For information in Madison (area code 608), call:

- **Academic Advising**: 243-4271
- **Admissions**: 246-6210
- **Affirmative Action/Community Relations Coordinator**: 246-6901
- **Agriculture & Technology**: 246-6802
- **Alternative Learning**: 258-2440
- **Adult Basic Education**:
  - Downtown: 258-2440
  - Truax: 246-6222
- **Adult & Continuing Education**: 258-2301
- **Alcohol & Drug Abuse Prevention**:
  - Downtown: 243-4343
  - Truax: 246-6014
- **Apprenticeship Coordinator**: 246-4334
- **Apprenticeship**: 243-4500
- **Art**: 246-6002
- **Business**: 246-6003
- **Culinary Trades**: 246-6368
- **Emergency Counseling Center**: 246-6606
- **Emergency Management**: 246-6727
- **Fire Education Center**: 246-6911
- **Fitness Center**:
  - Downtown: 258-2399
  - Truax: 246-6093
- **Food Services**:
  - Downtown: 258-2420
  - Truax: 246-6394
- **GED Program**:
  - Instructional Info.: 258-2440
  - GED Testing Info.: 246-6220
- **Health Occupations**: 246-6065
- **Human Services**: 245-5888
- **Human Resources**: 246-6905
- **Information**:
  - Downtown: 246-6100
  - Truax: 243-4095
- **Intramural Sports Supervisor**: 243-4095
- **MATC Jobs Hotline**: 246-6906
- **Library**:
  - Downtown: 258-2499
  - Truax: 246-6640
- **Lost & Found**: 246-6031
- **Marketing**: 243-4233
- **Minority Student Services**:
  - Minorities Programs: 258-2974
  - Multicultural Services: 246-6059
  - Music: 246-6246
- **Operator**: 246-6282
- **Programs and Activities**:
  - Council (PAC): 246-6722
  - Parking: 246-6031
  - President's Office: 246-6678
  - Protective Services: 245-5888
- **Public Relations**: 246-6921
- **Records/Registration**: 246-6210
- **School-to-Career/Tech Prep**: 246-5251
- **Security**: 243-4357
- **Sports Info. Director**: 243-4098
- **Student Computer Help Desk**: 243-4444
- **Student Life Office**:
  - Downtown: 258-2965
  - Truax: 246-6224
- **Student Life**:
  - Activities Information: 246-6224
  - Service Center: 246-6227
- **Student Senate**: 246-6107
- **Technical & Industrial**: 246-6802
- **Teleconferences**: 246-6152
- **Telecourses**: 246-6288
- **Theater Box Office**: 243-4000
- **Transcript Requests**: 246-6213
- **Transition Facilitator**: 246-6791
- **Veterans Assistance**: 246-6038
- **Weather Open/Close Hotline**: 246-6606

The course information in this booklet is current at the time of publication. For more information, visit the MATC Website at matcmadison.edu.
To make it easier for you to plan your courses and register for classes, this publication lists MATC credit courses and their descriptions. Courses are organized by subject in chronological order by the three middle digits in their course numbers.

If you are enrolled in a program or planning to start a program soon, please check with your department, advisor or counselor to find out which courses you are required to take for your program. The descriptions in this document are accurate as of June 2006. For the most up-to-date description, please see the MATC Website or check with your department office.

How to read the course numbers

Each course has an eight-digit number. The first two digits are the state code number. The third digit identifies the department of the college under which the course is taught. The fourth and fifth digits identify the area of instruction. The courses in this section are listed under a subject heading corresponding to the third, fourth and fifth digits and are organized in numerical order according to these numbers.

The sixth digit identifies the type of program within which the course is being taught. The seventh and eighth digits identify the particular course. The meaning of the sixth digit is particularly important. A sixth digit of "1" indicates a technical associate degree course, "2" indicates a college transfer course, "3" indicates a vocational diploma course and "5" indicates an apprenticeship course.

Example: 10-801-152
The third digit—8—identifies the department as Arts and Sciences. The fourth and fifth digits—01—identify the area of instruction as English. The sixth digit—1—identifies the type of program as technical associate degree. The seventh and eighth digits—52—identify the particular course as Communication Skills.

Example: 30-537-336
The third digit—5—identifies the department as Health. The third and fourth digits—37—identify the area of instruction as Therapeutic Massage. The sixth digit—3—identifies the type of program as vocational diploma. The seventh and eighth digits—36—identify the particular course as Musculoskeletal Anatomy.

The Table of Contents on the next page provides a list of course subjects in this publication. Note, subjects are organized in numerical order using the three middle digits (third, fourth and fifth digits) of the course number. To find general education (Liberal Arts and College Transfer courses), look through the subjects starting on page 58. (The third digit in these courses starts with an "8.")
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Code</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Horticulture</td>
<td>001</td>
<td>1</td>
</tr>
<tr>
<td>007</td>
<td>Biotechnology Laboratory Technician</td>
<td>007</td>
<td>1</td>
</tr>
<tr>
<td>070</td>
<td>Agricultural Equipment Technology</td>
<td>070</td>
<td>2</td>
</tr>
<tr>
<td>080</td>
<td>Farm Business and Production Management</td>
<td>080</td>
<td>3</td>
</tr>
<tr>
<td>091</td>
<td>Veterinary Technician</td>
<td>091</td>
<td>3</td>
</tr>
<tr>
<td>101</td>
<td>Accounting</td>
<td>101</td>
<td>4</td>
</tr>
<tr>
<td>102</td>
<td>Business Administration</td>
<td>102</td>
<td>6</td>
</tr>
<tr>
<td>103</td>
<td>Computer Software</td>
<td>103</td>
<td>7</td>
</tr>
<tr>
<td>104</td>
<td>Marketing and Fashion Marketing</td>
<td>104</td>
<td>8</td>
</tr>
<tr>
<td>106</td>
<td>Business Technology, Judicial Reporting</td>
<td>106</td>
<td>9</td>
</tr>
<tr>
<td>107</td>
<td>Information Technology</td>
<td>107</td>
<td>11</td>
</tr>
<tr>
<td>108</td>
<td>Hospitality and Tourism, Recreation Services</td>
<td>108</td>
<td>11</td>
</tr>
<tr>
<td>110</td>
<td>Paralegal</td>
<td>110</td>
<td>13</td>
</tr>
<tr>
<td>145</td>
<td>Small Business</td>
<td>145</td>
<td>14</td>
</tr>
<tr>
<td>150</td>
<td>Networking (also see courses under 107, 152, 154)</td>
<td>150</td>
<td>14</td>
</tr>
<tr>
<td>152</td>
<td>Programming (also see courses under 107, 150, 154)</td>
<td>152</td>
<td>15</td>
</tr>
<tr>
<td>154</td>
<td>Technical Support (also see courses under 107, 150, 152)</td>
<td>154</td>
<td>18</td>
</tr>
<tr>
<td>170</td>
<td>Broadcast Captioning</td>
<td>170</td>
<td>19</td>
</tr>
<tr>
<td>185</td>
<td>Quality Management</td>
<td>185</td>
<td>19</td>
</tr>
<tr>
<td>194</td>
<td>Real Estate</td>
<td>194</td>
<td>20</td>
</tr>
<tr>
<td>196</td>
<td>Supervisory Management</td>
<td>196</td>
<td>20</td>
</tr>
<tr>
<td>201</td>
<td>Graphic Design</td>
<td>201</td>
<td>21</td>
</tr>
<tr>
<td>203</td>
<td>Photography</td>
<td>203</td>
<td>22</td>
</tr>
<tr>
<td>204</td>
<td>Printing and Publishing</td>
<td>204</td>
<td>23</td>
</tr>
<tr>
<td>206</td>
<td>Visual Communications—Media Design</td>
<td>206</td>
<td>24</td>
</tr>
<tr>
<td>207</td>
<td>Animation</td>
<td>207</td>
<td>24</td>
</tr>
<tr>
<td>304</td>
<td>Interior Design</td>
<td>304</td>
<td>25</td>
</tr>
<tr>
<td>307</td>
<td>Early Childhood Education</td>
<td>307</td>
<td>26</td>
</tr>
<tr>
<td>313</td>
<td>Dietetic Technician</td>
<td>313</td>
<td>27</td>
</tr>
<tr>
<td>314</td>
<td>Baking/Pastry Arts</td>
<td>314</td>
<td>28</td>
</tr>
<tr>
<td>316</td>
<td>Culinary</td>
<td>316</td>
<td>29</td>
</tr>
<tr>
<td>403</td>
<td>Drafting—Architectural</td>
<td>403</td>
<td>30</td>
</tr>
<tr>
<td>404</td>
<td>Automotive Technician</td>
<td>404</td>
<td>30</td>
</tr>
<tr>
<td>405</td>
<td>Auto Collision Repair and Refinish</td>
<td>405</td>
<td>30</td>
</tr>
<tr>
<td>409</td>
<td>Cabinetmaking and Millwork</td>
<td>409</td>
<td>31</td>
</tr>
<tr>
<td>410</td>
<td>Construction and Remodeling</td>
<td>410</td>
<td>32</td>
</tr>
<tr>
<td>412</td>
<td>Diesel and Heavy Equipment/</td>
<td>412</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Diesel Equipment Technology</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>414</td>
<td>Electronic Servicing</td>
<td>414</td>
<td>33</td>
</tr>
<tr>
<td>419</td>
<td>Industrial Hydraulics</td>
<td>419</td>
<td>33</td>
</tr>
<tr>
<td>420</td>
<td>Machine Tooling Techniques</td>
<td>420</td>
<td>34</td>
</tr>
<tr>
<td>421</td>
<td>Mechanical Drawing</td>
<td>421</td>
<td>35</td>
</tr>
<tr>
<td>442</td>
<td>Welding</td>
<td>442</td>
<td>35</td>
</tr>
<tr>
<td>461</td>
<td>Motorcycle, Marine and Outdoor Power Equipment</td>
<td>461</td>
<td>35</td>
</tr>
<tr>
<td>482</td>
<td>Industrial Maintenance</td>
<td>482</td>
<td>36</td>
</tr>
<tr>
<td>501</td>
<td>Health</td>
<td>501</td>
<td>36</td>
</tr>
<tr>
<td>502</td>
<td>Barber/Cosmetologist</td>
<td>502</td>
<td>37</td>
</tr>
<tr>
<td>503</td>
<td>Fire Protection Technician</td>
<td>503</td>
<td>37</td>
</tr>
<tr>
<td>504</td>
<td>Criminal Justice—Law Enforcement</td>
<td>504</td>
<td>38</td>
</tr>
<tr>
<td>508</td>
<td>Dental Assistant/Dental Hygiene</td>
<td>508</td>
<td>39</td>
</tr>
<tr>
<td>509</td>
<td>Medical Assistant</td>
<td>509</td>
<td>41</td>
</tr>
<tr>
<td>510</td>
<td>Health Unit Coordinator</td>
<td>510</td>
<td>41</td>
</tr>
<tr>
<td>512</td>
<td>Surgical Technologist</td>
<td>512</td>
<td>41</td>
</tr>
<tr>
<td>513</td>
<td>Clinical Laboratory Technician</td>
<td>513</td>
<td>42</td>
</tr>
<tr>
<td>514</td>
<td>Occupational Therapy Assistant</td>
<td>514</td>
<td>43</td>
</tr>
<tr>
<td>515</td>
<td>Respiratory Therapist/Polysoniography</td>
<td>515</td>
<td>43</td>
</tr>
<tr>
<td>516</td>
<td>Optometric Technician</td>
<td>516</td>
<td>44</td>
</tr>
<tr>
<td>520</td>
<td>Human Services Associate</td>
<td>520</td>
<td>45</td>
</tr>
<tr>
<td>524</td>
<td>Restorative and Rehabilitation Therapy</td>
<td>524</td>
<td>46</td>
</tr>
<tr>
<td>526</td>
<td>Radiography</td>
<td>526</td>
<td>46</td>
</tr>
<tr>
<td>530</td>
<td>Medical Coding Specialist</td>
<td>530</td>
<td>47</td>
</tr>
<tr>
<td>531</td>
<td>Emergency Medical Services</td>
<td>531</td>
<td>47</td>
</tr>
<tr>
<td>537</td>
<td>Therapeutic Massage</td>
<td>537</td>
<td>49</td>
</tr>
<tr>
<td>538</td>
<td>Language Interpreter for Health Services</td>
<td>538</td>
<td>50</td>
</tr>
<tr>
<td>543</td>
<td>Nursing (includes Associate Degree Nursing, Practical Nursing and Nursing Assistant)</td>
<td>543</td>
<td>50</td>
</tr>
<tr>
<td>575</td>
<td>CBRF Caregiver</td>
<td>575</td>
<td>52</td>
</tr>
<tr>
<td>602</td>
<td>Automotive Technology</td>
<td>602</td>
<td>52</td>
</tr>
<tr>
<td>605</td>
<td>Electronics</td>
<td>605</td>
<td>52</td>
</tr>
<tr>
<td>606</td>
<td>Mechanical Design Technology</td>
<td>606</td>
<td>54</td>
</tr>
<tr>
<td>607</td>
<td>Civil Engineering Technology</td>
<td>607</td>
<td>55</td>
</tr>
<tr>
<td>614</td>
<td>Architectural Technician</td>
<td>614</td>
<td>56</td>
</tr>
<tr>
<td>619</td>
<td>Plastics Technology</td>
<td>619</td>
<td>57</td>
</tr>
<tr>
<td>636</td>
<td>Electron Microscopy</td>
<td>636</td>
<td>57</td>
</tr>
<tr>
<td>662</td>
<td>Electrical Technology</td>
<td>662</td>
<td>58</td>
</tr>
<tr>
<td>801</td>
<td>English</td>
<td>801</td>
<td>58</td>
</tr>
<tr>
<td>802</td>
<td>Foreign Language</td>
<td>802</td>
<td>61</td>
</tr>
<tr>
<td>803</td>
<td>History</td>
<td>803</td>
<td>62</td>
</tr>
<tr>
<td>804</td>
<td>Mathematics</td>
<td>804</td>
<td>63</td>
</tr>
<tr>
<td>805</td>
<td>Music</td>
<td>805</td>
<td>65</td>
</tr>
<tr>
<td>806</td>
<td>Science (Natural Science)</td>
<td>806</td>
<td>66</td>
</tr>
<tr>
<td>807</td>
<td>Physical Education</td>
<td>807</td>
<td>69</td>
</tr>
<tr>
<td>808</td>
<td>Reading</td>
<td>808</td>
<td>71</td>
</tr>
<tr>
<td>809</td>
<td>Social Science</td>
<td>809</td>
<td>71</td>
</tr>
<tr>
<td>810</td>
<td>Speech</td>
<td>810</td>
<td>74</td>
</tr>
<tr>
<td>815</td>
<td>Art</td>
<td>815</td>
<td>75</td>
</tr>
<tr>
<td>851</td>
<td>Alternative Learning: Communication</td>
<td>851</td>
<td>76</td>
</tr>
<tr>
<td>854</td>
<td>Alternative Learning: Mathematics</td>
<td>854</td>
<td>76</td>
</tr>
<tr>
<td>858</td>
<td>Alternative Learning: Science</td>
<td>858</td>
<td>76</td>
</tr>
<tr>
<td>859</td>
<td>Alternative Learning: Reading</td>
<td>859</td>
<td>76</td>
</tr>
<tr>
<td>860</td>
<td>Alternative Learning: Computer Basics</td>
<td>860</td>
<td>77</td>
</tr>
<tr>
<td>861</td>
<td>Alternative Learning: English as a Second Language</td>
<td>861</td>
<td>77</td>
</tr>
<tr>
<td>862</td>
<td>Alternative Learning: Career Awareness</td>
<td>862</td>
<td>78</td>
</tr>
<tr>
<td>880</td>
<td>Alternative Learning: Student Awareness</td>
<td>880</td>
<td>78</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------</td>
<td>---------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 001 Horticulture                                    |                                                   |         | **10-001-111 Introduction to Horticulture** 3 credits  introduces plant science and the four branches of horticulture with an emphasis on ornamental horticulture. Covers the structure and function of plants and how they are affected by light, water, temperature, soil, pests, climate and nutrient availability. Labs combine hands-on experience, videos and demonstrations.  
**10-001-120 Landscaping-Interior** 3 credits  Students learn to choose plants to create pleasing and professional interior displays. Includes diagnosing and solving plant problems, drawing plans and writing maintenance contracts. Labs provide hands-on experience.  
**10-001-134 Turf and Lawn Management** 3 credits  Examines how to effectively start and maintain professional appearing lawn/turf. Discusses grasses to use, turf chemicals, equipment and diagnosing problems. Labs include identification of weeds and several field trips to study various uses of turf.  
**10-001-140 Introduction to Landscape Design** 3 credits  Teaches how to plan and draw a professional landscape design. Focuses on selecting correct plant material, proper placement and uses of landscape construction elements. Labs provide practical design and drawing experience.  
**10-001-143 Bedding Plants** 3 credits  Covers greenhouse propagation and growing of annual and perennial plants used for bedding plants in landscaping. Covers bedding plant identification, culture, landscape use and flower-bed design. Labs include hands-on experience emphasizing proper techniques in propagating and transplanting bedding plants, applying growth regulators and controlling pests.  
**10-001-144 Floral Design 1/Commercial** 3 credits  Students practice basic principles, elements and mechanics of floral design. Includes identification, care and handling of flowers and foliage. Includes hands-on designing of corsages, primary arrangements and holiday arrangements.  
**10-001-145 Floral Design 2/Commercial** 3 credits  Covers hands-on use of fresh flowers, fresh foliage, dried materials, silks and fruit in the more advanced floral designs. Includes discussion of color theory and development of floral creativity. Prerequisites: 10-001-144.  
**10-001-155 Garden Center Operations** 3 credits  Covers garden center establishment and operation. Course content includes financial records, merchandising/promotion strategies and the selection/maintenance of quality plant materials. Labs include hands-on experiences and field trips. |
| 007 Biotechnology Laboratory Technician              |                                                   |         | **10-007-102 Radiotracers** 1 credit  Surveys potential hazards and safety procedures associated with radiotracers. Lab exercises include liquid scintillation counting and autoradiography. No prerequisites.  
**10-007-103 Biotechnology Laboratory Skills for a Regulated Workplace** 3 credits  Covers basic concepts and techniques necessary to work effectively in a biotechnology lab. The importance of quality regulations and standards and the role of the technician in producing quality results is emphasized. Laboratory math is introduced and applied. Students learn basic techniques including: measuring, weighing, mixing solutions, following and writing procedures, keeping records, making observations and using instrument manuals and catalogues. Principles of metrology (measurement) are introduced and students practice using, calibrating and verifying the performance of instruments.  
**10-007-104 Chromatography Techniques** 3 credits  Introduces the basic concepts involved in separation of biomolecules. Students complete lab work using a variety of chromatographic methods including: paper, thin layer, gel, permeation, gas and high performance liquid chromatography. Students also learn to interpret chromatographic results and practice documentation and reporting skills.  
**10-007-108 Hazardous Materials** 1 credit  Surveys potential laboratory hazards and safety procedures. Covers regulation of chemicals: flammable, reactive, corrosive and toxic substances. Lab included.  
**10-007-109 Biosafety** 1 credit  Surveys potential hazards and safety procedures associated with biohazards including lab animals and pathogens. Lab included.  
**10-007-110 Biotechnology Applications** 1 credit  Provides a broad introduction to biotechnology including the scientific basis of the technologies and their historical development with an emphasis on current applications in the areas of agriculture, medicine, forensics and the environment.  
**10-007-111 Biotechnology Career Seminar** 1 credit  Includes a discussion of national, state and local biotechnology industries, career options, the ethical, legal and societal issues raised by the use of biotechnology and the regulatory agencies that oversee the industry.  
**10-007-112 Biotechnology Employment Skills** 1 credit  Discusses the specific skills needed for particular areas and careers, ethical issues and the business of biotechnology including the basis of intellectual property law. Each student gives a presentation on their occupational work experience. Corequisites: 10-007-126.  
**10-007-115 General Cell Biology** 4 credits  Introduction to cells, emphasizing their structure, diversity, chemistry and physiology. Processes of cellular respiration, photosynthesis and division are discussed. Describes genetic principles and molecular activities involved in DNA, RNA and protein synthesis. Lab included.  
**10-007-121 Applied Biochemistry** 3 credits  Introduction to major chemical constituents of cells including proteins, carbohydrates, lipids and nucleic acids. The structure and kinetics of enzymes, reaction mechanisms and metabolic pathways are also included.  
**10-007-122 Protein Biosynthesis Methods** 3 credits  Introduces the general strategies commonly used to purify proteins. Specific methods include determining specific activities for enzymes, extraction of proteins from bacterial cells, setting out, dialysis, ion exchange chromatography and polyacrylamide gel electrophoresis.  
**10-007-123 Cell Culturing** 3 credits  Covers the basic techniques of plant and animal cell culture. Plant unit includes media preparation, isolation of explants and establishment of cultures from suspension cultures, growth factor bioassays, regeneration of whole plants from tissue and plant genetic engineering techniques. Mammalian cell unit includes media preparation, maintenance of cultured cells, transfection of cultured cells, cloning, monoclonal antibody production and ELISA assays.  
**10-007-124 Molecular Biology 1** 2 credits  Introduces modern molecular biology techniques including basic recombinant DNA techniques and nucleic acid analysis and purification. The polymerase chain reaction, DNA sequence analysis and DNA fingerprinting are also covered.  
**10-007-125 Molecular Biology 2** 3 credits  Survey of advanced techniques in molecular biology including Southern analysis, and RNA purification and analysis. The course builds on discussion of concepts with practical laboratory experience.  
**10-007-126 Occupational Work Experience** 3 credits  Students work in a biotechnology laboratory. Emphasizes the integration of academics and practical experiences. Prerequisites: Successful completion of all program courses in the first three semesters of the program, or consent of instructor and successful completion of a performance exam. Corequisites: 10-007-112. |
10-007-138 Laboratory Math for Biotechnology 1 credit
This course introduces mathematical tools that are used in the biotechnology laboratory. Students apply mathematical concepts to solve problems such as calculating amounts of chemicals required to make solutions, graphing and interpreting data, and analyzing information. Basic statistical concepts may also be introduced.

10-007-155 Quality Regulations and Standards in Biotechnology 1 credit
Implementation of quality systems (GMP, ISO 9000) in biotechnology companies imposes new demands and pressures on laboratory scientists and technicians. This lab and lecture workshop will provide an overview of the history and philosophy of quality systems and how they affect the laboratory scientist and technician. The vocabulary of quality systems will be explained, including variation, calibration, traceable measurement, validation, process control, data recording and documentation.

