once in subsequent terms in appropriate testing subjects.

International Students

International students whose first language is not English may be required to take a standardized English for academic purposes language proficiency test as part of their I-20 application for an F-1 visa status. These tests include TOEFL iBT, IELTS, MET and Pearson PTE. Scores from these tests must be submitted to the College directly from the testing provider. The ESL Program Specialist is responsible for setting cut scores for course enrollment purposes.

Scores from English for academic purposes tests are not adequate for making E, M, or R placement decisions. Therefore, international students who are eligible for enrollment at the College, must take E, M, and R placement testing at LMC and/or submit college readiness standardized test scores as indicated herein prior to the beginning of the term in which they wish to begin studies.

Student Preparation for Placement and Standardized Tests

For best score results, students should become familiar with the test format and question types prior to taking placement tests. Test preparation materials are available at no cost through the following test developer websites:

- ACCUPLACER
- SAT
- ACT
- TOEFL iBT
- IELTS
- MET
- Other review recommendations are available from the LMC Testing Center.

Placement Testing Accommodations

Students, Early/Middle College counselors, and/or parents seeking student accommodations for placement testing should contact the Student Outreach and Support Services Coordinator for further information five business days in advance of testing dates. The Student Outreach and Support Services Coordinator determines reasonable accommodations based on available documentation. Testing with accommodations requires at least three days prior notice and must be scheduled by calling the Testing Center.

References: A Guide to Testing, Placement, and Mobility for Transitional Studies and Mathematics Courses

Student Learning Outcomes Assessment

https://www.lakemichigancollege.edu/policies/outcomes-assessment

Lake Michigan College realizes there is a shared responsibility for learning. Student learning outcomes are measured and tracked at the course, discipline/ program, and institution levels. In each course, students are asked to utilize the course objectives to guide their studies and identify the student learning outcomes. Instructors carefully monitor how well students are doing in their course based on instructional design and learning outcomes. Utilizing student feedback and student learning outcomes assessment data, adjustments are made, and outcomes are continuously measured to ensure quality instruction. Students will find the student learning outcomes for each course in the course syllabus.

References: Student Learning Outcomes Assessment Handbook

Student Per Semester Credit Hour Limit

https://www.lakemichigancollege.edu/policies/student-per-semester-credit-hour-limit

No student may take more than 18 credit hours of coursework per semester without written approval from the appropriate Academic Dean or their designee. During an accelerated session (e.g., 5-week or 7-week session) a student may not exceed eight credit hours without written approval from the appropriate Academic Dean or their designee. Permission will only be granted to students who have a 3.00 (B) cumulative GPA or higher.

Study Abroad

https://www.lakemichigancollege.edu/node/2112

Lake Michigan College (LMC) is committed to developing an international perspective that prepares students and develops employees and community members for a world economy and global citizenship. Study abroad programs provide cultural, academic, and personal discovery outside of the traditional campus learning environments; these experiences provide insight into international cultures and values, thus creating global citizens.

Only courses in study abroad programs conducted in accordance with National Association of Foreign Student Advisers (NAFSA) - Responsible Study Abroad Guidelines shall be approved for LMC credit. Transcripts or other academic records from study abroad programs may require external review. Students and faculty participating in LMC approved study abroad programs shall comply with terms, conditions, and procedures defined in the Study Abroad Guide.

Transfer of College Credit

https://www.lakemichigancollege.edu/policies/transfer-of-college-credit

Transfer In to LMC

The College makes no guarantee of acceptance of transfer coursework until an evaluation of the official transcript has been completed. Students who wish to have an evaluation completed must submit an admission application.

Transfer credit is awarded only from an official transcript, sent directly to LMC from the sending institution or a third-party service on behalf of the sending institution; both paper and electronic copies are acceptable. Official transcripts in a sealed envelope may be accepted from the student so long as the seal is not broken; however, the Registrar's Office reserves the right to make a final determination as to the authenticity of an official transcript which has passed through the hands of the student.

Only those credits earned at postsecondary institutions accredited by one of the regional accrediting agencies, as named below*, will be considered for transfer. Coursework completed at a postsecondary institution outside the U.S. must be evaluated by an approved third-party evaluation service. The service will determine if the institution holds the equivalent of regional accreditation, whether the equivalent of a U.S. degree or certificate was earned and will provide a general list of coursework completed. The evaluation will be used to determine whether or not transfer credit can be awarded.

Refer to the Study Abroad Policy for information regarding credits earned as part of an approved study abroad program.

It is the transfer student's responsibility to request official transcripts from her or his previous institution(s).

Transfer coursework must meet the following criteria to be awarded transfer credit:

1. The course is graded at least a “C” or 2.00 on a 4.00 grading scale. Courses graded lower than a “C” or 2.00 are not eligible for transfer; this includes courses graded as Pass/Fail, Satisfactory/Unsatisfactory, or any other grade not on the standard grading scale.
2. The course contains college-level material. Remedial or developmental coursework is not eligible for transfer. The determination of college-level content is made by review of the course content and not strictly based on the course number.
3. The course is undergraduate level. Graduate level coursework is not eligible for transfer credit.
4. The course must be the course of record for the originating institution. Transfer credit awarded on a transcript from another institution is not eligible for transfer credit.

For coursework determined to be eligible for transfer, credit is awarded in the following manner:

1. Only courses and credits will be posted. Transfer grades are not posted, nor are they included in the calculation of the LMC GPA**; transfer courses/grades are not used to exclude or replace a graded LMC course if the course is a repeat.
2. Courses for which LMC offers a direct equivalent are posted as such; if no direct equivalent is available, either general subject credit or elective credit is awarded.
3. Posted transfer credits count only toward the total earned credits on the LMC transcript and are not included in the GPA credits or attempted credits.
4. Credit awarded may count toward program completion at LMC, as long as residency requirements are met, and the course(s) has been determined to fulfill the program requirement(s). Residency requirements can be found in the Credential Completion and Graduation Policy.
5. Credit awarded will not exceed either the number of credits earned for the original course or credits carried by the LMC equivalent course. If a transfer course has fewer credits than the equivalent, the lesser amount of credit is assigned; if a transfer course has more credits than the equivalent, credits above the assigned amount are awarded as general elective credit. Any transfer courses which are assigned credits on a system other than semester hours (such as quarter hours) are converted to semester hours when transfer credit is awarded. Standard conversion scales are used.
6. Any transfer course which is not clearly identified as equivalent to an LMC course is referred to the appropriate academic department to determine equivalency.

*Regional accrediting bodies recognized by LMC include the following:

- The Higher Learning Commission
- Middle States Association of College and Schools (Commission on Higher Education)
- New England Association of Schools and Colleges (Commission on Institutions of Higher Education)
- Northwest Commission on Colleges and Universities
- Southern Association of Colleges and Schools (Commission on Colleges)
- Western Association of Schools and Colleges (Accrediting Commission for Senior Colleges and Universities)
- Western Association of Schools and Colleges (Accrediting Commission for Community and Junior Colleges)

Once the transfer evaluation is complete, the student is mailed a letter and worksheet indicating the transfer credits posted to her or his LMC record. Students wishing to challenge a transfer credit award may do so by contacting the Records & Registration Department/Registrar's Office.

Transfer Out of LMC

While Lake Michigan College does its best to remain transfer-friendly, the College cannot guarantee transfer of any course. Only the receiving institution may determine whether a course will be accepted for transfer based on its own criteria and transfer policies.

** For calculation of GPA for selective admissions Health Sciences programs please refer to the specific Health Science program application.