10-007-180 Introduction to Bioinformatics 2 credits
This survey course is an introduction to the concepts and tools used in bioinformatics. The fundamentals of sequence alignment, gene analysis and microarray data analysis will be discussed. This course has a companion course (10-152-148 Intro to Bioinformatics Programming) offered through the IT department, which must be taken concurrently. Corequisite: 10-152-148, Intro to Bioinformatics Programming and consent of instructor.

10-007-181 Advanced Bioinformatics 2 credits
A capstone course in Bioinformatics. Using the skills gained in previous courses, the student designs and completes a Bioinformatics project. This course has a companion course (10-150-160, Advanced Bioinformatics Computing) offered through the Biotechnology Department that must be taken concurrently. Prerequisite: grade of "C" or better in all course certificates and concurrent enrollment in 10-152-149 or consent of instructor.

10-007-180 Biotechnology Laboratory Workplace Skills 12 credits
This course includes the following components:

Component 1: Basic Laboratory Skills in a Regulated Environment. Emphasis will be placed on basic laboratory techniques including: measuring, weighing, mixing solutions, following and writing procedures, keeping records, making observations, and using instrument manuals and catalogues. Principles of metrology are introduced and students practice using, calibrating and verifying the performance of instruments. The importance of quality regulations and standards and the role of the industry scientist in producing quality results are emphasized throughout this unit.

Component 2: Core Biotechnology Techniques. Students will learn cell culture and recombinant DNA techniques, including restriction enzyme mapping and agarose gel electrophoresis, plasmid purification, plasmid transfection and sequencing of recombinant clones for gene product expression. They will perform polymerase chain reactions (PCR) to detect polymorphisms and perform PCR based cloning, using a blue-white screening system to select transformed colonies. Students will learn protein purification and analysis techniques including ion exchange chromatography, protein and enzyme assays, polyacrylamide gel electrophoresis and western blotting. Students will work in teams, simulating the environment in a company.

Component 3: Advanced Techniques: DNA Microarrays and Bioinformatics. Students will isolate yeast RNA, make labeled cDNA to hybridize to a yeast DNA microarray, and analyze the results using open source software (Magic Tool). Some commonly used bioinformatics software and web-based tools will be explored. Prerequisites: For individuals who have a Bachelor's Degree in the Life Sciences. Corequisite: 10-102-134: Business operations and management (Biotechnology section) must be taken concurrently.

070 Agricultural Equipment Technology

10-070-175 Power Transmissions 4 credits
The course covers the operation, power flow, diagnosis and servicing of coller shift, synchronized and power shift transmissions. The class also discusses the operation and service of wet and dry clutches differentials, planetary drive axles, P.T.O. drives and mechanical front wheel drives.

10-070-176 Electrical Systems 3 credits
This class begins with a discussion of the laws of electricity as they relate to the operation of the charging, starting and lighting systems. Diagnostic testing and troubleshooting will be demonstrated on alternators, starters and lighting systems. Methods of repair will be demonstrated where methods are currently used at dealerships.

10-070-177 Fuel Systems 3 credits
This course covers the theory of operation, construction and service of diesel engine fuel systems. Also reviewed are diesel engine compression, ignition, thermocouples, chamber design and procedures for installing, timing of fuel quantity for proper combustion. Electronic fuel delivery will be discussed as it relates to engine operation.

10-070-178 Implements 1 3 credits
This course provides instruction in the theory of operation and service of the grain combine. Students will learn how the combine processes grain, the basic components, means of service and repair of the machine. Lab work is designed to provide students with hands-on experience on combines, grain platforms and corn heads. Service and adjustment activities include the cylinder, gear boxes and power transmission components. Prerequisite: 10-070-161.

10-070-181 Implements 2 3 credits
This course provides instruction in the theory of operation, adjustment and service of planting equipment. Students will learn the operation and service of corn planters and grain drills. Emphasis is given to how the corn planter seed meter works and how the attachments operate. In addition, the course also provides information on the theory, operation, adjustment and service of forage harvesting machines. Machines covered include mower conditioners, square balers, round balers and forage harvesters. Bearings, clutches, U-joints and other power transmission components also are covered.

10-070-182 Accessories and Electronics 3 credits
This course will introduce the student to the theory and operation temperature, pressure and speed sensors. Students will be introduced to the central control unit (CCU) and the hitch control unit (HCU). Students will be shown the procedure for recalining codes and transmission calibration procedures. This course will provide the electrical certification for John Deere Technicians. Prerequisite: 10-070-178.

10-070-183 Hydraulics 1 3 credits
This course introduces the student to the hydraulic systems found on 30 through 60 series John Deere Tractors. The component configuration and operational characteristics of these tractors will be introduced. Students will service and rebuild the radial piston pump, S.C.V. and other components of the hydraulic system. Students will follow the technical manual diagnostic procedures to troubleshoot hydraulic system problems found on these tractors.

10-070-184 Hydraulics 2 3 credits
This course provides instruction on the 5, 7 and 8000 series John Deere tractors. The component configuration and operational characteristics of these tractors will be introduced. Students will service and rebuild the axial piston pumps, S.C.V's and other components of the hydraulic system. Students will follow the technical manual diagnostic procedures to check out and troubleshoot the hydraulic system. Prerequisite: 10-070-183.

10-070-187 Occupational Experience 1 (Spring Session) 2 credits
Students receive on-the-job experience in the areas of implement repair and services. Areas covered include, but are not limited to, tillage, planting and hay harvesting machines. Students also will be exposed to the operation and function of the dealership service department. Prerequisite: second-semester standing.

10-070-188 Occupational Experience 2 (Fall Session) 2 credits
Students receive on-the-job experience in the areas of combines, corn heads and grain platforms. Other areas covered include set-up, tillage and planting equipment. Prerequisite: 10-070-187.

10-070-189 Occupational Experience 3 (Summer Session) 2 credits
Students receive on-the-job experience in tractor engine repair, air conditioning, electrical and hydraulic system troubleshooting. Other areas covered include service department operation, warranty work and customer contacts. Prerequisite: 10-070-188.
10-070-191 Engine Repair 6 credits
Study in this course will allow the student to develop a basic knowledge of combustion engine design and operation with the major emphasis on diesel engines. Experience in the course will provide the student with the skills and knowledge needed to diagnose, overhaul, maintain, adjust and repair engines found in agricultural machines and equipment.

10-070-193 Air Conditioning 2 credits
This course covers the theory of operation, service and testing of air conditioning units used to cool and heat the operator's cab. Lab work consists of leak detecting, evacuation, changing component installations, electrical circuits and trouble shooting of systems. Air condition service certification tests are also given to students enrolled in this course.

10-070-194 Commercial Equipment 2 credits
Uses discussion, demonstration and laboratory experiments to study air-cooled engines, both two cycle and four cycle are covered. Ignition, fuel, starting, charging and safety-in-motion systems are studied. Includes commercial mowers and compact utility tractors and their attachments.

090 Farm Business and Production Management

30-090-381 Operating the Farm Business 3 credits
Emphasizes the management skills and concepts necessary for students to continue farming with today's changing technology and farm business financing. Builds the foundation for other courses in this program. Special emphasis is given to establishing and recording farm business and family goals. Students organize and maintain farm business records, and interpret and analyze the records to assist in making sound farm business management decisions. Students evaluate goals and objectives upon completion of the course.

30-090-382 Soils Management 3 credits
Covers preparation and implementation of a land-use plan and helps students understand soil testing procedures and reports. Students receive instruction on understanding and implementing fertilizer recommendations and budgets. Covers application of farm manures, chemicals, soil conservation practices, and the management and safe use of farm machinery and equipment.

30-090-383 Crop Management 3 credits
Crop management emphasizes analysis of the farming business and planning cropping practices and strategies to meet student needs. Specific topics relate to variety, selection, planning, pest control, harvesting, storing, and marketing. In addition, the farm cropping program is related to the total farm enterprise on a short- and long-term basis.

30-090-384 Livestock Nutrition 3 credits
This course emphasizes the skills, techniques, and concepts necessary for sound feeding management. It covers the determination of feed values; the economics of feed; nutritional terminology and requirements; feed consumption of livestock: breeding understanding feed tag labels for protein, energy, minerals and vitamins; evaluation of base feed and feeding programs; and metabolic diseases of feeding livestock. Not part of nutrition, but also included in this course, is a discussion of how the farm family can deal with stress factors and identify its role in the community.

30-090-385 Livestock Management 3 credits
The livestock management course provides instruction on the various phases of selection, breeding, herd health, raising of replacement stock, and marketing livestock and livestock products. It includes the selection, operation and maintenance of milking, feeding, ventilation, manure handling, equipment and farm buildings.

30-090-386 Farm Records and Business Analysis 3 credits
Instruction emphasizes the practical use of a record system in farm management and financial analysis. It includes the establishment of farm business goals, selection and use of farm credit, farm business arrangements, farm estate planning and farm income taxes. Instruction is provided on the use of computers and/or computer records.

30-090-387 Farm Business Management-Update 2 credits
Because of changing production technology and farm management decisions, established farmers need to receive up-to-date instruction and information on current practices for farm records and analysis, soils, crop management, and livestock nutrition and management. The specific objectives of this course are modified on a yearly basis to meet the needs of area farmers.

091 Veterinary Technician

10-091-105 Occupational Preparation: An Intro. to Veterinary Tech. 1 credit
Acquaints new students with the general competencies necessary to be employed as veterinary and laboratory animal technicians. Addresses the student's personal safety, health and stress management. Discusses memberships in professional organizations, certification, licensing and internship preparation. Briefly discusses animal loss and bereavement.

10-091-113 Animal Nutrition 2 credits
Presents information concerning the applied nutrition of the common domestic and laboratory species. Disease and body functions as related to nutrition are stressed. Field trips may be taken. Prerequisites: ACM 1, 10-091-171, and concurrent enrollment or completion of first semester Veterinary Clinical Pathology 1, 10-091-120.

10-091-114 Animal Behavior 2 credits
This is an introductory elective course in applied domestic animal behavior. Emphasis will be placed on the canine and feline species including normal developmental and adult behavior. Common behavior problems of both species will be discussed and behavior modification and training techniques will be explored. Corequisites: 10-091-171.

10-091-115 Zoosanis 1 credit
Covers etiology, symptoms, transmission, diagnosis, prevention and control of diseases that are transmissible from animals to humans; reporting requirements; and handling diagnostic samples properly. Emphasizes high-exposure diseases that might involve the veterinary technician and/or client. Prerequisite: 10-091-170.

10-091-117 Exotic Animal Husbandry 2 credits
Covers basic care and handling of birds, reptiles, small rodents, rabbits, ferrets and guinea pigs. Zoo animal and wildlife rehabilitation are discussed as other areas available to veterinary/laboratory animal technicians. Prerequisites: 10-091-123 and 10-091-121.

10-091-118 Advanced Veterinary Surgical Nursing 2 credits
An elective course offered for those veterinary technician students who wish to expand their surgical nursing knowledge. Designed to show the entire scope of a surgical patient's case from hospital admittance to discharge. Discussion of diagnostic tests, special anesthetic considerations and specific specialized surgical equipment as they relate to specific types of cases, will be included. Course will consist of lecture-style instruction. Field trips may be taken. Prerequisites: 10-091-158, internship; 10-091-127, Surgical Nursing 1; and 10-091-140, Animal Anatomy and Physiology.

10-091-120 Veterinary Clinical Pathology 1 3 credits
Students are introduced to laboratory equipment, elementary laboratory procedures and the principles of microscopy, parasitology, urinalysis, hematology and bacteriology. Prerequisites: 10-091-170 and 10-091-171.

10-091-121 Veterinary Clinical Pathology 2 4 credits
Continues to expand upon the principles, procedures and skills learned in Vet. Clinical Pathology 1 and 2, including hematology, parasitology, urinalysis, microbiology, cytology, mycology, virology, serology, immunology and blood chemistry. Will continue to expand upon the use of automated laboratory procedures for hematology and clinical chemistry. Prerequisites: 10-091-120, 10-091-124 and 10-091-158.

10-091-123 Introduction to Laboratory Animal Science 2 credits
Includes the history of laboratory animal technology and laboratory animal uses. Emphasizes the Animal Welfare Act and other regulations pertaining to the care of laboratory animals. Covers laboratory animal husbandry in depth as students provide care and treatment for a colony of laboratory animals. Prerequisites: 10-086-105, 10-091-170, 10-091-171 or concurrent enrollment in all of the above.
10-091-124 Veterinary Clinical Pathology 2
Second in sequence of three courses. Students utilize laboratory equipment, including the microscope and complete selected laboratory procedures, including parasitology, mycology, urinalysis, hematology, serology, bacteriology, cytology and blood chemistries. Prerequisites: 10-091-120 and 10-091-158.

10-091-125 Veterinary Office Management
3 credits
Introduces modern veterinary hospital business practices, including: developing good public, client and staff relations; client service and education; office procedures; basic accounting, marketing and computer skills; and advancement opportunities. Emphasizes professional ethics and encourages students to join professional organizations. Prerequisite: 10-091-158 or concurrent enrollment.

10-091-127 Surgical Nursing 1
3 credits
This introductory course to surgical nursing covers patient prep, surgical instruments, package prep, surgical nursing and anesthesia. Prerequisites: 10-091-158 (for Vet Tech) or 10-091-181 (for Lab Animal Tech) and concurrent enrollment or completion of 10-091-140.

10-091-128 Large Animal Nursing
1 credit
Designed to build on animal nursing skills from 10-091-172. Also covers large animal surgical nursing and anesthesia. Prerequisites: 10-091-158 and concurrent enrollment or completion of (with a grade of C or better) 10-091-127.

10-091-129 Clinical Rotation
2 credits
Elective fourth-semester course for veterinary technician students who want more practical, hands-on exposure. Offered in cooperation with the School of Veterinary Medicine at the University of Wisconsin-Madison. Students are placed in a rotation through various functional units of the Veterinary Medicine Teaching Hospital of the School of Veterinary Medicine to acquire additional hands-on experience. Limited to six students. Prerequisites: 10-091-158 and completion of all first-year courses.

10-091-130 Veterinary Technician Laboratory Mathematics
1 credit
This course reviews basic mathematical concepts used in the laboratory animal or veterinary technican program. Roman numerals, fractions, decimal fractions, percentage, ratios and proportions are covered. It will help prepare first semester students for HSM (Hospital Supplies and Medicants), a heavily math-based course.

10-091-138 Animal Anatomy and Physiology 1
4 credits
Covers terminology, functions, location, identification and organization of anatomical structures that are parts of body systems. Students dissect and study cadavers and tissue specimens from common domestic species. Prerequisites: 10-086-105 or equivalent, and 10-091-170 or concurrent enrollment.

10-091-152 Surgical Nursing 2
2 credits
Focuses on the continuation of basic surgical nursing and anesthesia skills. Basic dental prophylaxis and dental radiography are also covered. Emergency medical concepts are discussed. Prerequisites: 10-091-127 and 10-091-140.

10-091-153 Medical Nursing
2 credits
Covers radiology, EKG and basic nursing techniques performed by a veterinary technician-bedside application, sample collection and urinary catheterization and some of the techniques introduced. Prerequisites: 10-091-127 and 10-091-140.

10-091-155 Hospital Supplies and Medicants
2 credits
Studies drugs and other substances used in veterinary medicine. Emphasizes drug usage, client education, measurement, administration, inventory and safe storage. Prerequisites: 10-091-170, 10-091-171 and 10-091-123.

10-091-158 Internship
4 credits
An eight-week internship with licensed Wisconsin veterinarians. Student work is supervised by assigned instructors. Prerequisite: completion of all first-year program courses or consent of instructors.

10-091-170 Veterinary Medical Terminology
2 credits
Teaches acceptable veterinary medical terminology for common clinically recognizable diseases, operations, systems and procedures, as well as common medical signs, abbreviations and colloquial vocabulary.

10-091-171 Animal Care and Management 1
3 credits
Focuses on handling and husbandry of the animals most commonly seen in veterinary medicine. Includes animal behavior, nutrition and healthcare. Prerequisites: 10-091-170, 10-086-105, 10-091-123 or concurrent enrollment in all the above.

10-091-172 Animal Care and Management 2
3 credits
Focuses on handling, medical nursing and disease processes of the animals most commonly seen in veterinary medicine. Prerequisites: 10-091-170, 10-091-171 (with a grade of C or better) and 10-086-105.

10-091-173 Facility Management Techniques
2 credits
Introduces laboratory animal facility management. Covers interpersonal relations, time and stress management, basic computer operations, and operating and safety protocols. Prerequisite: 10-091-178.

10-091-175 Infectious Diseases
2 credits
Surveys primary infectious disease etiology, symptoms, transmission, prevention and control, as well as reporting requirements and handling diagnostic samples properly. Emphasizes high-exposure diseases (viral, bacterial, mycotic, and parasitic) that might involve the lab animal technician.

10-091-177 Animal Anatomy and Physiology 2
3 credits
Comparative anatomy and physiology of laboratory animals. Includes procedures for humane euthanasia, necropsy, tissue collection and histology. Prerequisite: 10-091-140.

10-091-178 Issues in Laboratory Animal Science
2 credits
Emphasizes humane care and use of laboratory animals, and examines regulatory agencies and guidelines for laboratory animal facilities. Extensive discussions focus on ethics, philosophy and history of animal use, public awareness of animal research, public relations and safety procedures. Prerequisite: 10-091-105 or current enrollment.

10-091-179 Laboratory Animal Science 2
3 credits
Studies animal breeding systems and techniques, using isolators and equipment, types of animals used for specific breeding systems, shipping and receiving animals, and veterinary monitoring. Prerequisite: 10-091-123.

10-091-180 Research Animal Surgical Nursing
1 credit
Offers instruction and practical application of common surgical nursing procedures that a laboratory animal technician could be expected to perform. The areas covered include sample collection and dentistry. Surgical procedures expected of students utilize laboratory animals and are under the direction of an instructor. Lectures supplement the laboratory demonstrations and practice of selected procedures on common laboratory animals. Prerequisites: 10-091-127, 10-091-140, 10-091-181 and concurrent enrollment in 10-091-177.

10-091-181 Internship (work experience)
4 credits
Internship (work experience) is a very important phase of practical training for students enrolled in the program. It generally follows the second semester of class work in the college summer recess and is conducted during a period of eight weeks (or 320 hours). The student's work is supervised by assigned instructors. Prerequisite: completion of all first-year program courses or consent of instructors.

101 Accounting

101-101 Accounting Concepts
3 credits
Surveys accounting principles and practices with an emphasis on interpretation, rather than preparation, of financial statements. Presents basic business terminology, cash basis and accrual basis accounting, ratio analysis, payroll, and budgeting. This class is not for students majoring in accounting.
10.101-106 Applied Accounting 3 credits
Practical application of accounting principles, basic business terminology, practices and techniques are stressed for students not majoring in accounting. Emphasis is on the accounting cycle of journalizing transactions—posting, adjusting and closing entries—as well as the preparation of accounting statements.

10.101-110 Accounting I—Problems (Lab) 1 credit
Structured lab designed to reinforce concepts taught in Accounting I—Principles. Selected problems will be worked, with an instructor available to answer questions. This course must be taken concurrently with 10-101-111.

10.101-111 Accounting I—Principles 4 credits
Introduction to the field of accounting. The accounting cycle of journalizing transactions, posting, adjusting and closing entries, as well as the preparation of accounting statements is emphasized for service industries and merchandising concerns. Details of accounting for cash, notes and interest, inventories, fixed assets, depreciation and payroll are studied. Recommend completion (or concurrent enrollment in) of 10-804-122.

10.101-112 Accounting II—Problems (Lab) 1 credit
Structured lab designed to reinforce concepts taught in Accounting II—Principles. Selected problems will be worked, with an instructor available to answer questions. This course must be taken concurrently with 10-101-113.

10.101-113 Accounting II—Principles 4 credits

10.101-114 Applied Accounting 3 credits
Practical application of accounting principles, basic business terminology, practices and techniques are stressed for students not majoring in accounting. The accounting cycle of journalizing transactions, posting, adjusting and closing entries, as well as the preparation of accounting statements is emphasized.

10.101-116 Hospitality Industry Accounting 3 credits
A study in the design and use of specialized accounting and financial control systems in management decision-making for hotels and restaurants.

10.101-117 Hospitality Industry Accounting II 3 credits
Procedures of accounting for hotels and restaurants. Additional topics include analysis of hospitality financial statements, property and equipment, inventory, accounting, and hospitality payroll accounting. Prerequisite: 10-101-116 or equivalent.

10.101-118 Management Accounting 4 credits

10.101-121 Accounting III—Intermediate 4 credits
This intermediate-level course builds on the material covered in the Accounting Principles I and II courses. It expands on earlier coverage of both the income statement and balance sheet. Revenue recognition concepts and methods are covered. Emphasis is also placed on each classification of asset. This emphasis includes in-depth coverage of cash, receivables and inventory. Coverage also includes operational asset acquisition, depreciation, and disposal. Present value concepts are studied and applied. Excel spreadsheet software is used in this course. Prerequisite: grade of C or better in 10-101-113 and 10-804-122.

10.101-122 Accounting IV—Intermediate 4 credits
Emphasizes analysis of financial statements. Generally accepted accounting principles are applied in the preparation, analysis and interpretation of financial statements. Particular emphasis is placed on valuation of current and long-term liabilities and stockholders' equity, timing of the recognition of revenue, and earnings per share. Special topics include are taxes, long-term investments, and leases. Further consideration is applied to errors and their correction, and statements of cash flow. Prerequisite: grade of C or better in 10-101-121.

10.101-123 Tax I 4 credits
Introduction to federal and state income tax laws with an emphasis on personal taxes. These areas are included: income, deductions, credits, depreciation, gains and losses, and sole proprietorship taxation. The course requires the preparation of a series of individual income tax returns.

10.101-124 Auditing 3 credits
A study of the auditing code of ethics, conventional auditing procedures, and critical issues in the field of auditing. Emphasizes internal control and preparation of working papers. A short audit case is completed to illustrate various auditing concepts and procedures, and the intensive use of working papers and schedules. Prerequisites: 10-101-121 or concurrent enrollment.

10.101-125 Cost Accounting 4 credits
Areas emphasized include job order cost, process cost, standard costs, joint cost and budgets. Cost-volume-profit relationships and other cost systems used in business decision-making require that students learn accounting procedures to accumulate and record the cost data typical of a business environment. Prerequisite: grade of C or better in 10-101-113 and 10-103-133.

10.101-127 Tax II 3 credits
Introduction to federal income tax laws with emphasis on partnerships, corporations and S-corporations. Includes a unit on tax research and tax administration. One tax research project and individual taxation is completed. A course requirement is the preparation of a tax return for each of the following: a partnership, a corporation and an S-corporation. Prerequisite: 10-101-123.

10.101-129 Governmental Accounting 3 credits
Presents applications of generally accepted accounting principles to governmental and nonprofit entities as presented from the point of view of authoritative organizations, voluntary health organizations, and nonprofit entities as covered by the American Institute of Certified Public Accountants. Also covers governmental terminology, budgeting, budgetary accounting and fund accounting. Prerequisite: 10-101-113.

10.101-137 Computerized Accounting Applications 3 credits
Provides practical experience developing and applying flexible solutions to accounting problems using Excel. Spreadsheet tools that will be utilized include financial, lookup and database functions, pivot tables, conditional formatting. In addition, the student will learn to use QuickBooks Pro accounting software. Ten-key proficiency will also be demonstrated. Prerequisites: grade of C or better in 10-101-113 and 10-103-133.

10.101-138 Accounting and Payroll Systems 3 credits
A survey of accounting and payroll systems, procedures and methods for capture and report financial information. Principles and problems of accounting and payroll systems, systems design, charting, internal control procedures, payroll and budgeting on experience with a microcomputer are emphasized. Prerequisite: grade of C or better in 10-101-113 (or concurrent enrollment) and completion of 10-103-133.

10.101-139 QuickBooks Pro 1 credit
Introduction to QuickBooks Pro small business accounting software. Students will become familiar with QuickBooks features and learn to use the software to set up a new company, manage business revenue and expenses, process payroll, reconcile bank accounts, track inventory and create useful reports, A tutorial approach will be followed using a textbook and practice problem templates. Prerequisite: It is recommended that students have some accounting and/or small business management background. Course work or experience in Microsoft Windows and using email is required.

10.101-140 Accounting/Business Internship 3 credits
Opportunity for students to apply accounting or business skills in a real life business environment. Activities may include working with bank and account reconciliations, accounts payable preparation, spreadsheet work and development, preparing and analyzing financial reports, tax return preparation and other business related duties as requested by the employer. Prerequisites: Completion of at least 34 program credits with a 3.0 grade point average or better. Completion or concurrent enrollment in 10-101-138 and 10-101-121 preferred.
10-101-152 Introduction to Peachtree Accounting 2 credits
Prepares the student to use Peachtree Accounting in a "real world" business setting. The student will learn how to set up a company's accounting system within Peachtree. Once set up, the student will learn how to use the general journal, purchases journal, cash disbursements journal, sales journal, cash disbursements journal, and payroll journal. The student will learn how to prepare financial statements and how to make modifications to Peachtree's predefined statements. Prerequisite: 10-101-111 or consent of instructor.

102 Business Administration

10-102-104 Business Statistics 3 credits
Introduces the theory and application to basic statistical methods. Emphasizes solving practical business problems. Topics include basic measures, probability, sampling and time series analysis. Prerequisite: 10-103-133 and recommended completion (grade of C or better) of 10-804-122.

10-102-114 Business Communication 3 credits
Both written and verbal communications are studied. Applications pertaining to business communications and procedures are stressed.

10-102-117 Money and Banking 3 credits
This introductory course studies money, the banking system and the role of the Federal Reserve as central banker. Considers the implementation of monetary and fiscal policy through a central bank. Introduces the foundations of Monetarism and the framework of Keynesianism. Focus is set on the term structure of interest rates and the interrelationships of interest rates and financial markets. The economy, the banking system and financial markets are studied in the context of current events. Prerequisite: grade of C or better in 10-804-122.

10-102-126 Corporate Finance 3 credits
This intermediate-level course views finance from the perspective of the financial manager. Topics include techniques of financial analysis, forecasting and budgeting, operating and financial leverage, working capital management, the time value of money, cost of capital, long-term debt and stock financing, dividends and retained earnings. Students are expected to apply both principles of accounting and finance. Prerequisite: grade of C or better in 10-101-113 and 10-804-122.

10-102-127 Financial Analysis 3 credits
A capstone course for the Finance program. Students work in teams to analyze an industry and work individually to analyze a specific company. The project familiarizes students with common sources of business and financial information and develops their analytical skills. A final oral and written report is required. Prerequisite: 10-103-133 and 10-103-137, and grade of C or better in 10-101-118 or 10-101-125.

10-102-128 Financial Institutions 3 credits
Introductory-level course that considers the role of financial institutions in the economy. Topics include financial intermediation, the Federal Reserve System, financial markets and instruments, and non-bank financial institutions, including savings and loan associations, credit unions, finance companies, insurance companies, pension funds, mutual funds and governmental financial institutions.

10-102-130 Personal Finance 3 credits
This introductory course considers finance from the point of view of the individual or family unit. Topics include budgets, insurance, housing, borrowing, saving, investing and estate planning. Students complete personal finance projects applying the material learned.

10-102-134 Business Organization and Management 3 credits
This survey course imparts an understanding of the economic and legal environment in which business operates, as well as an understanding of the organization and management of business enterprises. An emphasis is placed on business terminology and concepts.

10-102-135 Fundamentals of Project Management 3 credits
This fundamental course in project management covers project management basics: defining projects, planning projects, controlling projects, scheduling projects and leading projects. Emphasis is placed on applying these fundamentals as both a participant and project leader, in cases and group projects using MS Project.

10-102-136 Managing Operations 2 credits
Designed for management careers, this course emphasizes practice of management skills through participation in a computer simulation. Topics covered include: strategic process management, manufacturing systems, operations strategy, product design, production technology selection, capacity planning, resource planning and scheduling, inventory control, project management and quality/productivity improvement tools and strategies. Prerequisite: 10-101-118, 10-102-126, and 10-102-134.

10-102-140 Corporate Finance and Investments 3 credits
This advanced course considers alternative investment media and markets. Topics include the investment environment, fundamental and technical analysis, timing, selectivity and diversification, and computer-based investment management. Investment analysis will make use of a student-developed spreadsheet platform. Prerequisites: grade of C or better in 10-101-118 or 10-101-125, and 10-102-126.

10-102-143 Management Techniques 3 credits
Covers problems facing management and workers with special emphasis on supervisory personnel and their challenges. Management principles are applied to such topics as the relationship of management to the business, its employees, the owner, other customers and the community. Problem solving is emphasized.

10-102-145 Introduction to Human Resources 3 credits
Topics include: the nature of employee management, strategic human resource planning, equal employment opportunity, analyzing and staffing jobs, training and developing human resources.

10-102-147 Wage, Salary and Benefits Administration 3 credits
Topics include: basic systems and plans of compensating employees, incentives and executive compensation, principles and techniques in the administration of employee benefit programs.

10-102-148 Labor Relations 3 credits
Topics include: employee rights and discipline, union-management relations, collective bargaining and grievance management, assessment systems.

10-102-150 Introduction to International Business 3 credits
Provides a basic understanding of the forces that affect business in an international environment. The following forces will be explored: economic, financial, political, and social-cultural, political, legal, labor, and import/export practices. Sixteen different countries will be reviewed for influences on their business economy.

10-102-154 International Business Procedures 3 credits
How to get help with international transactions. Topics include terminology, agencies and publications, dealing with agencies and complying with legal requirements, terms of sale and terms of payment, transportation and documents.

10-102-160 Business Law I 3 credits
This survey course covers legal principles used in the business world. Topics include: sales, bailments, agency, employment, property law, torts, criminal law, marital property and bankruptcy are emphasized. The course is taught on a level suitable for an associate degree student. Federal, state and case law serve as the basis of study.

10-102-161 Business Law II 3 credits
Advanced course for students who have already mastered a basic business law course. More sophisticated business law subject matter is covered including property law, agency, bailments, real estate, contract law, and business ethics. Prerequisite: grade of C or better in 10-102-160.

10-102-165 Bankruptcy and Debt Collection 3 credits
This is the study of bankruptcy procedures, including the preparation and filing of bankruptcy schedules. Also included are the study of procedures for debt collection and the use of small claims court. Prerequisites: 10-102-160 or concurrent enrollment.
10-102-167 Law Office Management 1 credit
Covers a wide range of office procedures and practices specific to paralegals working in a law office setting. Included in the curriculum are the following: case management, time-keeping and billing systems, trust account management, library and research tool management, and malpractice concerns.

10-102-168 Employment Law 3 credits
Topics include: unemployment compensation laws; workers' compensation laws; hiring and firing practices; sexual harassment in the workplace; the Americans with Disabilities Act; and labor law basics under the National Labor Relations Act. Course examines current "black letter law" together with case decisions. Content is appropriate for persons whose career plans involve employee management.

103 Computer Software

10-103-125 Access—Intermediate 1 credit
Share data among applications; create reports, forms and combo boxes; enhance forms with OLE fields, hyperlinks, and subforms; work with switchboards, PivotTables, and PivotCharts. Prerequisite: Access-Beginning (10-103-145) or equivalent.

10-103-128 Word—Advanced 1 credit
Integrate Word with other Office programs; explore advanced graphics; construct, format and protect forms; work with charts and diagrams; develop documents in collaboration with others (add comments, track changes and compare and protect documents); apply advanced find/replace options; create macros; customize Word menus and toolbars. Prerequisite: Word—Intermediate (10-103-138) or equivalent.

10-103-127 Access—Advanced 1 credit
Create data access pages; incorporate advanced report and form techniques; use Visual Basic for Applications (VBA) and create multi-page forms; administer a database system; use SQL; review database design principles. Prerequisite: Access—Intermediate (10-103-125) or equivalent.

10-103-132 Excel—Advanced 1 credit
Perform what-if analysis with Scenario Manager, data tables, Goal Seek and Solver; summarize data with PivotTables; exchange data with other programs including Access, Word and PowerPoint; audit and outline worksheets; program using Visual Basic for Applications. Prerequisite: Excel—Intermediate (10-103-139) or equivalent.

10-103-133 Excel—Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/paste text and formulas, create charts, create complex formulas and expand use of functions. Prerequisite: competency in Windows (10-103-134 or 10-103-135).

10-103-134 Windows 1 credit
Exposes the Windows operating system: work with windows and menus, use My Computer and Explorer, organize folders/files, use accessories (WordPad, Paint, Clipboard and Calculator), customize the desktop and Windows, maintain the hard drive (backup, scan, defrag).

10-103-135 Windows XP 1 credit
Introduces the Windows XP operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes and Help), use accessory programs, manage folders/files using My Computer and Explorer, customize using the Control Panel and maintain the computer.

10-103-138 Word—Intermediate 1 credit
Illustrate documents with graphics; create and format web pages; add hyperlinks; merge Word documents; sort and filter records; work with Styles and Templates; use Outline view to develop multi-page documents, adding footnotes/endnotes, a Table of Contents, cross-references, sections and an Index. Prerequisite: Word—Beginning (10-103-137) or equivalent.

10-103-137 Word—Beginning 1 credit
Introduction to Microsoft's word processing software. Create, edit, save, format and print basic documents; cut/copy/paste and find/replace text; apply font styles and effects; add bullets and numbering; work with tabs and indents; align text; apply borders and shading; use wizards and templates to produce documents; insert headers/footers; apply different formatting to document sections; create columns; and insert clip art. Create end format tables, modify rows and columns, perform calculations, sort table data, and customize data. Prerequisite: competency in Windows (10-103-134 or 10-103-135).

10-103-139 Excel—Intermediate 1 credit
Work with financial functions, data tables, amortization schedules, hyperlinks, lists, templates and multiple worksheets and workbooks. Prerequisite: Excel—Beginning (10-103-133) or equivalent.

10-103-140 Publisher 1 credit
Introduction to desktop publishing using Microsoft Publisher. Create, enhance and format publications; work with graphics and frames; insert captions, headers and footers; add special effects; use Publisher templates to design professional documents; and navigate and manipulate multi-page publications. Prerequisites: competency in Windows (10-103-134 or 10-103-135) AND experience using word processing software.

10-103-143 PowerPoint 1 credit
Introduction to PowerPoint presentation software. Create, edit, save, run and print a presentation, insert clip art, apply animation and slide transition effects, import text, customize background and bullet, insert a table, scale objects, create a WordArt object and create an interactive object. Prerequisites: competency in Windows (10-103-134 or 10-103-135) AND experience using word processing software.

10-103-145 Access—Beginning 1 credit
Introduction to Access database software. Create and use a database; query a database using Select Query window; maintain a database using the design and update features of Access. Prerequisite: competency in Windows (10-103-134 or 10-103-135).

10-103-146 Internet Introduction (Qtr. 2) 1 credit
Use an Internet browser to learn about several aspects of the Internet. Topics include browsing, searching, using email, accessing Newsgroups, customizing information from the Web, and increasing Web security. Prerequisite: competency in Windows or Windows (10-103-134 or 10-103-135).

10-103-145 FrontPage—Beginning (Web Page Design) 1 credit
Introduction to webpage design concepts using FrontPage web-authoring software. Create interactive websites with graphics, animations and components; use tables, frames, forms and templates to enhance webpages; publish a functional website. Prerequisites: competency in Windows (10-103-134 or 10-103-135) and Internet (10-103-146) or equivalent.

10-103-153 PowerPoint—Advanced 1 credit
Provides a more in-depth look into PowerPoint and its many features. Explore PowerPoint's Diagram Gallery and use custom formatting and animation to change the appearance of various diagrams. Create and edit charts. Animate charts so data appears by category or series. Learn advanced use of color schemes and slide designs. Make presentations interactive by using Action Buttons. Create custom shows. Utilize PowerPoint's Photo Album feature. Create and run macros. Customize menus and toolbars. Package presentations for CD's. Merge slide shows. Prerequisite: 10-103-143, PowerPoint.

10-103-163 Adobe Photoshop 1 credit
Use this image-editing program to manipulate graphic images. Use palettes, tools, and a variety of techniques to modify images by rotating, resizing, changing color, and adding text. Prerequisite: competency in Windows (10-103-134 or 10-103-135).

10-103-164 Flash—Beginning 1 credit
Use Macromedia's Flash software to become familiar with the Flash environment, to draw, to work with symbols and interactivity, and to create animations and special effects.

10-103-165 Outlook 1 credit
Use Microsoft's messaging and personal information management program. Communicate by email; schedule appointments, meetings and events; manage the inbox, contact lists, tasks and notes; track and archive messages; configure and customize Outlook; record journal entries; manage Outlook components; integrate Outlook with other Office programs. Prerequisite: competency in Windows or the course Windows (10-103-134 or 10-103-135).
10-103-168: Photoshop-Advanced 1 credit
Take your image editing skills to an advanced level. Work with curves, levels, blending modes, special effects, and painting and drawing tools. Prerequisite: Adobe Photoshop (10-103-163) or equivalent.

10-103-167: Fireworks-Beginning 1 credit
Use Macromedia's Fireworks software to become familiar with the Fireworks environment, to work with objects, and to import, select, and modify graphics.

10-103-168: Dreamweaver 1 credit
Use the Dreamweaver web-authoring software features to design, plan, and build a Web site; work with text, images, links, tables.

10-103-168: MS Project 2 credits
Use project management software to plan a project, create a project schedule, communicate project information, assign resources and costs, and track the project's progress through completion.

104 Marketing and Fashion Marketing

10-104-102: Marketing Principles 3 credits
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution, and an overview of promotion. This basic course provides a comprehensive overview of the exciting world of marketing.

10-104-103: Market Research 3 credits
Businesses today need current, accurate information upon which to base their decisions. In this class, students learn not only how to gather marketing information from primary and secondary sources using online and other sources, but also how to apply this information to make better marketing decisions. Prerequisites: 10-104-102.

10-104-104: Selling Principles 3 credits
This course acquaints the student with the basic principles and applications of the sales process as they may apply to industrial, wholesale and retail selling situations. This would include prospecting and qualifying, planning and preparing, approaching, estimating the customer, sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up.

10-104-107: Advanced Marketing Principles 3 credits
This course is an expanded look at critical issues/trends in the field of marketing. Importance is placed on understanding as well as analyzing the effect of issues/trends on companies and their marketing efforts. Developing skills in proposal writing and interpreting marketing information are other emphases of this course. The culmination of the course is the creation of an in-depth marketing plan for a selected product, service, company or organization. Prerequisites: 10-104-102 and 10-104-101.

10-104-110: Supervision Principles 3 credits
This course provides the student with an understanding of the principles, methods and techniques of supervision and their application to case problems. Special attention is given to problem solving, skills group decision making, teamwork and the supervisor-employee relationship.

10-104-117: Store Management 3 credits
Students in this course are responsible for managing Olivia's Gifts, a gift shop located on campus. Training in all aspects of store management with special emphasis in customer service, merchandising, financial planning and control, personnel, promotion, security, selling and sales management, and store layout and housekeeping.

10-104-118: Store Operations 3 credits
Students in this course are responsible for the operation of Olivia's Gifts. Training in all aspects of store operation with special emphasis on selling, merchandising, pricing, loss prevention and visual presentation is stressed. Students are required to attend at least one trade show during the semester to help select merchandise for the store.

10-104-123: Merchandise Planning and Control 3 credits
Students analyze the buying and merchandising functions in various types of organizations. The principles, procedures and techniques practiced by buyers and merchandisers are studied. Students may have the opportunity to interview a buyer, visit a market, participate in a floor move in a local business, compile a resource file of relevant tools for buyers, and/or complete a computer simulation.

10-104-125: Promotion Principles 3 credits
Introduces students to the theory and practice of integrated marketing communications. All elements in the promotions mix are reviewed with emphasis placed on advertising. Students examine the characteristics of major media alternatives including radio, television, newspapers, magazines, outdoor and direct response. Advertising research, planning and creativity are also explored and practiced. Prerequisites: 10-104-102.

10-104-126: Promotion Principles 2 3 credits
This course focuses on developing skills and knowledge of how to effectively utilize the elements of the promotional mix—public relations, sales promotion, media buying and sponsorship/Internet marketing. Flexibility is built into the course to allow for additional time to cover specific types of promotion such as trade shows and/or other popular techniques of promotion. This course, together with Promotion Principles 1—advertising focus, provides students with a complete understanding of the promotional mix and how it is an integral part of today's marketing. Prerequisites: 10-104-125, or concurrent with instructor consent.

10-104-137: Fashion Internship 1 3 credits
This internship offers practical work experience to third and fourth semester students in the Fashion area. Experiences that cannot be acquired in the classroom environment provide the student with the opportunity to blend theory with practice in an approved work setting, offered in the summer semester.

10-104-161: Marketing Technology Applications 3 credits
Through hands-on experience, participants will utilize advanced techniques and tools to search the Internet, manage spreadsheets, create presentations, manipulate relational databases and are exposed to desktop publishing software. Participants are taught effective presentation techniques, appropriate email etiquette, and the applications of transforming technology. Prerequisites: Keyboarding, Introduction to Windows, File Management, Introduction to Word or equivalent experience.

10-104-165: Marketing Internship 3 credits
Students are assisted in selecting a supervised work experience related to a specific area of marketing. A team consisting of the employer, the student intern, and MACC instructor/advisor work together to plan the objectives of the work experience as well as evaluate the intern's performance. Prerequisites: two full semesters of course work and an overall GPA of 2.0 or higher.

10-104-167: Web Design for Marketers (Using Dreamweaver/Fireworks) 3 credits
Using Macromedia Dreamweaver/Fireworks and through hands-on experience, the conceptual and practical aspects of web design are emphasized, including site management, coding, working with text, images, links, tables, layers, templates, libraries, cascading style sheets, forms, frames, behaviors, animation, timeline, and FTP protocols. In addition, websites marketing principles and techniques are incorporated into effective website design concepts. Prerequisites: 10-104-161, or equivalent experience. Previous web programming experience is not required.

10-104-168: e-Commerce in Marketing 3 credits
Electronic Commerce (e-Commerce) describes the way in which business transactions take place over networks, mostly the Internet. E-commerce has dramatically impacted the way goods, services and information are bought and sold. This course provides the opportunity to define e-Commerce, examine how e-Commerce is being conducted and managed, and explore major opportunities, limitations, issues and risks involved with conducting business over the Internet and on the web. Prerequisites: 10-104-102 and 10-104-161.
10-104-189 Internet Marketing 3 credits
This course provides a road map for marketers to navigate the digital economy. Critical skills include the ability to master proven Internet marketing principles and concepts, and the capacity to keep pace with technological advances and industry trends. This course focuses on a comprehension of Internet marketing theory and concepts; demonstrates how concepts are applied in the real world; and emphasizes the development of advanced Internet marketing skills. Prerequisites: Marketing Principles (104-102) and Marketing Technology Applications (104-169) or equivalent experience.

10-104-172 Job Shop 3 credits
Job Shop is an individualized approach to career planning. This course includes an employment overview geared toward marketing students, personal and academic assessment, and the creation of personal job correspondence including the resume. Participants utilize online databases and websites to explore industries, companies and jobs; prepare for a videotaped job interview; and complete a bottom-line simulation on financial planning. Course should be taken in the fourth or final semester of study in the program.

10-104-175 Field Training Seminar 2 credits
Field Training Seminar provides students with an opportunity to integrate their current work experiences with their classroom training to enable them to better analyze classroom theory and improve their ability to succeed on the job.

10-104-186 International Marketing 3 credits
Course explores how marketing strategies and tactics must be managed and adapted for success in different cultural, economic, geographic and political environments around the world. Students will develop marketing and management skills and perspectives in order to work effectively in a global marketplace. Prerequisite: 10-104-102.

10-104-181 Complete Campaigns 3 credits
Students will apply theory and knowledge gained from advanced marketing research and promotion classes in planning and executing an integrated marketing communications campaign for a local client. Emphasis is placed on the use of research, coordination of the elements of a campaign, creative development, account management, media buying, oral presentation and evaluating campaign effectiveness. Prerequisites: 10-104-107, 10-104-125, 10-104-126 and 10-104-181.

10-104-182 Portfolio Presentation 3 credits
This course includes an overview of methods to searching for a position in the fashion marketing field. We explore on and off line methods of personal and academic assessment. Mock interviews, including a viewing of your portfolio work, will be video taped. Resume writing and personal correspondence are included in a personalized approach.

10-104-183 International Business in Fashion 2 credits
This course provides the student the opportunity to explore various aspects of our Fashion Business on an international level. We gain exposure as to how marketing, design, and merchandising are approached abroad. An international trip is scheduled for approximately 10 days to Italy.

10-104-185 Customer Service Management 3 credits
Examines the general state or customer service in organizations for both internal and external customers. Explores how a business can enhance their competitive position by adopting and implementing a variety of strategic service initiatives. Topics range from practical communication skills to analyzing strategies used by top companies.

10-104-187 History of Costume 3 credits
This course is an integration of how social, political, and economic factors relate to fashion trends from the past to the present. Students focus on key elements to help understand consumer behavior.

10-104-193 Wide World of Promotions 3 credits
(Introduction to promotion for non-marketing majors) introduces students to the theory and practice of integrated marketing communications (IMC). Elements of promotions mix are summarized including advertising, public relations and sales promotion. Characteristics of media, including print and broadcast are examined. This course is an overview and is not intended for students enrolled in the Marketing degree program.

10-104-194 Visual Merchandising 3 credits
The principles and elements of design are incorporated into interior and exterior merchandise presentation. Coordination of the total sales promotion effort is emphasized. Students are required to build many types of displays.

10-104-183 Fashion Analysis 2 credits
Students work with the elements and principles of design as they relate to fashion promotion and products. Forecasting, creativity and a grasp of the influences and sources of design are major components of the course. Computer-aided design is used to enhance the course.

10-104-186 Textiles 2 credits
Focuses on the technical information regarding fabrics and fibers required by apparel managers and merchandisers, and its application to merchandise buying and sales staff training.

10-104-187 Apparel Marketing 3 credits
Students study the types of business enterprises, activities, operations, interrelationships and practices in the fashion industry. Careers in each of these areas are explored. This is a survey course with emphasis on terminology and key sources of information in the industry.

10-104-184 Fashion CAD Lab 1 credit
This class focuses on fashion components using Adobe Illustrator. Students research and create a line of clothing using CAD.

106 Business Technology, Judicial Reporting

10-106-101 Keyboarding Introduction 1 credit
Learn computer keyboarding (alphabetic and numeric keypad), develop speed and accuracy.

10-106-102 Professional Profile 1 credit
Concentrates on the knowledge, attitudes, and skills necessary to succeed in the Administrative Assistant program and to grow personally and professionally. Topics include mentoring, career success, campus resources, skills portfolio, core abilities, Internship requirements, Business Professionals of America, time management skills, values and work environment preferences, and self-assessment of present career skills.

10-106-103 Records Management 2 credits
Fundamentals of managing the record life cycle; alphabetic, numeric, subject, and geographic filing; supplies and equipment; charge-out procedures; retention schedules; transfer methods; control measurements; and imaging systems. Follows recommendations of the Association of Records Managers and Administrators.

10-106-105 Business Writing and Research 2 credits
This course is designed for students to learn the basics of effective writing and research skills needed for success in the business world. Emphasis will be placed on simulating real business writing and research situations. Students will write letters, memos, electronic messages and other employment-related correspondence; work in teams to research and write collaborative reports; and engage in editing, revising and evaluating business writing and research. Prerequisites: 10-106-103, 10-106-113 and 10-106-115.

10-106-108 Proofreading and Editing 3 credits
Develop proofreading skills: punctuation, grammar, spelling and usage errors. Edit documents: appropriate content, conciseness, clarity and point of view.

10-106-130 Judicial Reporting Procedures 3 credits
Prepares professional court and conference shorthand writers. Includes: transcript production; daily copy reporting; using general and legal reference materials; legal citations; professional standards and ethics; technology, such as video-taped depositions and computer-assisted transcription (CAT); reporting depositions, commission hearings and business meetings; operating a freelance reporting business and resume preparation. Prerequisite: 10-106-144 and 10-106-154.
Develops advanced skills in writing and transcribing jury charge and literary materials. Continues medical dictation and transcription. Graduation writing read-back. Prerequisite: required entrance speed of 110 wpm on literary and speeds required: jury charge, 200 wpm; literary, 180 wpm.

Advanced students take dictation in court situations with the assistance and 10-108-146 Judicial Reporting 2 • 3 credits

Specialized practice in writing and transcribing legal (jury charges, voir dire, expert witnesses, and opening and closing statements) and technical (literary, congressional, scientific and medical) material. Stresses fluent and accurate read-back. Prerequisite: required entrance speed of 110 wpm on literary and jury charge material (five minute takes, with 95 percent accuracy).

Develops advanced skills in writing and transcribing jury charge and literary materials. Continues medical dictation and transcription. Graduation writing speeds requirements: jury charge, 200 wpm; literary, 180 wpm (three five-minute takes with 95 percent accuracy). Prerequisite: 10-106-147.

10-106-155 Judicial Reporting Tutorial 2 • 3 credits

Covers the basic legal and Latin vocabulary necessary for successful transcription of transcripts. Subject areas studied are general legal terms, civil actions, criminal law, probate, real property, contracts, domestic relations, commercial paper and bankruptcy. The correct spelling, pronunciation and definition of the terms are studied in addition to transcribing the terms from real-time reporting notes.

10-106-164 Customer Contact Skills • 1 credit

Identifies internal/external customers, develops questioning techniques and listening skills, covers problem-solving techniques and ways of adding value to a customer interaction.

10-106-166 Medical Office Procedures • 3 credits

Emphasizes medical office procedures: communications, reception, appointment scheduling, record keeping, records management, telephone procedures, entering daily transactions, billing and collecting, banking procedures, preparing payroll, handling routine business correspondence, keeping an inventory of supplies and an introduction to features in an electronic office situation.

10-106-168 Medical Transcription Techniques and Procedures • 3 credits

Emphasizes the skilled proofreading, editing (including detailed coverage of grammar and punctuation), formatting and reference use techniques needed to produce high quality reports demanded by medical facilities.

10-106-170 Medical Transcription • 2 credits

Introduces transcription of medical dictation; reinforces medical terminology and formats for a variety of medical reports. Continued development of keyboarding speed and accuracy skills. Prerequisite: keyboarding skill, concurrent enrollment in (or prerequisite) Medical Transcription Techniques and Procedures (10-106-166) and Medical Terminology 1 (10-308-169).

10-106-171 Medical Transcription 2 • 2 credits

Emphasizes transcription of more complex medical dictation, disease processes and medical specialties at slightly higher levels of production and accuracy. Prerequisite: Medical Transcription 1 (10-06-167).

10-106-172 Administrative Office Management • 2 credits

Emphasizes the principles of office management. Includes practical experience in written/verbal communications, research over the Internet, ergonomics, automation, meetings, filing and records management, travel arrangements, budgeting, reprographics, distribution of information and appointments.

Placement requires attainment of 200 wpm writing speed on two-voice testimony material. Mock RPR and CRR tests are administered. At the 150 wpm testimony level, students acquire 40 hours of writing time, along with two pages of transcription per hour of writing. Note: Internship placement requires a machine shorthand speed attainment of 200 wpm. The 50-hour internship will consist of a minimum of 40 hours of actual writing time under the supervision of a qualified reporter.

10-106-153 CAT (Computer-Associated Transcription) Systems • 3 credits

Advanced course using Case CATalyst (software to translate, edit, and print transcriptions). Students become familiar with individual personal dictionaries for use upon graduation. Lecture/demonstration groups center around topics of CAT management, real-time translation and reporter technology. Prerequisite: 10-106-154.

10-106-154 Realtime Reporting Workshop • 3 credits

Required during the summer prior to entering the third semester of the program. Brief forms and phrases are reviewed. Vocabulary and speed building are emphasized. Jury charge, literary, and four-voice testimony are continued. Live dictation daily for speed building and testing. Prerequisite: 10-106-144.

10-106-141 Computer Applications—Legal • 3 credits

Students will develop skills using various computer applications as they would be used in a law office. The student will be introduced to spreadsheets, databases, e-mail, timekeeping and billing software, litigation management software, and the Internet. Prerequisite(s): 110-101 Introduction to Paralegalism, Ethics (previous completion or concurrent enrollment) and general knowledge of a personal computer; keyboarding/speed of 30 wpm.

10-106-150 Intermediate Realtime • 2 credits

Comments on the progress of the course. Prerequisite: 10-106-149, One-credit elective course for those students who have not completed NCRA graduation speed requirements. Class consists entirely of five dictation at 200 wpm, 4-voice testimony takes, 200-225 wpm, 2-voice testimony takes, 180 wpm literary takes, and 200 wpm jury charge takes. Practice from Stenograph and Merrill testing programs.

10-106-158 Judicial Reporting Terminology • 2 credits

Emphasizes the principles of office management. Includes practical experience in written/verbal communications, research over the Internet, ergonomics, automation, meetings, filing and records management, travel arrangements, budgeting, reprographics, distribution of information and appointments.

10-106-143 Realtime Reporting 1 • 5 credits

Prepares the learners to use machine shorthand to write consonants, vowels, numbers, multi-syllable words, multi-consonant words, punctuation and special symbols, short forms and phrases, words in their singular and plural forms, and prefixes and suffixes.

10-106-144 Realtime Reporting 2 • 6 credits

Prepares the learner to write multi-syllable words; punctuation and special symbols, short forms and phrases, prefixes and suffixes; numbers, frequently used words and phrases, five "Flagged Alphabet," apply realtime conflict elimination principles, apply realtime theory and write dictation using a realtime theory. Prerequisite: 10-106-143.

10-106-145 Judicial Reporting 1 • 3 credits

Continues building speed and vocabulary, using material from courtroom proceedings and depositions. Emphasis on writing two- and four-voice testimony. Speed attainment of 200 wpm is the goal. Instruction in current local, national and international events and geography. Prerequisite: 10-106-144 and 10-106-154.

10-106-146 Judicial Reporting 2 • 3 credits

Objective of the course is to write 225 wpm for five minutes on unfamiliar material with a minimum of 95 percent accuracy. Graduation from the program requires the following writing speeds: 2-voice: 225 wpm; 4-voice and jury charge, 200 wpm; and literary, 180 wpm (three, five-minute takes with 95 percent accuracy). Instruction in current local, national and international events and geography.

10-106-147 Legal/Technical Reporting 1 • 3 credits

Specialized practice in writing and transcribing legal (jury charges, voir dire, expert witnesses, and opening and closing statements) and technical (literary, congressional, scientific and medical) material. Stresses fluent and accurate read-back. Prerequisite: required entrance speed of 110 wpm on literary and jury charge material (five minute takes, with 95 percent accuracy).

10-106-148 Legal/Technical Reporting 2 • 3 credits

Develops advanced skills in writing and transcribing jury charge and literary materials. Continues medical dictation and transcription. Graduation writing speeds requirements: jury charge, 200 wpm; literary, 180 wpm (three five-minute takes with 95 percent accuracy). Prerequisite: 10-106-147.

10-106-151 Judicial Reporting Internship • 3 credits

Advanced students take dictation in court situations with the assistance and guidance of a qualified reporter who evaluates performance and work.
10-105-173 Medical Transcription Virtual Practicum 1 credit
Provides hands-on experience and practice transcribing medical documents while simulating a telecommuting medical transcription environment. Emphasis is on increased productivity while maintaining high-quality documents. Students will transcribe an assortment of reports for a variety of medical specialties on a random basis. The student will continue to increase their knowledge of researching, editing, decision making, and communication while working in an online environment. Prerequisites: 10-106-170, 10-106-166, and 10-509-180. Corequisites: 10-108-108, 10-108-171, 10-509-180, 10-510-103, and 10-530-182.

10-106-175 Administrative Office Procedures 2 credits
Emphasizes the office skills necessary to succeed in a global business in the 21st Century. Includes practical experience in correspondence composition, presentations, conference and meeting planning, travel arrangements, budgeting, reprography, calendaring, ergonomics, ethics, stress and time management, office equipment and distribution of information.

10-106-182 Information Technology Concepts 3 credits
Introduces computers and information processing, including terminology, hardware, software, architecture, data communications, networks, security, and the computer marketplace.

10-106-188 Project Management and Coordination 2 credits
Plan and coordinate projects, develop timelines, determine priorities, increase individual and team productivity, control the workday and allocate resources using graphic tools such as MS Project software and GANTT and PERT charts. Project management and coordination techniques and concepts are learned by examining case studies and completing a project. Prerequisite: Must be taken in last year of program.

10-106-187 Exploring Business Technologies 2 credits
Emphasizes current and emerging technologies. Also covers topics deemed necessary to the Administrative Assistant Program. Student must be in final semester of program or obtain consent of Instructor.

10-106-190 Professional Development 1 credit
Research the job market, develop a job search career portfolio, explore networking, prepare for employment tests and practices for job interviews. The portfolio includes a resume, cover letter, thank you letter, reference sheet, job application form and work samples.

10-106-193 Speech Recognition Introduction 1 credit
Use speech recognition for productivity of computer tasks; perform setup, practice dictation, correct speech errors, train for unique words, create special characters and use voice commands to produce voice-typed documents. Prerequisite: 10-103-137 or equivalent.

10-106-194 Career Management 1 credit
Identification of factors associated with job success: professional image, conflict resolution, business and dining etiquette, sexual harassment, ethics, career goals and performance appraisal; Explore personality types via the Internet. Prerequisite: Student should be in last semester of program.

10-106-195 Internship 1 credit
Students complete a 72-hour internship in an office setting supervised by a cooperating employer. The office setting is a business, medical, or legal office depending on the student’s program. Must be taken in last year of the program.

107 Information Technology (also see courses under 150, 152, 154)

10-107-111 Careers in IT 1 credit
Introduces students to the various careers available in the vast field of Information Technology and examines the Computer Systems Administration Specialist, Network Security Specialist, Network Specialist, Programmer/Analyst, and Web Programmer/Analyst career paths. Students create an individualized career path plan as the capstone project for the course.

10-107-189 IT Project Management 3 credits
Introduces the concept of managing Information Technology projects. Use of a project management tool will help students develop written and oral skills in project development, project management and technical documentation. Planning methods and graphical techniques such as Gantt charts will be some of the tools utilized. Human resources management including team development and user training are an integral component of the course. Prerequisite: 10-150-101 or 10-150-170.

10-107-181 JavaScript: An Introduction 1 credit
An introduction to programming and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisite: 10-152-162.

10-107-175 Job Search Preparation 1 credit
Introduction to planning and organizing a job search in Information Technology. Activities include the development of a personalized job search plan, correspondence, resume and portfolio. Prerequisite: IT students must have completed all IT courses in the first two semesters.

109 Hospitality and Tourism, Recreation Services

10-109-101 Introduction to Tourism Services 3 credits
Introduces new students to the broad spectrum of the leisure services industry. Typical career areas include food service, lodging, travel/tourism and recreation. The course explores educational options and program career opportunities as well as historical and operational perspectives of the career areas mentioned.

10-109-102 Fundamentals of Meeting Management 3 credits
Students explore the core issues of meeting planning from the fundamentals to the new trends shaping the meetings industry. Development of meeting timelines, checklists and request for proposals are introduced. Further focus includes the process meeting planners must use in site selections, the value of meeting objectives and format, and attendee expectations.

10-109-103 Recreation and Leisure in Modern Society 3 credits
History, development, nature, significance and relationship of leisure and recreation in today's world are studied. In addition, the psychology of recreation supply and demand is conducted. Characteristics of group leisure are examined.

10-109-104 Program Design and Development 3 credits
The design and development of student learning experiences have many implications that meeting planners must incorporate into the programming of a meeting. Identifying the meeting’s objectives determines the subject matter content, appropriate educational approach and meeting setting. Constructive and well-organized program planning is vital to the successful development of educational programs and the meeting outcome.

10-109-105 Fundamentals of Destination Management 3 credits
This online course examines tourism development, relationships with Boards of Directors, government relations, fund raising, and basic laws. Aspects of volunteer management, travel building, time management, media relations, sales and marketing, and public relations will be explored. Hot topics of revenue diversification, ethics, visitor centers, retail development and special event expansion will be discussed.

10-109-106 Programming and Public Relations 3 credits
This course provides an investigation of planning, organizing, conducting and evaluating recreation experiences, support systems and public relations in private, public and commercial agencies. Prerequisite: completion or concurrent enrollment in one of the following: 10-109-101 or 10-109-103.

10-109-107 Recreation CPR/First Aid 2 credits
Provides training in CPR, first aid and AED techniques for emergencies more likely to be encountered by recreation professionals. Students receive American Red Cross certification in CPR, Standard First Aid and AED.
Establishing a realistic and sound budget is vital to the creation of successful meetings. This course examines the steps in developing a meeting budget. Students learn techniques for projecting and managing budgets including per person methodology and break-even analysis. Emphasis is placed on situations oriented to the meeting industry. Prerequisites: 10-103-133 and 10-106-102.

10-109-109 Incentive and Special Event Management 3 credits
Demonstrates professional practices used to create, market, plan, and implement incentive programs and special events. Emphasis is on applying creativity to develop events with unique purposes and presentations combining elements such as site selection, décor, lighting, sound, and entertainment as well as food and beverage to reflect the theme of the event. Prerequisite or corequisite: 10-109-102.

10-109-110 Meeting Coordination 3 credits
Provides a solid understanding of the numerous tasks and details involved in developing and coordinating a meeting and/or event. Students explore meeting room design, commonly used audio-visual equipment, the use of speakers, and how effective management of food and beverage impact successful meeting and event planning. Prerequisite: 10-109-102 and 10-109-111.

10-109-111 Registration and Housing Logistics 2 credits
Registration is the first impression that attendees have of your meeting. Careful planning in designing a registration process is critical to setting attendees expectations, perceptions and the tone of the meeting. Meeting participants want and need comfortable and convenient accommodations, to their exact requirements. Creating room lists, coordinating the housing logistics, and managing sleeping room blocks to reduce or eliminate attrition are critical success factors for the planner and the meeting. This course enables students to identify and develop tools that allows attendance a seamless meeting experience. Prerequisites: 10-109-133 and 10-109-102.

10-109-112 Exposition Management 2 credits
Provides the student with an understanding of the growing role of trade shows as a source of revenue for the sponsor as well as an opportunity for buyers and sellers to interact face-to-face in an educational environment. Units on building an exposition from the start of the planning process through the close of the show is presented. Students create a request for proposal; identify contractors necessary for producing the show; and learn how to effectively interact and communicate with exhibitors throughout the process. Post-show evaluations to measure results are also explored. Prerequisite: 10-109-102.

10-109-113 Risk Management, Negotiations and Legal Issues 3 credits
Includes crisis planning and risk management, the art and science of negotiations, and contract and legal issues in the meetings industry. Students learn how to identify issues that are negotiable, the steps in the negotiation process and commonly used negotiation techniques. The class also focuses on basic contract provisions and key clauses of a facility contract as well as unique elements and differences of hotel and convention center contracts. Includes discussion of legal principles and precedents as they apply to the meetings industry. Prerequisite: 10-109-102 and 10-109-110.

10-109-114 Meeting and Event Internship 2 credits
Course provides both theoretical and hands-on experience planning, setting up and managing a meeting or event. Emphasis is on developing and implementing proper procedures, personal management, risk management, legal issues, and more. Prerequisite: Fourth semester program student or consent of instructor.

10-109-115 Recreation Administration and Management 3 credits
Prepares students for entry- and mid-level management positions in the leisure services profession. The course is project oriented and will focus in the areas of budget preparation, personnel management, events, game room services, and group reservations. Students will develop an agency registration manual. Prerequisite: completion of at least two semesters in the Recreation Services Program.

10-109-117 Partnership Development 2 credits
Students learn how to analyze a meeting to identify sponsorship and fundraising opportunities. These partnerships build support for a meeting, increase marketing effectiveness, and increase meeting profitability. Prerequisite: 10-109-102 and 10-109-110.

10-109-120 Tourism Business Planning 3 credits
Examines the historical development, growth, trends, and future directions of profit-oriented commercial tourism. Surveys tourism, recreation and hospitality industries; focuses on targeting, marketing, and managing a tourism enterprise. Students create commercial tourism business plans.

10-109-124 Fundamentals of Food Preparation 2 credits
Students will learn fundamental knife skills, basic food preparation, and how to properly store food. Kitchen organization, setup, and cleaning, stations of the kitchen; and simple menu planning techniques will also be discussed. Prerequisite or concurrent enrollment in 10-318-101.

10-109-125 Tourism Management 3 credits
Introduces theories, principles and practical application of management skills in the hospitality and tourism industry. Students analyze their current skills and develop a personal management philosophy appropriate to the service industry.

10-109-128 -Tourism Marketing 3 credits
Focuses on the application of sound marketing practices and tools to develop businesses in food service, lodging, recreation, tourism, and destination management.

10-109-131 Rooms Division Operations 3 credits
Investigates the organization, performance and evaluation of the rooms division of a lodging facility (front desk, reservations, housekeeping and telephone systems) as essential component of operational success and guest satisfaction.

10-109-134 Hotel/Restaurant Cost Control 3 credits
Presents concepts and techniques of cost control in the hospitality industry. Students select and apply methods, procedures, and systems to control costs, and analyze the application, theory, and concepts. Students forecast and prepare budgets and income statements, and complete a break-even analysis.

10-109-135 Recreation Activities 3 credits
This course provides developmental activities involving music, drama, dance, outdoor recreation, travel, hobbies, volunteer activities, social recreation and special events. Projects will be planned, implemented and evaluated. Prerequisite: 10-109-108 or consent of instructor.

10-109-136 Tourism Law 3 credits
A preventive approach to the laws and liabilities, as well as responsibilities of owners/operators of hotels, restaurants and travel facilities. Reviews precedent-setting court decisions, legal fundamentals, negligence doctrines, civil rights issues and the relationship between providers and the guests/clients.

10-109-137 Wine Appreciation 1 credit
Designed to develop or increase students’ knowledge of wine. Students are provided with the basics of wine tasting, the wine making process, how to serve wine, how to select wine for food and for food with wine, includes discussion of wine regions, different grapes and how to read wine labels. Students must be 21 to enroll.

10-109-138 Health Club Operations and Management 3 credits
Covers a wide range of topics about the health club industry. Topics include: industry statistics, history, facility classifications, marketing, membership sales, equipment purchasing, maintenance, hiring, staffing, trade organizations and more. Upon completion, the student will have a solid understanding of how the fitness industry functions.

10-109-141 Hospitality Internship Seminar 1 credit
A discussion and analysis of the field experience. Topics include interviewing skills, management, resume building, professional appearance and dressing. Provides opportunities to discuss current issues with industry representatives.

10-109-144 Disney College Internship 3 credits
This course provides credit for work experience for students selected to participate in the Disney College Program at Walt Disney World in Florida.
10-109-148  Disney College Seminar  3 credits
This course provides credit for the workshops and seminars required by participants in the Disney College Program.

10-109-155  Facility Operation and Maintenance I  3 credits
Introduces basic land-site development, building and structure maintenance, turf and grounds management, equipment acquisition and care, and staff and work scheduling.

10-109-157  Hospitality Internship (Field Experience)  2 credits
Provides on-the-job field experience required for graduation from the program. Requirements include fifteen hours per week of work experience, a written report analyzing four major management responsibilities, and a professional oral presentation of the written report. Prerequisite: Two semesters in the Hospitality and Tourism Management program.

10-109-160  Recreation for Special Populations  3 credits
An overview of various special populations and an understanding of their needs relative to recreational pursuits. The special populations studied include: mentally challenged, mentally ill, alcoholic and drug-dependent, physically disabled, sensory-impaired, economically deprived, racial minorities, aging and youth.

10-109-171  Recreation Internship Development  1 credit
Students analyze their job skills and career needs in order to develop targets for internship field experience. The process of establishing contractual internship opportunities is examined, including developing a resume, conducting informational interviews with different agencies and utilizing competency analysis. Problem-solving skills are also examined. Prerequisite: completion of one semester in the Recreation Services Program.

10-109-175  Recreation Internship Practicum  2 credits
Directly related to 150 hours of work experience in the recreation field. Examines the student's practical experience as well as hypothetical case studies from the viewpoint of decision making and problem solving. Several approaches are developed and tested by field study. Prerequisite: completion of at least two semesters in the Recreation Services Program.

10-109-178  Personal Trainer Development  3 credits
ACE PREP COURSE—Students are taught the skills and information on developing exercise programs for healthy adults. This course also prepares individuals to take the American Council on Exercise national personal trainer exam. A broad range of topics is covered including anatomy, exercise physiology, health screening, fitness testing and more. An observational research paper on a trainer-client relationship is required. Prerequisite: 10-807-160, Body Structure and Function.

10-109-182  Global Tourism  3 credits
Gives the students the opportunity to interact with fellow students from another country to explore the marketing of international tourism. Upon completion of the course students will be able to analyze/describe their respective area's tourism product; identify visitor target markets for their geographic area; understand guest needs and motivations; research/evaluate visitor statistics for their region; explain the nature and importance of quality assurance procedures; evaluate how areas are promoted by tourism marketing organizations; and develop and present a tourism marketing plan before a panel of industry professionals, demonstrating a clear understanding of staff and product development issues.

10-109-190  Recreation Seminar  1 credit
Designed to assist the graduating student with job placement. Self-evaluation and job-related skills, interests, attributes and achievements are discussed. The course reviews how to target job possibilities and includes practical interviewing. The concept of job networking is also stressed. Prerequisite: completion of at least two semesters in the Recreation Services Program.

110 Paralegal

10-110-101  Introduction to Paralegalism and Legal Ethics  3 credits
Provides students with an introduction to the paralegal profession, the American legal system, legal ethics, legal terminology, research, and the common law of contracts. Restricted to students admitted to the following program(s): 10-110-1 Paralegal or 90-110-1, Paralegal Post-baccalaureate Certificate.

10-110-102  Civil Litigation 1  3 credits
Outlines the initial stages of civil litigation, including initial client contact, investigation, pleadings, discovery and motions. Prerequisite or concurrent enrollment in: 10-110-101.

10-110-103  Civil Litigation 2  3 credits
Covers the civil litigation procedure during discovery, trial and appeal. Prerequisite: 10-110-102.

10-110-104  Legal Research  3 credits
Provides students with an application of legal research techniques, using traditional and computer-assisted resources. Prerequisite or concurrent enrollment in: 10-110-101.

10-110-105  Legal Writing  3 credits
Legal Writing is an advanced writing course concentrating on legal correspondence, forms, memoranda and briefs. Prerequisites: 10-110-104, and 10-801-140.

10-110-106  Family Law  3 credits
Family Law covers the basic legal concepts in the area of family relations, particularly divorce. Prerequisite: 10-110-101.

10-110-107  Legal Aspects of Business Organizations  3 credits
Acquaints the students with legal aspects involving the formation, operation, and dissolution of the five principal types of business organizations utilized in the United States. It also involves the study of the substantive law involving these organizations and the procedures required to conform to the law. Prerequisite: 10-110-101.

10-110-108  Real Estate Law  3 credits
Involves drafting real estate descriptions, listing contracts, offers to purchase, deeds, land contracts, mortgages, foreclosure pleadings, transfer tax returns, and leases. Prerequisite: 10-110-101.

10-110-114  Administration of Estates  3 credits
Basic legal concepts surrounding guardianship, wills, trusts and intestacy, including probate forms and procedures as well as inheritance tax returns are covered in the Administration of Estates class. Prerequisite: 10-110-101.

10-110-115  Administrative Law  3 credits
Administrative Law is designed to acquaint students with the process by which government agencies make and administer rules and regulations as well as how agencies adjudicate cases and controversies involving those rules. Following an introduction to the administrative rule making and adjudication process, the course will examine and utilize the specific rules and procedures of various Federal and state agencies, primarily focusing on the rules and documents associated with Wisconsin's Workers Compensation Law. Prerequisite: 10-110-101.

10-110-122  Debtor and Creditor Relations  3 credits
A review of legal issues involving debtors and creditors issues including security interests, disclosure requirements, marital property law, third party rights and liabilities, collections procedures, garnishment, receivership, execution and bankruptcy. Prerequisite: 10-110-101.

10-110-142  Paralegal Internship  3 credits
Students gain practical experience working in a legal environment under the supervision of an attorney or other qualified professional for a minimum of 140 hours. In addition, students meet one hour weekly to discuss legal office experiences and ethical considerations, learn effective job search techniques and develop professional image. Prerequisite(s): 10-110-101, 10-110-104, 10-110-105 or concurrently.

10-110-143  Paralegal Field Study  3 credits
Students work with an advisor to identify an area of legal specialty study and to plan an appropriate field study. Students then engage in a field study for a minimum of 140 hours in a specialty legal practice area. The field study is in lieu of completing a paralegal internship. The field study includes reading textbooks and legal literature, interviewing practicing attorneys and paralegals working in the specialty area, and preparing a portfolio and presentation. Prerequisite(s): 10-110-101, 10-110-104, 10-110-105 or concurrently.
10-110-160 Employment Law 3 credits

Employment Law covers the analysis of federal and state laws governing employment relationships, job discrimination, sexual harassment, workplace privacy, labor standards, and human resource management. Prerequisite: 10-110-101.

10-110-168 Criminal Law – Pernagel 3 credits

Provides an introduction to substantive and procedural criminal law emphasizing the elemental analysis of criminal statutes, the drafting of prosecutorial documents, and the constitutional rights of defendants. Prerequisite: 10-110-101.

145 Small Business

10-145-102 Small Business Development and Planning 3 credits

Provides an introduction to prospective small business owners to the principles involved in planning and operation. Attention is given to small business appraisal and opportunities. Emphasis will be placed on factors that contribute to a successful business operation.

10-145-105 Operations Management 3 credits

Small-business management strategies are applied to policies and operations. Included are applications to budgeting, marketing potentials, forecasting, layout, staffing, work flow, scheduling and general business applications. E-commerce is also explored.

10-145-108 Small Business Marketing and Promotion Techniques 3 credits

Developing and refining the marketing and promotion plans for a small business. Topics for discussion include merchandise/service resources, budgeting, study of competition, market segmentation, pricing, promotion, non-media ways to get customers to come to your business and strategic planning.

10-145-108 Field Experience Seminar 2 credits

Employment in an approved occupation related to the student's future business plans is a prerequisite. Reports and discussion in class are coordinated with student employment. Employee appraisal, evaluation and harmony on the job will also be topics for discussion. The course requires a minimum of 144 hours of employment.

150 Networking (also see courses under 107, 152, 154)

10-150-101 Network+ Essentials 3 credits

Develop fundamental networking skills including an understanding of network hardware, installation, security and troubleshooting in a corporate environment. Through classroom and hands-on activities, learn how computers exchange information and how the Internet functions. In addition, Network+ Essentials will help students gain the skills required for the CompTIA Network+ certification exam. Network+ is an industry standard computer networking certification widely recognized by employers.

10-150-160 IT Security Awareness 1 credit

Provides a basic survey of the importance of IT security awareness and data confidentiality. This security awareness-training course walks users through every aspect of Information Security in a very broad, easy-to-understand way and explains to them the value of securing data, both for themselves and the organization. The class will introduce legislation, local, state and federal privacy policies and liability of individuals and institutions related to data confidentiality and integrity. The course will present risk management, security policies, and common threats and countermeasures. The course will also present best practices in access control and password policies.

10-150-162 Computer Systems Security (Security+) 3 credits

Introduces the basics of network security. The student is introduced to computer network vulnerabilities and how to safeguard computer networks from those vulnerabilities and threats. This course exposes the student to computer network security planning, network security technology, network security organization, and the legal and ethical issues associated with network security. In this class, students learn the skills necessary for Security+ certification.

10-150-184 Penetration Testing/Network Defense 3 credits

Introduces the network security specialist to the various methodologies for attacking a network. The student is introduced to the concepts, principles and techniques, supplemented by hands-on exercises for attacking and disabling a network. These methodologies are presented within the context of properly securing the network. The course emphasizes network attack methodologies with the emphasis on student use of network attack techniques and tools. Prerequisite: grade of C or better in 10-150-162.

10-150-170 CCNA1 & 2: Networking and Routing Basics 3 credits

Introduction to Networking basics with a focus on network terminology, protocols, local area networks (LANs), wide area networks (WANs), Open System Interconnection (OSI) model, cabling, routers and router programming, Ethernet, Internet Protocol (IP) addressing, and network standards. The student will develop skills on configuring a router, using the Cisco IOS Software, configuring routing protocols, and configuring Access Control Lists (ACLs) to control access to the router. NOTE: Must take 10-150-173 CCNA3 and 10-150-174 CCNA4 within one year of completion of 10-150-170 CCNA1 & 2.

10-150-173 CCNA3: Switching & Intermediate Routing 3 credits

This course is a continuation of CCNA1 & 2. This course focuses on advanced IP addressing techniques such as Variable Length Subnet Masking (VLSM), Intermediate routing protocols such as RIP v2, single-area OSPF, EIGRP, command line interface configuration of switches, Ethernet switching, Virtual LANs (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP). Prerequisite: 10-150-170 and 10-150-174 (must follow 10-150-173 CCNA3 within one year of its completion).

10-150-178 CCNA4: WAN Technologies 3 credits

This course is a continuation of CCNA3. This course focuses on advanced IP addressing techniques such as Network Address Translation (NAT), Port Address Translation (PAT), and DHCP. The student will also learn about WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, network management, and optical networking. Prerequisite: 10-150-170 and 10-150-173 (must follow 10-150-173 CCNA3 within one year of its completion).

10-150-180 IP Telephony and Advanced Topics 3 credits

A wide variety of advanced topics will be covered in the course, including Voice over IP, Quality of Service, Route Redistribution and Summarization, Multi-area OSPF, Layer 3 Switching and Frame Relay. Troubleshooting will be emphasized. Prerequisite: 10-150-174 and 10-150-190.

10-150-185 Introduction to Computer Forensics 3 credits

This course provides a broad overview of computer forensics and investigation tools and techniques. All major personal computer operating system architectures and disk structures will be discussed, as well as what computer forensic hardware and software tools are available. Other topics include the importance of digital evidence controls, how to process crime and incident scenes, the details of data acquisition, computer forensic analysis, e-mail investigations, image file recovery, investigative report writing, and expert witness requirements. The course provides a range of laboratory and hands-on assignments that teach about theory as well as the practical application of computer forensic investigation. Prerequisite: 10-150-182, 10-150-170, 10-154-186, 10-154-180, and 10-154-191.

10-150-190 Wireless and Media 3 credits

Wireless LANs will be introduced. Students will install and configure access points, configure devices to connect to the access points, and secure access points using current wireless technologies. The course will focus on the design, planning, implementation, operation and troubleshooting of wireless LANs. Students will also learn the fundamentals of data cabling with copper and will develop skills in cable termination, as well as installing jacks and cable testing. This hands-on class stresses documentation, design, and installation issues, and working effectively in group environments. Prerequisite: 10-150-170.
10-150-193 Network Security Design 3 credits
This course affords the network security specialist the opportunity to conduct a vulnerability analysis upon a network in order to practice or refine the attack methodologies with the hacker tools and techniques to which the student was exposed during the various program courses. The student must demonstrate the ability to design, plan and execute a vulnerability analysis against an organization network. The student must prepare a written report of the security design, attack methodology, tools and techniques. In this class, students learn the skills necessary for the Certified Information System Security Professional (CISSP) certification. Prerequisite: grade of C or better in 10-150-184 and 10-150-196.

10-150-194 Managing Cisco PIX Firewalls 3 credits
Introduces the network security specialist to the various methodologies for defending a network. The student is introduced to the concepts, principles, types and topologies of firewalls to include packet filtering, proxy firewalls, application gateways, circuit gateways and stateful inspection. In this class, students learn the skills necessary for one of the CISCO Certified Security Professional (CCSP) certification exams. Prerequisite: 10-150-173.

10-150-195 Networking Internship 3 credits
An on-the-job experience, with instructor supervision, in Madison area networking companies and in companies that maintain and manage computer networks. The emphasis is on hands-on design, installation, configuration, management, documentation, troubleshooting and maintenance of LANs. Prerequisite: 10-107-175, 10-150-174, and one of the following: 10-150-166 or 10-154-190.

10-150-196 Managing Virtual Private Networks 3 credits
This course provides an introduction to the knowledge and skills needed to describe, configure, verify and manage IPSec features in VPN solutions. The course provides a multi-vendor solution to VPN design. Examination of both VPN client and server products will prepare students to deploy VPN technologies in both site-to-site and client-to-site configurations. The course surveys many of the encryption technologies including: PPK, IPSec and 3DES. Both digital certificates and certificate authorities are introduced in this course. The course also emphasizes intrusion detection systems, a systematic approach to perimeter security. Prerequisite: 10-150-194.

10-150-197 Network Security Internship 3 credits
On-the-job experiences in Madison area companies that maintain, manage, and secure computer networks. The emphasis is on hands-on design, installation, configuration, management, documentation, troubleshooting, maintenance, and securing of LANs. By consent of Instructor, a special project may be substituted for the internship. Prerequisite: 10-150-164, 10-150-175, and 10-150-194.

152 Programming (also see courses under 107, 159, 154)

10-152-101 Introduction to Visual Basic.NET Programming 3 credits
Teaches the basic concepts of VB.NET programming. Topics include Visual Studio Integrated Development Environment, program logic constructs, event-driven programming techniques and development in an object-oriented context.

10-152-102 Advanced Visual Basic.NET 3 credits
The course provides students with a comprehensive understanding of object-oriented system development. It examines and uses the prewritten .NET Framework classes and explores the MSDN help facility. Topics include: collections, exception handling, interfaces and advanced development techniques such as XML and database programming using ADO.NET. Prerequisite: grade of C or better in 10-152-101 and completion of, or concurrent enrollment in 10-152-125.

10-152-103 Web Application Development Using ASP.NET 3 credits
Students learn to develop Microsoft ASP.NET applications that deliver dynamic content to the web. An emphasis is placed on server-side programming and the role of ASP.NET pages. As part of the class, students create web forms with server controls, display dynamic data from a database using Microsoft ADO.NET, read XML configuration files, and learn to debug ASP.NET web pages. Prerequisite: grade of C or better in 152-102 and 152-120.

10-152-111 Introduction to Java Programming 3 credits
Introduces the language and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisite: 10-152-101.

10-152-112 Advanced Java Programming 3 credits
Focuses on the server side of application programming for the web. Topics include: Java servlets, database access with JDBC, JavaServer Pages and JavaBeans. A portion of the class deals with application design issues in a web environment. Prerequisite: grade of C or better in 10-152-111.

10-152-113 Enterprise Java Programming 3 credits
The third class of the Java sequence explores advanced Java topics within the J2EE application framework. Topics include JDBC, Enterprise JavaBeans, Servlets, JSP, XML, JMS, JNDI, Web Services, custom tag libraries, web applications and enterprise applications. Prerequisites: grade of C or better in 10-152-112 and 10-152-121.

10-152-120 Website Development—XHTML 3 credits
Teaches the fundamentals and techniques of developing business websites using XHTML-compliant HTML. Topics include webpage design, tables, image manipulation, image maps, forms, frames, cascading style sheets (CSS) and an introduction to JavaScript. All work is done directly with XHTML. Prerequisite: working knowledge of MS Windows.

10-152-121 Advanced Website Development 3 credits
Provides the student with experience in the design and implementation of business Internet Websites using advanced command syntax. Topics include: Java Script, browser object models, dynamic HTML, advanced cascading style sheets (CSS), XML, document type definitions, extensible stylesheet language (XSLT), and XML schemas. Prerequisite: grade of C or better in 10-152-120.

10-152-124 Microsoft Access Development 3 credits
Introduces the MTS/Access relational database. Students learn to use various software tools to use queries, forms and reports in developing comprehensive business applications using MS Access.

10-152-125 Relational Database Coding—Oracle/SQL 3 credits
An extensive introduction to Oracle database server technology. The class covers the concepts of both relational and object relational databases and the powerful SQL programming language with Oracle's PL/SQL extensions. Students are taught to create and maintain database objects and to store, retrieve, and manipulate data. In addition, students learn to create PL/SQL blocks of application code that can be shared by multiple forms/reports and data management applications. Demonstrations and hands-on practice reinforce the fundamental concepts. Prerequisites: 10-152-124 and completion of, or concurrent enrollment in 10-152-130.

10-152-126 Relational Database Design 3 credits
Study of the construction of relational databases. Activities include: designing a database using the relational database model, implementing a database in normal form, and demonstrating a functional database in terms of performance, integrity and security. Prerequisite: grade of C or better in 10-152-125 and 10-152-131.

10-152-130 Object-Oriented Design with UML 3 credits
Practical, introductory-level systems analysis experience. Emphasis is on the physical system elements: data design (record, file, database and entity-relationship diagrams), object-oriented design (use case, class and sequence diagrams), user interface design (screen and report) and system interface design (platform and function). The use of CASE tools (Visual Analyst and Visio) is integrated throughout the course to enhance the design experience. Prerequisite: grade of C or better in 10-152-101 and 10-152-124.

10-152-131 Object-Oriented Systems Analysis 3 credits
Introduction to the methodologies of systems analysis and design. Emphasizes developing interviewing skills, understanding organizational problems and objectives, analyzing and documenting systems, physical modeling and design. Students gain experience in the creation of UML diagrams, a project repository, entity-relationship diagrams, database design, data normalization and data flow modeling. Problem solving skills, business-client relations, project analysis, team dynamics and communication skills are woven throughout the course. Prerequisite: grade of C or better in 10-152-124 and 10-152-130.
10-152-132 Systems Design and Implementation 3 credits
Study of tasks performed during the design and implementation phases of the Systems Development Life Cycle. Activities include: completing the development of a computer information system through the design, construction, and delivery phases of the Systems Development Life Cycle; documenting the IT project development with a CASE tool; applying fact-finding techniques; and using oral and written communication skills during project development.
Prerequisites: grade of C or better in 10-152-112, 10-152-121, and 10-152-131.

10-152-140 Visual Basic .NET® Programming 3 credits
Gives developers the skills needed to develop applications using Visual Basic .NET®. Visual Basic .NET® is a significant upgrade from previous versions of Visual Basic®, and this course leads the student to an understanding of the features now offered under the .NET® framework. Students learn to create enterprise applications for the .NET® platform in general as well as the specifics of Visual Basic® for Programming in a .NET® environment. No previous experience in Visual Basic programming is required.

10-152-141 C# Programming in Visual Studio.NET® 3 credits
Gives developers the skills needed to develop applications using the C#® programming environment within Microsoft Visual Studio.NET®. The course focuses on language syntax, program structure and implementation guidelines for developing applications using the C#® development environment. Prerequisite: working knowledge of one or more courses in another programming language. NOTE: This course is optional for the IT-MS Visual Studio.NET® certificate.

10-152-142 Web Development Using ASP.NET® 3 credits
Teaches students how to develop Microsoft ASP.NET® applications that deliver dynamic content to the web. As part of the class, students will create a web form with server controls to display dynamic data from a database using Microsoft ADO.NET®, and learn to debug ASP.NET® web pages. Prerequisite: grade of C or better in 10-152-140, or 10-152-141.

10-152-143 Mobile Device Development Using .NET 3 credits
Provides students with mobile device application development experience using Visual Studio.NET. Students will gain insight into the unique constraints working within a mobile environment. The course focuses on the Microsoft Windows Mobile and Pocket PC operating systems. Topics include: .NET compact framework, mobile databases, and web development for mobile devices. Prerequisite: 10-152-101, 10-152-140, or 10-152-141.

10-152-144 XML Web Services and Server Components 3 credits
Students learn to develop and implement middle-tier components, server components, and XML Web services by using Visual Studio .NET® and the Microsoft .NET Framework. Students learn skills to effectively build scalable, distributed applications that use the following technologies: Microsoft .NET Enterprise Services, XML Web services-based solutions, and data-centric applications using ADO.NET® and SQL Server.

10-152-145 Web Programming with Java 3 credits
A twofold objective: to provide an introduction to object-oriented design concepts as well as provide an introduction to the Java programming language. All major syntax areas of Java are covered. Additionally, database and JDBC are introduced. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisite: coursework or working knowledge of another programming language and acceptance into the IT-Web Programming track.

10-152-146 Advanced Application Programming with Java 3 credits
This course includes in-depth coverage of data structures in the Java Collection framework and focuses on the server side of application programming for the web. Topics include: Java servers, database access with JDBC and JavaServer Pages. A portion of the class will deal with application design issues in a web environment. Prerequisite: grade of C or better in 10-152-145.

10-152-148 Introduction to Bioinformatics Programming 2 credits
This beginning course for Bioinformatics programming provides the student with experience in the design and implementation of basic programming concepts applied to Bioinformatics problems. The student is given a practical introduction to Perl programming language, Oracle database and Internet technology in the Unix operating system environment. This course has a companion course (10-152-140, Introduction to Bioinformatics), offered through the Biotechnology Department, which must be taken concurrently.

10-152-149 Advanced Bioinformatics Programming 2 credits
A capstone course in Bioinformatics. Provides the student with experience in the design and implementation of basic programming concepts applied to Bioinformatics problems. The student uses the Perl programming language, Oracle database and Internet technology in the Unix operating system environment. This course has a companion course (10-007-181 Advanced Bioinformatics) offered through the Biotechnology Department that must be taken concurrently. Prerequisite: grade of C or better in 10-152-142, 10-152-140, 10-152-149, and concurrent enrollment in 10-007-181.

10-152-150 Introduction to Perl Programming 3 credits
Introduces students to Perl programming concepts. The course includes an introduction to Perl programming language, Oracle database and Internet technology in the Unix operating system environment. This course has a companion course (10-007-181 Advanced Bioinformatics) offered through the Biotechnology Department that must be taken concurrently. Prerequisite: grade of C or better in 10-152-142, 10-152-140, 10-152-149, and concurrent enrollment in 10-007-181.

10-152-151 Scripting with Perl 3 credits
Students will study scripting with the Perl programming language. The course will cover concepts such as automating repetitive tasks, scheduled file maintenance, log file analysis and email notification. A simple text editor will be used for creating scripts and the Perl interpreter will be used to run the scripts. Scripts will be tested on multiple operating systems. Prerequisite: grade of C or better in 10-152-150, or 10-152-101, or 10-152-111, or 10-152-170. For Bioinformatics Certificates: 10-152-148.

10-152-155 PHP and MySQL Development 3 credits
This course introduces the student to dynamic web page development using the PHP programming language and the popular MySQL open source database management software (DBMS). Students will gain LAMP development experience using the Linux operating system, and the Apache web server platform. Students will learn how PHP works, how to effectively use many of its powerful extensions, and how to design and build their own PHP web applications. Prerequisite: acceptance into the IT-LAMP Open Source certificate.

10-152-156 PHP, MySQL, Apache Advanced Topics 3 credits
This course prepares the student to implement real-world PHP and MySQL web applications. Students will learn advanced techniques for session management, validation, and authentication. Advanced LAMP development topics including shopping carts, content management, web forums and connecting to web services are covered. Prerequisite: grade of C or better in 10-152-155.

10-152-157 Ruby on Rails Development 3 credits
Introduces the student to dynamic web page development using the Ruby on Rails web development framework. The course will also use the popular MySQL open source database management system. Topics will include an introduction to the Ruby programming language, install Ruby and Ruby on Rails, an overview of the Rails framework, ActiveRecord basic, ActionController coding, Action Views, AJAX and the Web 2.0, ActionMailer basics, security, deployment, and scaling. Students will produce a very modern web application that can be adapted to many professional web development needs. Prerequisite: grade of C or better in 10-152-155.

10-152-162 HTML-Beginning 1 credit
Create webpages using HTML; control HTML text; add hyperlinks, graphics and multimedia; work with tables; use frames and forms; design webpages. Prerequisites: competency in Windows and Internet or the course Windows (10-103-134 or 10-103-135) or equivalent.

10-152-163 HTML-Dynamic 1 credit
An introduction to JavaScripting for HTML. Work with Dynamic HTML (DHTML) and Cascading Style Sheets, control content dynamically, position elements with DHTML, implement advanced DHTML features and structure data with XML. Prerequisite: 10-152-152.

10-152-164 Website Design Concepts 1 credit
Use web-design tools and techniques to plan, create, test, publish and maintain a website. Use HTML, Dreamweaver or FrontPage to develop a website that is user friendly, well-designed and effective. Prerequisite: understanding of Windows and either HTML, Dreamweaver or FrontPage.
10-152-165 JavaScript: An Introduction 3 credits
An introduction to object-oriented programming using the JavaScript programming language. Students learn JavaScript command language, browser object models, event handling, Web form validation, how to work with dates, and how to debug JavaScript. Students will test JavaScript code using multiple browsers. The course has an emphasis on practical business solutions.
Prerequisite: 10-152-162.

10-152-170 Programming 1-COBOL 4 credits
Introduces fundamentals and techniques of the structured computer program development process in a mainframe environment. This includes planning and organizing the work, coding, testing, problem solving, and documenting. COBOL is the language used for programming assignments. This rigorous course requires extensive work outside of class. Prerequisite: successful completion or concurrent enrollment in 10-152-101 or consent of instructor.

10-152-171 Programming 2-COBOL 4 credits
A course in structured programs development. Students are required to design, code, and test batch COBOL programs for business applications of moderate complexity. Major topics include: the theory of structured design, structured programming strategies, tools for logical analysis, and testing strategies. Introduces some advanced features of COBOL programming, such as table processing, subprograms, indexed files and character manipulation.
Prerequisite: grade of C or better in 10-152-170 or consent of instructor.

10-152-172 Programming 3-CICS/COBOL 4 credits
Introduction to programming interactive (or "online") systems for a mainframe computer environment. Students learn the features of COBOL command-level CICS (Customer Information Control System) by developing inquiry, edit, update and menu programs. Prerequisite: grade of C or better in 10-152-130 and 10-152-171.

10-152-173 Operating Systems, Services and Facilities 3 credits
Studies the structure and organization of the MVS Operating System and how to work with it. Upon completion, students should have a working knowledge of IBM MVS Job Control Languages, have an understanding of the program preparation process, be able to use some of the IBM utility programs, have the skill of using IBM diagnostic aids and be able to use ISPF at an advanced level.
Prerequisite: grade of C or better in 10-152-171, or consent of instructor.

10-152-174 IT Programmer/Analyst Internship 3 credits
Opportunities for students to learn and practice programming and analysis techniques through activities and experiences in a group project at NACIT, or in an actual information systems department. Objective: to reinforce the student's background and experience. Activities include designing and testing new programs, designing and modifying existing programs, systems analysis and design, and sharing experiences with other interns. Prerequisites: grade of C or better in 10-107-175, 10-152-102, 10-152-131, and 10-152-171.

10-152-185 Introduction to Programming -- IDC 3 credits
A first introduction to computer programming requiring no previous experience. Students use the Basic language and concentrate on the rudiments of all software development: data types and variables, calculations, basic I/O, conditional statements (if... then... else), loops, subroutines (including parameters), arrays and file I/O. Later work introduces VBA (Visual Basic for Applications), where Basic is used to program applications such as Microsoft Excel.

10-152-186 Introduction to C/C++ Programming -- IDC 3 credits
An introductory C/C++ programming class. Students write console (DOS) applications stressing basic C concepts, including data types, conditional and looping mechanisms, functions, arrays, structs, bit handling and file I/O. Special attention is directed to pointers, a fundamental C concept. The rudiments of C++ are introduced, particularly class construction. Although starting at the beginning with C, the course assumes some programming background. C and C++ are of interest because they are widely used in applications and embedded programming, but they also provide a firm foundation for Java, C# and Perl, which are based on C and C++.

10-152-188 Introduction to Internet Programming -- IDC 3 credits
Introduction to HTML programming and client-side scripting. HTML topics include basic webpage layout and design, graphics, tables, forms, style sheets and the Document Object Model (DOM). JavaScript programming is covered intensively, including scripting basics, dynamic HTML page creation, arrays and validating user input. After these foundations, students study Cascading Style Sheets (CSS), XML and XSL. This course is required for the Internet Developer Certificate and should be taken first.

10-152-189 Visual Basic.NET Programming -- IDC 3 credits
An introductory Visual Basic programming class that serves as a good introduction both to Windows programming and also to the graphical, event-driven methods characteristic of modern software development. Topics include Visual Basic coding and form design, Windows controls (simple and advanced), event handling, menus, graphics, debugging, the clipboard and VBA. .NET fundamentals are discussed, and database access is specially emphasized, including SQL.

10-152-190 Java Programming -- IDC 3 credits
Introduction to the Java programming language from an object-oriented point of view. Students start with Java basics: data types, class construction, control structures, method writing and elementary event handling. Further topics include Java components and layout, mouse handling, graphics, string manipulation, remote data access, file I/O, network programming and database work. Java 2 and Swing are covered extensively. Students write device independent applications as well as Internet applets. This course is an elective for the Internet Developer Certificate.

10-152-191 C# Programming -- IDC 3 credits
Introduces C# (the Microsoft .NET programming language. Though similar to C and C++, C# programs address the .NET API and can interact with any other .NET program. Discussion starts with C# basics, with special attention to object-oriented concepts. Topics include Windows Forms development, object-oriented programming of HTML and XML files, Web Forms and ASP.NET, database access with ADO.NET and Web Services. This course is a general elective for the Internet Developer Certificate.

10-152-192 XML Programming -- IDC 3 credits
This course introduces XML from a programmer's standpoint. We start with basic XML structure and syntax, including well-formedness and validation against DTD or Schema. We write our own XML applications and consider some major standard applications, including XHTML, SVG, and Voice XML.

10-152-194 SQL Server 2005 -- IDC 3 credits
An introduction to Microsoft SQL Server 2005 programming. Topics include an overview of database design and SQL Server, Transact-SQL programming including new language features for SOL Server 2005, functions, stored procedures, triggers, designing and optimizing advanced queries, maintaining data integrity; using transactions, locks, views and indexes, using SQL Server in web programming applications, and SQL Server Integration Services (an enhancement of Data Transformation Services). Students should have some prior experience with databases (such as Microsoft Access) and programming (especially in one or more of the Microsoft Visual Studio languages) to succeed in this class. This course will be offered online only. This course is an elective for the Internet Developer Certificate.

10-152-195 Advanced Visual Basic.NET Programming -- IDC 3 credits
Covers more advanced database and client-server applications, with particular emphasis on Visual Basic as an Internet programming language developed from an object-oriented point of view (i.e., designing and using classes). Topics include ADO data access, advanced graphics techniques, and Internet related subjects like FTP programming, manipulating HTML files with Visual Basic, and VBScript. Both DLLs and ActiveX components are thoroughly considered. This course is a general elective for the Internet Developer Certificate. It is offered first semester only (Aug - Dec).
Provides on-the-job Help Desk environment work experience with instructor supervision in area companies. By consent of instructor, a special project may be substituted for the internship. Prerequisite: 10-154-122, 10-154-146, 10-154-186, and completion (or concurrent enrollment) of 10-150-101, 10-154-147, and 10-154-191.

10-154-181 Computer Systems Architecture 3 credits

Study the architecture of modern computer systems and the structure of the organizations that use them. Learn about the design of microprocessors and how they power computers. Study how computer programs are created and used. Learn about disk drivers, tape drives and other peripheral components of a computer. Discover the basic concepts of networking and the design and function of the Internet. Explore how computers are used by large and small enterprises in preparation for a career in information technology.

10-154-163 Mainframe Operations 3 credits

Gain the knowledge used to work with IBM's mainframe computers. Acquire the "big iron" skills that play a key role at the area's largest corporations. Study the MVS Operating System and learn about IBM's batch Job Control Language (JCL). Learn to interact with the operating system using ISPF, the mainframe's text editor and user interface. Differentiate yourself with the enterprise class skills that will set you apart from others.

10-154-164 Windows Workstation Administration 3 credits

Learn how to install, configure, and administrate the latest Windows desktop operating systems including Windows 2000 and Windows XP. Work in a computer laboratory setting with your own removable hard drive to develop the real-world expertise needed to set up and support the Windows desktop environment. As you progress through topics such as installing the operating system, configuring hardware devices and establishing network connectivity, you are also preparing for Microsoft Exam 70-210 or 70-217—core requirements for MCSA and MCSE certifications.

10-154-186 Microsoft Windows Server 3 credits

Implements and uses Windows Server to build and maintain an operating network. This objective would include all facets of Windows Server operation including: installation, managing users and groups, creating and managing clients, file systems, managing servers, path services, installing applications, backup software, troubleshooting, disaster recovery, and basic web server management. In this class, students will learn the skills necessary for a core requirement for the MCSA and the MCSE certifications. Prerequisite: 10-150-101 or 10-150-170.

10-154-188 Managing a Windows Network Environment 3 credits

Gain the skills to administer and support a Windows network—and prepare for Microsoft Exam 70-219—a core requirement for the MCSA and an elective for the MCSE certifications. Gain practical experience managing a Windows network infrastructure, system services, and shared resources. Learn to manage data, install your own web server and establish security using Microsoft's Active Directory technology. Study key network services and learn to troubleshoot and monitor network and server performance. Prerequisite: 10-154-186.

10-154-189 A+ Hardware Essentials 3 credits

CompTIA’s A+ Certification is a widely accepted IT industry standard certification for PC technology. This course presents an in-depth exposure to Personal Computer hardware. Students learn the functionality of hardware components as well as suggested best practices in maintenance, and safety issues. Through hands on activities and labs, students learn how to assemble, configure a computer, and troubleshoot computer hardware problems. This course prepares students for CompTIA’s A+ certification Core Hardware exam (A+ exam 220-301).

10-154-190 Linux Server 3 credits

Introduces Linux with a focus on system administration skills. Topics include installation, file and directory management, command execution, I/O output redirection and pipes, shell scripts, network services, security, troubleshooting and the X Window system. Prerequisite: 10-150-101 or 10-150-170.
10-154-191 A+ Operating System and Software Essentials 3 credits
CompTIA's A+ Certification is a widely accepted IT industry standard certification for PC technology. This course presents in-depth exposure to computer operating systems and software. Students learn the functionality of operating systems and software components as well as suggested best practices in Operating System maintenance. Through hands-on activities and labs, students learn how to configure a computer, install operating systems and computer software, and troubleshoot Operating system and software problems.
This course prepares students for CompTIA's A+ Certification Operating System Technologies exam (CompTIA A+ exam 220-302). Recommended: successful completion of or concurrent enrollment in 10-154-189.

10-154-192 Novell NetWare Server* 3 credits
Implements and uses the Novell NetWare operating system to build and maintain an operating network. This objective would include at least facets of Novell operation including: installation, defining network objects, installing silent software and defining protocols. Students design and implement Novell Directory and the file system. Students manage a server, implement network and file security, implement printing, manage the user environment, install applications, and manage the console. In this class, students learn the skills necessary for the Novell CNA certification and a requirement for the CNE certification. Prerequisite: 10-150-101 or 10-150-170.

10-154-193 Email in a Windows Environment 3 credits
Through the use of Microsoft Exchange Server, gain an understanding of the principles of a modern email system. Acquire the knowledge and skills necessary to install, configure, and administer Microsoft Exchange Server. Learn how to provide web access to Exchange using Microsoft's Outlook Web Access. Install and configure Instant Messaging and learn how to monitor and tune Exchange Server. Prepare for the Microsoft MCP examination on Exchange Server. Prerequisite: 10-154-168.

10-154-198 Systems Administration Internship 3 credits
Provides work experience in an area data center environment offering a variety of experiences managing and operating computer systems. The student spends approximately 15 hours per week at the internship site. By consent of instructor, a special project may be substituted for the internship. Prerequisite: 10-154-163 and 10-154-195 or consent of instructor. Good oral and written communication skills and a grade of C or better in all IT courses are required.

170 Broadcast Captioning

10-170-101 Captioning/CART 1 4 credits
Prepares the learner to write dictation at 180 wpm, broadcast 10 minutes non-stop, write new punctuation and symbols, new flagged alphabet characters, environmental sounds, web/intranet addresses, common proper names, common female and male first names, governmental/political terms, terms applicable to food, the names of animals, finger-spell words, increase vocabulary, use terms applicable to criminology and manage dictionaries. Prerequisite: 10-105-154.

10-170-102 Captioning/CART 2 4 credits
Prepares the learner to write dictation at 180 wpm, write 20 minutes non-stop, write new punctuation and symbol, new flagged alphabet characters, environmental sounds and descriptors, web/intranet addresses, sports terminology, geological names and terms, names and terms used in the entertainment industry, military terms, common slang, current national names in the news, finger-spell acronyms, increase vocabulary, and manage dictionaries. Prerequisite: 10-170-101.

10-170-103 Captioning/CART 3 2 credits
Prepares the learner to write dictation at 200 wpm, write a 30 minute newscast non-stop, write new punctuation and symbols, flagged alphabet characters, environmental sounds and descriptors, web/intranet addresses, meteorological terms, terms used in the fine arts, terms used in literature, scientific terms, terms used in common word religion, increase vocabulary, finger-spell words and manage dictionaries. Prerequisite: 10-170-102.

10-170-104 Broadcast Captioning Research Methods 1 credit
Prepares the learner to prepare (research) prior to broadcast, conduct research in preparation for broadcasting international news, national news, local news, weather reports, sporting events, writing geographical terms, utilize culturally diverse terminology and create job dictionaries.

10-170-142 Captioning/CART Procedures 3 credits
Prepares the learner to utilize realtime terminology, follow guidelines in the CART providers manual, follow ADA regulations, apply laws governing broadcast captioning, develop a resume for submission to a captioning company, identify starting salary needs for your career in broadcast captioning/CART, describe CART provider requirements at a high school or post-secondary education school, describe the captioning requirements for a major captioning company and describe the requirements for becoming an independent captioner. Prerequisite: 10-170-101.

10-170-143 Internship in Broadcast Captioning/CART 1 credit
Prepares the learner to caption live broadcast, use television broadcast terminology, describe television broadcast operations and provide CART services to a hearing-impaired person. Students must be writing at 150 words per minute literacy prior to enrolling in this course.

10-170-158 Technology for Captioning/CART 1 credit
Advanced course using Advantage Eclipse software to translate, edit and print transcripts. Stresses personal dictionary maintenance including insertion, modification, and deletion of stenographic/text entries. Prerequisite: 10-105-154.

10-170-160 Technology for Captioning/CART 2 1 credit
Prepares the learner to demonstrate psychology of on-air captioning, prepare a program, prepare for broadcast news production, obtain system support, setup captioning equipment, maintain captioning equipment, maintain computer hardware data input device, use captioning online translation system, setup and maintain CART equipment, utilize the CART providers manual, opens CAT system and apply CAT functions. Prerequisite: 10-170-158.

165. Quality Management

10-165-110 Managing for Quality 3 credits
Examine the manager's role in a quality-focused organization. Students will be introduced to the four basic functions of management as practiced in an environment that focuses on employee participation. The management philosophies of Crosby, Deming and Juran will be presented. The concept of teams and teamwork, and variation and implementation strategies are introduced.

10-165-111 Understanding Organizational Change 3 credits
Analyze the process or organizational change. Shows students how to be agents for change, and how to deal with resistance to change. Students will understand how to implement and standardize project improvements. An organizational model for total quality improvement will be presented.

10-185-115 Employee Involvement 3 credits
Explores the importance of people in improving quality and productivity. The stages of group development and factors that affect group performance will be identified. Students will also be introduced to team building, team facilitation, and conflict resolution.

10-165-114 Statistical Techniques for Process Control 3 credits
Designed to familiarize students with the fundamental concepts of control location, variation and normal distribution. Variables and attribute control charts will be presented as tools for monitoring process stability. The application of these techniques in both service and manufacturing organizations will be discussed.

18-165-116 An Introduction to ISO 9000: A Quality System 3 credits
This course is designed to introduce students to ISO 9000 standards. They will understand the quality concepts that contribute to the standard, benefits of developing a quality system and management's role in leading the effort. The processes of planning, documenting, implementing, assessing and maintaining a quality system will be addressed.
194 Real Estate

10-194-175 Real Estate Investment 3 credits
An in-depth introduction to principles of real estate investment. Compares real estate to other forms of investments, and teaches students how to calculate the benefits and determine the disadvantages of owning real estate. Subjects covered include tax laws (current and past), creative financing, ownership forms, limited partnerships, management practices, practical contractual language, the real estate exchange and several case studies. A real life course project is required wherein the student goes through the steps of acquiring an existing property and analyzes the outcome.

10-194-182 Real Estate Law 4 credits
Designed to acquaint students with the field of real estate as well as with Wisconsin real estate law and to prepare them for the Wisconsin Real Estate Salesperson's Examination. It covers topics such as the law of agency, legal descriptions, real estate contracts, mortgages, land contracts, consumer-protection laws, landlord-tenant laws, fair-housing ordinances and various other subjects related to the real estate profession. It is particularly oriented toward Wisconsin laws. Also available in CD-ROM format.

10-194-194 Real Estate Finance 3 credits
An analysis of the various aspects of real estate finance with an emphasis on the type of instruments used, sources of funds, procedures involved and the role of the federal government. The course includes numerous activities outside the classroom designed to demonstrate lending policies, problems and rules involved in financing real property, including residential, multi-family, commercial and special purpose properties.

10-194-185 Real Estate Brokerage 2 credits
Covers market analysis, sales, planning, staff compensation and sales management including selection, training and supervision. The course is oriented to real estate brokerage in Wisconsin and fulfills the educational requirement for the Real Estate Broker's license in Wisconsin.

10-194-186 Real Estate Appraisal 5 credits
A rudimentary knowledge of the uniform standards of professional appraisal practice and the techniques for property evaluation (principally residential). This course meets the educational requirement for real estate appraisal licensure in Wisconsin.

194-190 Property Management and Development 3 credits
Provides a practical, hands-on approach to the process of managing real estate. Major topics include an overview of the rental, accounting, maintenance and information functions of the property manager. Also included is information on condominiums, low-income housing and the construction process.

10-194-194 Home Inspection 4 credits
Covers the residential inspection process from start to finish and may be used as an inspector's guide in the field. Home inspection is an art of identifying problem areas through observation. The course deals with various elements of a home including roofs, foundation, construction, plumbing and roofing. The course also deals with changes in public policy regarding home inspections.

10-194-195 Real Estate Internship 3 credits
Requires work experience within an approved organization as well as under the sponsorship of someone at the management level. The real estate intern is required to complete 140 hours of supervised work. The intern will complete a final work report at the completion of the semester while the sponsor will complete a job performance evaluation. Class time concentrates on the internship experience. The intern prepares a resume and develops a job strategy as a means of preparing for full-time work upon graduation.

196 Supervisory Management

10-196-185 Occupational Trends/Issues 3 credits
In this course, the learners summarize, present and discuss information on major trends and issues affecting supervisors in the complex, technological world of the future. Learners apply the knowledge gained in program courses, problem-solving skills and their personal experiences to identify successful strategies for the future.

10-196-118 Human Behavior at Work 3 credits
In this course, the learner applies the skills and tools necessary to work effectively with behavior found in organizations. Each learner will apply and demonstrate the application of theories in motivation, perception, organizational culture, employee development and communication. In addition, concepts such as diversity, decision making, conflict management and managing in a global environment will be introduced.

10-196-134 Legal Issues for Supervisors 3 credits
The learner applies the skills and tools necessary for supervisors to function effectively within today's legal framework. Each learner will demonstrate the application of practices to meet the requirements of U.S. employment laws including implications for: staffing, disciplinary actions and documentation, preventing harassment and discrimination, safety, workplace violence, incident investigation, privacy issues and maintaining organizational policies and procedures.

10-196-136 Safety in the Workplace 3 credits
The learner applies the skills and tools necessary to provide a safe and secure work environment. Each learner will demonstrate the application of strategies regarding safety awareness, compliance, investigation and documentation. Other topics include: safety orientation, chemical safety, right-to-know, inspections, workplace violence, substance abuse, first aid, fire and electrical safety, emergency preparedness and liaison with external agencies.

10-196-164 Personal Skills for Supervisors 3 credits
The learner applies the skills and tools necessary to deal with the personal challenges inherent with a manager's role. Each learner will demonstrate the application of time management techniques, personal planning, continuous learning, valuing rights and responsibilities of others, effective communication, assertiveness and dealing effectively with stress.

10-196-158 Organizational Development 3 credits
The learner applies the skills and tools necessary to effectively navigate within an organizational structure. Each learner will demonstrate the application of theories regarding the impact of globalization on organizational design, operation and culture. Other topics include: the impact of change, organizational decision making and the benefit of vision, mission and goals plus future challenges affecting the organization.

10-196-168 Diversity and Change Management 3 credits
The learner applies the skills and tools necessary to implement and maintain a diverse work environment that values change. Each learner will demonstrate the application of assessing the current extent of diversity in the workplace, analyzes the effect of perceptions, attitudes, biases and organization culture on diversity, dealing with barriers, changes management strategies, process and reactions, measuring progress and celebrating success.

10-196-188 Project Management 3 credits
The learner applies the skills and tools necessary to design, implement, and evaluate formal projects. Each learner will demonstrate the application of methods for project planning, developing project proposals, use of relevant software, working with project teams, sequencing tasks, charting progress, dealing with variations, managing project budgets and resources, implementation and project assessment.

10-196-199 Team Building and Problem Solving 3 credits
The learner applies the skills and tools necessary to facilitate problem-solving in a team environment. Each learner will demonstrate the application of strategies regarding the necessary roles for team effectiveness, stages of team development, team problem solving and consensus, systematic processes for problem definition, data acquisition and analysis, generating alternative solutions, choosing solutions, implementation planning and evaluation.

10-196-190 Leadership Development 3 credits
The learner applies the skills and tools necessary to fulfill his/her role as a contemporary leader. Each learner will demonstrate the application of strategies to evaluate leadership effectiveness and communicate vision, mission and goals. Additional topics include: ethical behavior, personal leadership styles and flexibility, impacts of power, employee development, coaching and affective conflict resolution.
201 Graphic Design

10-201-102 Design Fundamentals 3 credits
Students learn fundamentals of two-dimensional visual organization and problem-solving strategies for advertising layout, publication design, typographic and graphic design, and illustration.

10-201-103 Drawing Fundamentals 3 credits
An introductory drawing class emphasizing sound craftsmanship and a study of basic free-hand drawing skills. Includes the study of perspective, proportion, and light and shade. Also covers the construction of solid forms.

10-201-106 Illustration 1 3 credits
Concentrates on creating reproducible line and continuous tone art in the areas of product, editorial and institutional illustration. The focus is on black and white illustration in a variety of media both traditional and digital. Students are encouraged to develop problem-solving techniques in both technical and conceptual areas. Prerequisites: 10-201-102, 10-201-103 and 10-201-181, 10-203-130.

10-201-108 Type Design Fundamentals 2 credits
Introduces type history, development and terminology through lecture, demonstration and practical computer exercises and projects. Also covers effective type usage in web and graphic design. Prerequisites: 10-201-181, 10-206-105.

10-201-109 Typography 1 3 credits
Fundamentals of typography. Emphasis is on the structure and form of type and how it is used in contemporary graphic design. Projects explore the history of type, and the creation of type design.

10-201-110 Typography 2 3 credits
Through lecture, demonstration and the use of Macintosh computers to complete practical exercises and projects, the student is introduced to type history, development, terminology and effective type usage in graphic design. Prerequisites: 10-201-102, 10-201-109 and 10-201-161.

10-201-111 Illustration 2 2 credits
One-color through full-color illustration is covered. Emphasis is placed on developing strong concepts and understanding how artwork is reproduced. Exploration of personal style and exposure to the history of illustration are also important components of this course. Prerequisites: 10-201-106, 10-201-112 and 10-201-117.

10-201-112 Color Media 3 credits
An understanding of color is achieved through the study and application of color systems and theory. A wide range of tools, techniques and media are used on a variety of assignments. Prerequisite: 10-201-102 and 10-201-103.

10-201-117 Illustrative Figure Drawing 3 credits
Incorporates traditional figure-drawing techniques and approaches with a concern for illustrative usage and figure indication for design and layout situations. Prerequisites: 10-201-102 and 10-201-103.

10-201-121 Graphic Design 1 3 credits
Develops two-dimensional design concepts as they relate to the professional design field. Assignments include the development of logos, corporate identity and page designs. Prerequisites: 10-201-102, 10-201-109, 10-201-110, 10-201-112, 10-201-135 and 10-201-181.

10-201-122 Graphic Design 2 2 credits
Focuses on two-dimensional advanced design problems using a broad range of design vehicles. Emphasis is on concepts, campaigns, and producing graphics for the student's portfolio. Prerequisites: 10-201-121, 10-201-128 and 10-201-182.

10-201-124 Advanced Problem/Illustration 2 credits
This course emphasizes the nature of the business of illustration. An understanding of the types of skills needed to work as an illustrator are explored in actual or realistic job situations and assignments. Importance is also placed on developing a strong, marketable style and producing portfolio quality samples. Major media explored reflects the interest and expertise of the instructor in given semester. May include oil, watercolor, acrylic, etc. Prerequisites: 10-201-106, Illustration 1 and 10-201-182 Advanced Computer Graphics.

10-201-127 Advanced Problem/Graphic Design 3 credits
Through lectures, group discussion, demonstrations, hand-cuts, field trips and guest visits/students, students are encouraged to develop necessary skills for independent, untutored problem solving. Students are challenged to produce professional solutions. Prerequisites: 10-201-128, Print Production 1 and 10-201-129, Graphic Design 1 and 10-201-182 Advanced Computer Graphics.

10-201-128 Print Production 1 3 credits
Practical training in layout and production of art: in a variety of increasingly complicated assignments, the student learns to solve realistic print design problems from rough layout through print-ready page production. Prerequisites: 10-201-110 and 10-201-136.

10-201-129 Print Production 2 3 credits
Student explores marketing, research, advertising concepts and alternative printing techniques through a variety of team and individual assignments. Activities related to assigned projects include tours, demonstrations, handouts, speakers and independent research. Both traditional and electronic methods are explored. Prerequisites: 10-201-128, 10-201-121 and 10-201-182.

10-201-136 Concept Development 3 credits
Introduces exercises and processes to foster creativity and the development of unique ideas for graphic design and advertising applications. Emphasis is placed on improving research, brainstorming, writing, speaking and critical thinking skills. Working individually or in teams and in groups, students will come up with unexpected solutions to realistic and contemporary industry problems. Visual presentations cover a wide range of levels of finish and incorporate traditional and digital media and rendering techniques. Prerequisites: 10-201-102, 10-201-103, 10-201-109 and 10-201-181.

10-201-139 Design and Color 1 3 credits
Design and Color 1 provides reinforcement and exploration of the creative process, the traditional elements and principles of design, and various techniques for solving two-dimensional design problems.

10-201-162 Portfolio Preparation 2 credits
Students work to prepare a portfolio of their work for prospective employers. Students are supervised and assisted in choice and number of samples, and portfolio layout. Lectures are given on job interviewing and job markets. Departmental approval of a finished portfolio is required for graduation. Prerequisite: Students must be in final semester of Graphic Design Program.
10-201-177 Webpage Design 3 credits
During this course, students create several websites, increasing in complexity. Exploration and analysis of existing sites on the web will also be a focus, and source for information. This course uses HTML and focuses on basics, typography, graphics, page-layout and introduces how to create and incorporate animation as well as survey automated webpage layout software. Prerequisites: 10-201-181 and 10-206-105.

10-201-180 Graphic Design Internship 1 credit
Off-campus experience in a wide range of art studios, public institutions, or large corporate art departments and commercial art agencies. Prerequisites: Must be in final semester of program with a 3.0 GPA, must be taken concurrently with portfolio class and one faculty reference is required.

10-201-181 Introduction to Computer Graphics 3 credits
Introductory course in electronic design, illustration, photo retouch and publishing using the Macintosh computer and peripherals. Software applications introduced include raster programs (e.g, Adobe Photoshop), vector programs (e.g, Adobe Illustrator) and page-layout programs (e.g, Adobe InDesign and QuarkXPress).

10-201-182 Advanced Computer Graphics 3 credits
The students enhance their knowledge and skill in the use of design, illustration and page layout software through the creation of a variety of design projects. Emphasis on original, strong images and image integration, as well as preparing files for press. Prerequisites: 10-201-110, 10-201-136 and 10-201-181.

10-201-183 Electronic Illustration for the Web 2 credits
Focuses on illustration creation, preparation and integration into webpages. Drawing upon the students' understanding of rendering in vector (such as Adobe Illustrator) and raster (such as Adobe Photoshop) software applications, students create illustrations and graphics that demonstrate originality, creativity, conceptualization and technical skills. The student also illustrates in graphics software geared toward web illustration, such as Macromedia Fireworks. Prerequisite: 10-201-181.

10-201-184 Electronic Page Layout 1-2 credits
Emphasizes design and preparation of multiple-page publications incorporating text and graphic images, using sophisticated page layout software (e.g., QuarkXPress) on the Macintosh computer. Output includes high-resolution imaging. Prerequisites: 10-201-110 and 10-201-181.

10-201-185 Web Project Management 2 credits
Introduces working with website development teams and how to manage large projects from conceptualization to organizing content, developing architecture and page layout software through the creation of a variety of design projects. Emphasis on original, strong images and image integration, as well as preparing files for press. Prerequisites: 10-201-110, 10-201-136 and 10-201-181.

10-201-186 Advanced Page Design 3 credits
Continues to focus on design; page layout and graphic preparation skills necessary to produce full-functioning webpages. Students create several web examples, incorporating more complex features and skills. Practical exercises are implemented to focus on specific production skills. Design continues to be emphasized throughout exercises, critiques and demonstrations. Information is delivered primarily through lecture, demonstration and hands-on learning exercises. Prerequisites: 10-201-117, 10-201-181, and 10-201-195.

10-201-187 Emerging Trends in Web Design 1 credit
Exploration of trends and technologies currently effecting webpage creation as well as those on the horizon. Guest lectures, field trips and independent projects will be the primary course format. Prerequisite: 10-201-185.

10-201-189 Web Programming for Designers 3 credits
Teaches the fundamentals and techniques of basic programming for the World Wide Web. Topics include: Internet fundamentals, programming with HTML, frames, image map, web forms and controls, file transfer, Javascript and cgi. Prerequisite: 10-201-177.

203 Photography

10-203-105 Photographic Composition 2 credits
A survey of composition as an important tool of the photographer that helps to establish purpose and meaning to visual statement. Includes an introduction to the field of professional photography through the work of some noted photographers.

10-203-107 Studio Photography 1 3 credits
Basic theory and practical application in the use of lenses and light meters, exposure techniques and related image processing systems. Basic principles of the use of black and white film, film processing and creation of black and white prints are included. Corequisites: 10-203-120.

10-203-108 Studio Photography 2 3 credits
Continuation of Studio Photography 1 with emphasis on the portrayal of architectural forms, light and control of perspective. Prerequisites: 10-203-107 and 10-203-120.

10-203-109 Studio Photography 3 3 credits
Emphasizes photographic solutions for many occupational areas such as industrial and freelance. Students are encouraged to develop individual projects and their solutions. Prerequisites: 10-203-108 and 10-203-142.

10-203-120 Lighting Techniques 2 credits

10-203-121 Commercial Photography 1 3 credits
Professional digital photography with an emphasis on creating solutions for advertising and business illustration using advanced digital color and image manipulation techniques. Prerequisites: 10-203-108 and 10-203-141.

10-203-124 Portrait Photography 2 credits
Theory and principles of professional portrait photography. Studio and environmental portraiture, emphasis on lighting, posing and character analysis. Prerequisites: 10-203-108 and 10-203-141 or consent of instructor.

10-203-125 Business of Photography 1 1 credit
Survey of business practices in professional photography, includes ethical, legal, and copyright issues. Prerequisite: must be in first semester of required photo courses for the Photography Program.

10-203-126 Advanced Digital Studio Portraiture 2 credits
Develops advanced studio portrait skills utilizing digital capture equipment for photo output. Emphasis on special projects and cooperative shooting situations with other programs using a wide variety of tools, materials and techniques. Prerequisites: 10-203-108, 10-203-121, 10-203-142 and 10-203-152.

10-203-130 Intro to Digital Photography 2 credits
Provides an introduction to the photographic process through the use of digital cameras to produce images for presentations, the World Wide Web, and electronic publication. Covers basic principles of effective composition, light exposure and control of motion and focus. Basic of portraiture and product photography is studied in a studio environment. Participants provide their own digital camera. Prerequisite: 10-201-161 or concurrent enrollment in 10-201-161.

10-203-141 Color Photography 1 3 credits
Basic introduction to additive and subtractive color theory using digital techniques and color principles. Image capture, manipulation and output will be covered. Prerequisites: 10-203-107 or consent of instructor.

10-203-142 Color Photography 2 3 credits
Covers advanced color theory and advanced principles of digital color systems. Advanced digital color workflow, examination of capture, manipulation and output systems and professional color management principles will be part of the course. Prerequisites: 10-203-141 and 10-203-108.

10-203-173 Photomedia (Photography for Publication with the Visual Image) 2 credits
Photography for publication with the visual image used to relate events, ideas or circumstances. Students are exposed to techniques in which news stories can be communicated through visual images in print. Prerequisite: 10-203-107 or consent of instructor.
10-204-110 Lithographic Prepress Techniques 3
Plates for multicolored jobs to be run on small and large presses will be generated and incorporated into the prepress process with computer-to-plate technology. Covers related proofing systems. Prerequisite: 10-204-117. Corequisite: 10-204-139.

10-204-111 Lithographic Prepress Techniques 4
An advanced course in lithographic prepress operations. Film for multicolor jobs will be generated conventionally and electronically, as well as assembled for running. Prerequisite: 10-204-110.

10-204-114 Prepress Preparation Techniques
An elementary course in type procedures. Students learn type terminology, identification and proper use. Simple projects on duplicator presses teach setup, single-color printing, cleanup, and press adjustments for high-quality printing. Emphasizes chemical identification, selection, and proper handling; pressroom procedures; safety issues; and OSHA standards. Corequisites: 10-204-117 and 10-204-120.

10-204-116 Press and Finishing Techniques 1
Introduces small offset lithographic press operation, incorporating tool identification and proper use. Simple projects on duplicator presses teach setup, single-color printing, cleanup, and press adjustments for high-quality printing. Emphasizes chemical identification, selection, and proper handling; pressroom procedures; safety issues; and OSHA standards. Corequisites: 10-204-117 and 10-204-120.

10-204-118 Press and Finishing Techniques 2
Students perform basic support operations for electronic image production. The emphasis is on single-color jobs for portrait presses in a film-based workflow. Corequisites: 10-204-114 and 10-204-120. Imposition software is introduced.

10-204-120 Electronic Prepress for Printers
Introduction to computer-prepress systems for the graphic arts industry. Covers basic computer terminology, hardware, and software functions. Students use QuarkXPress to create basic layouts, navigating them through an electronic environment using file serving and print serving/printing technology. Projects and discussion integrate computer output with image assembly for the offset sheet-fed lithographic printing process. Corequisites: 10-204-114 and 10-204-117.

10-204-128 Press and Finishing Techniques 3
Students produce plates for small presses with imposed film generated electronically as well as with computer-to-plate technology. Covers various proofing systems. Prerequisite: 10-204-117. Corequisite: 10-204-126.

10-204-129 Advanced Electronic Imaging
An advanced course in computer imaging for printers. Instruction continues in Quark, Illustrator, and Photoshop. Scanning, imposition, and trapping techniques are also incorporated into jobs. Projects are designed to integrate into other courses for production. Prerequisites: 10-204-138 and 10-204-110.
208 Visual Communications—Media Design

10-206-104 Internship 1 credit
Students work for a total of 72 hours in a professional setting to gain experience outside of the classroom. Prerequisites: 10-206-180, 10-206-120, 10-201-177, 10-206-107 and third semester standing.

10-206-105 Communication Design 3 credits
Includes projects dealing with typographic and pictorial elements. Projects include single page layouts, smaller design and poster design, brochures, newsletters and letterhead and logo designs.

10-206-107 Presentation Design 3 credits
Emphasizes presentation design and graphics for projected media including design and use of PowerPoint. Design techniques for various types of data are included.

10-206-108 Digital Drawing and Design Fundamentals 3 credits
Provides involvement with the creative process, the traditional elements and principles of design and various techniques for solving two-dimensional design problems. These design concepts are taught on the computer and traditional media.

10-206-109 Intro to Electronic Design 2 credits
Provides students with a background in two-dimensional digital design using Adobe Photoshop and also covers basic techniques in scanning, outputting digital images and preparing image files for use on the World Wide Web.

10-206-110 Introduction to 3D 3 credits
Uses computer 3D Modeling software to create visual displays in full three-dimensional space. An emphasis on 3D visualization, sketches, and planning drawing includes preparation for constructing the 3D models. Prerequisites: 10-201-181, 10-206-180 and basic animation techniques.

10-206-117 Audiovisual Techniques 1 3 credits
This course will focus on photographic and electronic equipment for digital data manipulation and data structures. Topics also cover dealing with the digital image, related to on-screen presentations (PPT, Photo, PowerPoint), browser and file management (Adobe Bridge), workflow, and best practices.

10-206-120 Prod., Planning and Control 3 credits
The student develops a basic understanding of the media production process, budgeting, task analysis, time management and design team responsibilities. Prerequisites: 10-201-181, 10-206-107.

10-206-125 Instructional Media Systems 3 credits
Students are trained in the planning processes and media selection. Projects include graphic user interface, learning center design and design structures. Prerequisites: 10-201-181, 10-206-180 and 10-206-120.

10-206-130 Video Production 1 3 credits
Surveys the principles of telecasting operations, including camera techniques, lighting, sound film, settings, scenery, floor directing, script, art, and on-camera performance. Lectures, readings, assignments and projects provide understanding of the television industry, its history, development and principles of operation.

10-208-131 Sound Production Techniques 2 credits
Teaches the techniques of sound recording and multi-track mixing for productions, including narration, location recording and music mixing. Digital sound mixing for computer presentations is included in this course. Prerequisites: 10-201-181, 10-206-107.

10-208-134 Electronic Imaging 3 credits
This course explores advanced computer skills, issues and skills unique to electronic image handling, utilization of image enhancement software, operation of desktop scanners as input devices, presentation of image for the world wide web, and legal and ethical issues regarding electronic image handling and manipulation. Prerequisites: 10-206-108 and 10-206-141.

10-206-135 Multimedia Presentations 3 credits
The design and production of media using computer animation, including computer presentation and interactive media design. Prerequisites: 10-206-130, 10-206-160, 10-206-137 and 10-206-177.

10-206-137 Web Animation 2 credits
Web animation teaches animation techniques for webpage design using Flash and Fireworks. Prerequisite: 10-201-181.

10-206-139 Electronic Imaging 2 3 credits
A continuation of Electronic Imaging, this course places an emphasis on press issues as they impact the printed reproduction of photographic images. Advanced imaging techniques are also explored. Prerequisite: 10-206-134, Electronic Imaging.

10-206-140 Portfolio Preparation 2 credits
Students work to prepare a sample portfolio of their work for prospective employers. Students are supervised and assisted in the choice of samples, number of samples and design of portfolio. Lectures are given on job interviewing and job market trends. Departmental approval of a finished portfolio is required for graduation. Prerequisites: 10-206-136 and students must be in the final semester of the Visual Communications Program.

10-206-142 Digital Video Prod and Editing 3 credits
Digital Video Production and Editing is an advanced course in documentary, short film and motion graphics production. Building on the skills learned in Video Production 1, this course emphasizes advanced editing and video graphics. Prerequisites: 10-201-181, 10-206-107, 10-206-130 and 10-206-131.

10-206-149 Advanced Media 3 credits
Students create visual solutions using electronic methods of image manipulation. Adobe Photoshop allows the students to create composite and re-touch images suitable for strengthening their portfolios. Prerequisites: 10-201-181, 10-206-105.

10-206-160 Advanced Web Animation 3 credits
Takes the student through the basics of two-dimensional animation and interactivity for the web. Software applications, such as Macromedia Flash, are used to create interactive webpages. Techniques in 2D animation creation, scripting, design concepts, site organization, file optimization and uploading, and working with sound files are covered. Prerequisites: 10-201-177, 10-201-181.

207 Animation

10-207-110 Introduction to Animation 3 credits
General overview of professional animation, including current industry standards and practices. Students begin a basic study of motion dynamics based largely on the industry's "Fundamental Principles of Animation," presented through a combination of lecture and demonstration and continual analysis of existing professional animation. Contemporary standards, definitions, workflows, etc. are discussed as well as job organization and job-tracking skills, and translation of basic motion principles into digital 3D space. Corequisites: 10-201-103 and 10-207-111.
10-207-111 Introduction to Digital 3D 3 credits
A foundation introduction to digital 3D. Students learn to organize electronic files and projects into a professional workflow, and to electronically navigate Cartesian space. Class activities include the basics of digital modeling and surfacing, and the translation of 2D pre-plot work into 3D prototypes. Corequisites: 10-201-103 and 10-207-110.

10-207-120 Animation 2 3 credits
Continuation of the study of motion with emphasis on character movement and animation. A combination of lectures and class demonstration introduces students to forward- and inverse-kinematics, and gradually more complex character rigging. The continued study of body mechanics and dynamics by analyzing classical and contemporary professional animation will assist students in translating their own ideas into credible motion in digital form. Prerequisites: 10-201-103, 10-207-110 and 10-207-111.

10-207-121 Digital Cinematography 2 credits
Digital cinematography is a comprehensive study of lighting and camera techniques based on professional practices in the traditional film and video industries. The course includes a detailed study of film, TV and video samples that will guide students through their own exploration of digital light and cameras as they work through a series of assignments requiring certain effects in their own digital sets and scenes. Prerequisite: 10-207-111.

10-207-122 Advanced Digital 3D 3 credits
A continuation of Introduction to Digital 3D, this course moves students into more complex modeling and surfacing challenges. Specialized techniques such as patch- and advanced spline-modeling are explored as well as specialized shaders, displacement maps, and other advanced surfacing options. Students complete the semester with the design and creation of a complex, multi-part object correctly constructed, linked and boxed for advanced animation techniques. Prerequisites: 10-201-103, 10-207-110 and 10-207-111.

10-207-130 Level and Set Design 2 credits
Students concentrate on the planning and construction of architectural and environmental forms to create sets and backgrounds for animation projects. Basic architectural principles as they relate to animation and appropriate effects for specific themes are explored as well as environmental factors relating to the creation of credible worlds. Class activities include the exploration of specialized perspective problems, world-specific texture-sets, lighting and composition. Prerequisites: 10-201-103 and 10-207-122.

10-207-131 Animation 3 3 credits
By exploring various off-computer techniques for analyzing character motion, students practice translating their observations into digital form and applying them to their own creations. Extensive study of actual footage and professional work helps students make the conceptual transition from real-world to believable virtual motion. Prerequisites: 10-207-123, 10-207-122 and 10-207-151.

10-207-132 Digital Post Production 2 credits
Students in Digital Post Production experiment with final output and effects options for creating actual demo animation reels or disks. Project organization, electronic and paper is emphasized, along with the basics of non-linear editing, special effects, titles and credit creation, and the final stages of composing. Prerequisites: 10-207-110 and 10-207-111.

10-207-140 Advanced Animation Studio 1 3 credits
This is the first class in a two-part comprehensive animation studio series. It is a project-based course in which students develop their own projects in consultation with instructors. Extensive studio time provides advanced students with large blocks of instructor and equipment access and allows an in-depth study of particular aspects of digital 3D targeting the completion of a professional quality demo-reel. Group study and interaction is encouraged and detailed job tracking is required. Prerequisites: 10-207-120, 10-207-122, 10-207-150.

10-207-141 Animation 4 3 credits
Animation 4 is an advanced course in the manipulation of 3D technology. The focus of this course is to develop more intricate and complex character development. Emphasis is placed on the selection and manipulation of sounds, voices and idiosyncratic movements to produce personality types and scenarios. Prerequisites: 10-207-120, 10-207-122, and 10-207-151.

10-207-142 Animation Internship 1 credit
Students work on-site in a professional setting or work on a specific task in consultation with a professional mentor. Regular reviews with a professional are scheduled to assess the student's progress and work quality. Details of internship arrangements can be developed between the student and the participating company as long as specific minimum course requirements are fulfilled. Prerequisite: final semester in program and registration in 10-207-143.

10-207-143 Animation Portfolio 2 credits
Each student finalizes a series of short animations to be included in a final 3- to 4-minute demo-reel demonstrating his/her capabilities. The collection is prepared for distribution to potential employers or to four-year animation degree programs for continued education. In addition, each student prepares a professional-level 2D portfolio and a personal ID package (stationary, business cards, etc.) and is required to participate in the class preparation for the year-end portfolio show by conjunction with the other art degree programs. Prerequisites: 10-207-131 and final semester status.

10-207-144 Advanced Animation Studio 2 3 credits
This is the second class in a two-part comprehensive animation studio series. It is a project-based course in which the students develop their own projects in consultation with instructors and industry professionals. Extensive studio time provides advanced students with large blocks of instructor and equipment access, and allows an in-depth study of particular aspects of digital 3D targeting the completion of a professional-quality demo-reel. Group study and interaction is encouraged and detailed job tracking is required. Prerequisites: 10-207-131 and 10-207-140.

10-207-150 Animation Concepts 1 2 credits
Students will work to develop their concepts into finished images, working traditionally and on the computer. The course will concentrate on the development of these skills through the exploration of different topics and projects relevant to professional animation. Course emphasis will be placed on architectural ideas, working machines, modes of transportation, and other subjects related to the creation of credible and functional environments. Prerequisites: 10-201-103 and 10-201-139.

10-207-151 Animation Concepts 2 2 credits
Students will work to develop character concepts into finished images, working traditionally and on the computer. The course will concentrate on the development of these skills through the exploration of different topics and projects relevant to professional animation. Course emphasis will be placed on character development, functional body-mechanics, personality traits and other subjects related to the creation of the illusion of life. Prerequisites: 10-201-117 and 10-207-150.

10-207-152 Advanced Animation Workshop 1-2 credits
Topic will vary and will be announced at time of offering.

304 Interior Design

10-304-100 Introduction to Interior Design 1 credit
Focuses on the interior design profession, including the definition and history of interior design, the personal qualities and aptitudes of the interior designer, and professional organizations. The broad range of career opportunities and tasks performed by the interior designer is also explored.

10-304-102 Fundamentals of Design 3 credits
This course covers the principles and elements of design that form the conceptual basis from which to solve and evaluate design problems.

10-304-104 Basic Drafting 3 credits
Students learn to use basic drafting equipment and the symbols and language of building construction. Students sketch and draft interiors in plan and elevational views.

10-304-105 Interior Components 1 2 credits
Basic elements and materials of interior design are studied: house plans and styles, decorating styles, furniture types and construction, upholstery, wall finishes, ceiling materials and accessories.
10-304-107 Interior Design Textiles 2 credits
Students study fibers, yarns, fabric construction and terminology, finishes, and performance criteria. Emphasizes specification of textiles for interior design applications.

10-304-109 History of Architecture and Interiors 1 2 credits
Students study art, architecture and furniture from the Egyptian through the Baroque period.

10-304-120 Interior Design CAD 2 credits
This course is a basic introduction to AutoCAD used in the field of Interior Design. Applications covered include equipment overview, Windows, computer terminology and use of the current version of AutoCAD. Major emphasis will be on learning AutoCAD commands, menus and input needed to generate 2D drawings used in the industry. Emphasizes mastering a basic level of proficiency. Prerequisites: 10-304-104.

10-304-122 Perspective Lab 1 credit
The focus of this course is on the development of skill in sketching and drafting. Interiors in one and two point perspective and isometrics. Prerequisites: 10-304-104.

10-304-124 Presentation Techniques 2 credits
Students develop skill and speed in drawing, rendering, and board preparation for interior design presentations. Students gain awareness of the various media available and participate in the application of pencil and marker techniques. Prerequisites: 10-304-122.

10-304-125 Space Planning 3 credits
Explores human factors, codes, regulations and standards, and barrier-free design as they relate to furniture arrangement and planning interior space. Projects take the student from the programming stage through the preliminary design of both residential and commercial spaces. Students use various problem-solving conventions and methods to aid in the exploration of design solutions. Prerequisites: 10-304-102 and concurrent enrollment in 10-304-122.

10-304-127 Interior Components 2 3 credits
Continues the study of the basic materials used in interior design, focusing on window treatments and floor coverings. The features, applications, and calculations of each product are covered. Prerequisites: 10-304-105 and 10-304-126.

10-304-129 History of Architecture and Interiors 2 3 credits
Students study art, architecture and furniture from the Rococo period through the 20th Century. Prerequisites: 10-304-109.

10-304-132 Kitchen and Bath Design 3 credits
Focuses on designing kitchens and baths, including the specification of cabinets, countertops, appliances, fixtures, materials and finishes. In addition, students develop the CAD skills necessary to produce typical project drawings and documentation for a kitchen design problem using a kitchen cabinet software package. Prerequisites: 10-304-124, 10-304-127, 10-304-125 and concurrent enrollment in 10-304-135.

10-304-133 Commercial Design 5 credits
Focuses on the design, specification and documentation of commercial office spaces using conventional furniture and open office systems. Students apply their knowledge of materials, finishes, furniture, lighting and building construction through all phases of the design process. In addition, students develop the CAD skills necessary to produce typical project drawings and documentation for a comprehensive commercial design problem. Prerequisites: 10-304-120, 10-304-124, 10-304-127, 10-304-125 and concurrent enrollment in 10-304-135.

10-304-135 Lighting 2 credits
This course focuses on light sources, luminaire options, the quality and quantity factors of lighting specification, and the lighting plan and schedule. Students design and specify a residential lighting plan as well as plan and execute a lighting scenario in the lighting lab. Prerequisites: 10-304-120.

10-304-142 Professional Practice 2 credits
Covers essential interior design business practices and procedures, including business formations, fees, contracts, project management, business forms and record keeping. Prerequisites: 10-304-100, 10-304-132 and 10-304-113.

10-304-143 Advanced Interior Design 2 credits
Students demonstrate their accumulated skills through the resolution of a comprehensive residential design project. Students prepare a portfolio for presentation at the Interior Design Portfolio Show. Prerequisites: 10-304-129, 10-304-132 and 10-304-133.

10-304-145 Interior Design Internship 3 credits
Students work in an interior-design-related business to gain practical knowledge of the interior design skills learned in the classroom. Students meet once a week to discuss their intern-ship work experiences. Prerequisites: consent of instructor.

307 Early Childhood Education

10-307-125 ECE: Health Emergencies 1 credit
This course meets for a total of 36 hours and provides certification through the American Red Cross for Standard First Aid and CPR Professional. The CPR portion covers choking emergencies, respiratory arrest, and cardiac arrest. The First Aid portion covers traumatic Injuries, and health emergencies, e.g. sudden illness.

This course introduces the early childhood professional. Course competencies include: Integrate strategies that support diversity and anti-bias perspectives; investigate the history of early childhood education; summarize types of early childhood education settings; identify the components of a quality early childhood education program; summarize responsibilities of early childhood education professionals; explore early childhood curriculum models.

10-307-151 ECE: Infant and Toddler Development 3 credits
In this course you will study Infant and toddler development as it applies to an early childhood education setting. Course competencies include: analyze development of infants and toddlers (conception to three years); correlate prenatal conditions with development; summarize child development theories; analyze the role of heredity and the environment; examine research-based models; examine culturally and developmentally appropriate environments for infants and toddlers.

10-307-165 ECE: Curriculum Planning 3 credits
This course examines the components of curriculum planning in early childhood education. Course competencies include: examine the critical role of play; establish developmentally appropriate environment; examine care giving routines as curriculum; develop activity plans and skill plans that promote child development and learning; analyze early childhood curriculum models.

10-307-167 ECE: Health, Safety and Nutrition 3 credits
This course examines the topics of health, safety and nutrition within the context of the early childhood educational setting. Course competencies include: follow governmental regulations and professional standards as they apply to health, safety and nutrition; provide a safe, healthy and nutritionally sound early childhood program; adhere to child abuse and neglect mandates; apply Sudden Infant Death Syndrome (SIDS) risk reduction strategies; incorporate health, safety and nutrition concepts into the children's curriculum.

10-307-174 ECE: Practicum 1 2 credits
In this practicum course you will learn about and apply the course competencies in an actual childcare setting. This first of four training experiences develops skill in interacting with children and staff. MATCs will establish a developmentally appropriate environment; develop activity plans that promote child development and learning; analyze care giving routines as curriculum; create developmentally appropriate language, literature and literacy activities; create developmentally appropriate art, music and movement activities. Prerequisites: 10-307-166.

10-307-178 ECE: Art, Music and Language 3 credits
This course will focus on beginning level curricula development in the specific content areas of art, music and language arts. Course competencies include: examine the critical role of play; establish a developmentally appropriate environment; develop activity plans that promote child development and learning; analyze care giving routines as curriculum; create developmentally appropriate language, literature and literacy activities; create developmentally appropriate art, music and movement activities. Prerequisites: 10-307-166.
10-307-179 ECE: Child Development 3 credits
The course examines child development within the context of the early childhood education setting. Course competencies include: analyze social, cultural, and economic influences on child development; summarize child development theories; analyze development of children age three through age eight; summarize the methods and designs of child development research; analyze the role of heredity and the environment.

10-307-187 ECE: Children with Differing Abilities 3 credits
This course focuses on the child with differing abilities in an early childhood education setting. Course competencies include: provide inclusive programs for young children; apply legal and ethical requirements including, not limited to, ADA and IDEA, differentiate between typical and exceptional development; analyze the differing abilities of children with physical, cognitive, health/medical, communication, and/or behavioral/emotional disorders; work collaboratively with community and professional resources; utilize an individual educational plan (IEP/IPSP) for children with developmental differences; adapt curriculum to meet the needs of children with developmental differences; cultivate partnerships with families who have children with developmental differences.

10-307-188 ECE: Guiding Children’s Behavior 3 credits
This course examines positive strategies to guide children’s behavior in the early childhood education setting. Course competencies include: summarize early childhood guidance principles; analyze factors that affect the behavior of children; practice positive guidance strategies; develop guidance strategies to meet individual needs; create a guidance philosophy.

10-307-192 ECE: Practicum 2 3 credits
In this second training experience, students apply the knowledge and skills acquired in Practicum 1 and related class work under the supervision of MATC faculty and teacher-caregivers at centers. Planning and implementing activities are included and conferences are scheduled to help students. Prerequisite: 10-307-174.

10-307-194 ECE: Math, Science and Social Studies 3 credits
This course will focus on beginning level curriculum development in the specific content areas of math, science, and social studies. Course competencies include: examine the critical role of play; establish a developmentally appropriate environment; develop activity plans that promote child development and learning; create developmentally appropriate math, science, and social studies activities. Prerequisite: 10-307-166.

10-307-195 ECE: Family and Community Relations 3 credits
In this course you will examine the role of relationships with family and community in early childhood education. Course competencies include: analyze contemporary family patterns, trends, and relationships; utilize effective communication strategies; establish ongoing relationships with families; advocate for children and families; work collaboratively with community resources.

10-307-197 ECE: Practicum 3 3 credits
In this third training experience, students continue to develop teacher-caregiver skills. One week of head teaching is required. Prerequisites: 10-307-174 and 10-307-192.

10-307-188 ECE: Administration of an Early Childhood Education Program 3 credits
This course focuses on the administration of an early childhood education program. Course competencies include: analyze the components of an ECE facility; design an ECE program; analyze the personnel level; outline financial components of an ECE program; apply laws and regulations related to an ECE facility; advocate for the early childhood profession.

10-307-189 ECE: Practicum 4 3 credits
This final training experience includes two weeks of head teaching, stresses staff-parent communication and may be designed to coordinate with student’s choices of career specializations. Prerequisites: 10-307-174, 10-307-192, and 10-307-197.

313 Dietetic Technician
10-313-168 Nutrition for Dietetics 3 credits
A study of nutrients, nutrient metabolism and nutrition resource materials prepares the student to analyze the nutritional needs of individuals and groups. Environmental factors affecting food availability, safety and selection are also discussed.

10-313-170 Food Science 1 credit
Students utilize scientific and medical nutrition therapy principles involved in the preparation of food to provide optimum nutrition and palatability. Laboratory preparation techniques emphasize food quality, sanitation and safety.

10-313-171 Principles of Sanitation 1 credit
Covers good service sanitation principles and the role of food service personnel in the prevention of contamination and food borne illness. Emphasis is directed toward food service in health care facilities. Certification through the Educational Foundation of the National Restaurant Association is a requirement for completion and can be used to apply for state certification.

10-313-172 Dietetic Technician Orientation 1 credit
The policies of MATC, the Dietetics program, and the American Dietetic Association are explained. Students identify and observe standards of practice to function with the health care team and to understand the health care system. Math calculations and vital signs used in nutritional assessments are introduced.

10-313-174 Medical Terminology for the Dietetic Tech. 1 credit
Students study the components of medical words to learn medical terminology for communication with the members of the health care team. Emphasis is placed on recognition, pronunciation, definition and spelling of terms and abbreviations.

10-313-175 Nutrition & Body Structure 2 credits
A concise introduction to human body structure. Normal and abnormal states of the body and basic disease processes affecting the role of nutrients influencing body structure are emphasized. Common problems encountered in a variety of health care settings are presented.

10-313-176 Nutrition in the Life Cycle 3 credits
The nutrient and nutritional counseling needs for normal growth and optimal health throughout the life cycle are explored. Prerequisite: 10-313-168.

10-313-177 Food Service Management 1 3 credits
Basic principles of food preparation and service are reviewed and applied in a quantity food production unit. Adjunct operational principles of menu planning, procurement, quality assurance, training, sanitation and safety are applied. Prerequisites: 10-313-171 and 10-313-170 or concurrent registration in 10-313-171 and 10-313-170.

10-313-178 Food Service Management 2 3 credits
Students learn management techniques to select and train employees, maintain departmental records, purchase food and supplies, supervise meal service, plan meetings, analyze, correct problems and develop interpersonal communication. Prerequisites: 10-313-178 or concurrent registration in 10-313-178.

10-313-180 Coordination Practice 1 3 credits
Through clinic experiences, students learn management techniques to maintain departmental records, purchase food and supplies, supervise meal service, plan meetings, analyze, correct problems and develop interpersonal communication. Prerequisites: 10-313-178 or concurrent registration in 10-313-178.

10-313-184 Medical Nutrition Therapy 1 3 credits
Students develop knowledge and skills relating to the principles and methods of diet as a therapeutic tool in various disease conditions, including obesity and overweight, diabetes mellitus, and cardiovascular diseases. Prerequisite: 10-313-176.

10-313-186 Nutrition in the Life Cycle 3 credits
The nutrient and nutritional counseling needs for normal growth and optimal health throughout the life cycle are explored. Prerequisite: 10-313-168.

10-313-197 Nutrition in the Life Cycle 3 credits
The nutrient and nutritional counseling needs for normal growth and optimal health throughout the life cycle are explored. Prerequisite: 10-313-168.
10-313-188 Coordinated Practice 2
3 credits
Students are affiliated in area health care facilities for 128 hours. They are provided with opportunities to apply the skills and knowledge necessary to meet the nutritional care needs of individuals and the food service management responsibilities of the facility. Prerequisite: 10-313-162 and concurrent enrollment in 10-313-184.

10-313-190 Eating Behaviors Counseling
3 credits
Teaches students how to facilitate change in clients' eating behaviors by providing related methods and interventions. A combination of education (what to do) and behavioral (how to do it) approaches to effectively improve food and health behavioral changes. Prerequisite: 10-313-168 or instructor's consent.

10-313-191 Medical Nutrition Therapy 2
4 credits
A continuation of Medical Nutrition Therapy 1. Topics covered include the nutritional management of diseases of the digestive tract and organs, cancer, renal disease and other miscellaneous disease conditions, as well as the role of the dietetic technician in nutritional support. Prerequisite: 10-313-184.

10-313-192 Community Nutrition
2 credits
Students learn, through classroom discussions and field trips, to identify and plan the nutritional and educational needs of community groups, including the utilization of local, state, and federal nutritional education and food supplement programs. International and ethnic nutrition concerns will be explored. Prerequisite: 10-313-178.

10-313-196 Seminar in Dietetics
2 credits
Each student develops an in-depth seminar on a current topic in dietetics and presents it as a small group facilitator and discussion leader. Methods of pursuing and obtaining career opportunities are also identified. Prerequisites: concurrent enrollment in 10-313-192 and 10-313-198.

10-313-198 Nutrition Practicum
4 credits
This field experience is designed to simulate an actual employment situation. Students are affiliated for 280 hours. Individualized field placement is coordinated by the dietician faculty in a health care facility or community nutrition program. The student applies previously acquired knowledge and skills on the job. Nutrition education is practiced both in group and individualized settings. Prerequisite: successful completion of all first semester, second year Dietetic Technician courses and concurrent enrollment in 10-313-196.

314 Baking/Pastry Arts

31-314-315 Introduction to Baking
2 credits
Students develop a foundation of baking principles through hands-on application of production equipment in a state-of-the-art baking lab. Students will prepare a variety of standard bakery products to enhance knowledge of many baking processes. Safe use of bakery equipment and proper sanitation procedures are emphasized. Prerequisite or concurrent enrollment in 10-316-101 and 10-316-108.

31-314-326 Pastries and Yeast Doughs
4 credits
Develops manual baking skills and a working knowledge of the production and finish of various pies and tart crusts, fillings, and sponge and puff pastries. Basic straight yeast dough such as breads, rolls, and sweet dough will also be produced. Students learn to master machinery and machine methods in the make-up of these products. Prerequisite: or concurrent enrollment in 10-316-101 and 10-316-108.

31-314-325 Artisan Breads and Breakfast Pastries
4 credits
Provides a working knowledge of the production of pre-fermented yeast doughs and sourdoughs. In addition, students produce such yeast laminated doughs as croissant, Danish and Kringle. Ethnic baking and healthy baking are also covered. Prerequisite: concurrent enrollment in 10-316-101. Prerequisite: 31-314-325 or prior commercial baking experience (requires consent of instructor).

31-314-335 Specialty Cakes and Miniatures
2 credits
Offers students more advanced aspects of production baking. Products made include various types of foam cakes, creamed cakes, icings and fillings. European, as well as American style cake finishing will be demonstrated with lab time for practice. An assortment of miniature bakery products will be produced. Prerequisite or concurrent enrollment in 10-316-101 and 31-314-315.

31-314-336 Artisan Breads and Breakfast Pastries
4 credits
Provides a working knowledge of the production of pre-fermented yeast doughs and sourdoughs. In addition, students produce such yeast laminated doughs as croissant, Danish and Kringle. Ethnic baking and healthy baking are also covered. Prerequisite: or concurrent enrollment in 10-316-101. Prerequisite: 31-314-325 or prior commercial baking experience (requires consent of instructor).

31-314-355 Bakery Production
2 credits
Students make items with an emphasis on production speed. The lab operates as a simulated bakery with products for sale through the bakery store. Students are responsible for service case presentation as well as effective merchandising displays. Prerequisites: first semester bakery labs (31-314-315 and 31-314-325).

31-314-366 Chocolate Basics
1 credit
Gives learner a basic introduction into the world of chocolate. The history and production of chocolate is discussed. Learners sample a wide variety of chocolates from different companies, as well as specific types of chocolate. Brownies, mousse and hot chocolate are made using these different chocolates and the products are evaluated. After learning to temper chocolate, an assortment of truffles is produced. Prerequisite or concurrent enrollment in 10-316-101.

31-314-370 Chocolate Confections
1 credit
This course builds on competencies learned in Chocolate Basics. Advanced techniques of candy making are practiced such as hand dipped centers, caramel making and chocolate molds. Prerequisite: 31-314-365.

31-314-372 Chocolate & Sugar Confections
1 credit
Chocolate Clay is prepared and made into such items as ribbons, curls and roses. Piped decorations are made and chocolate spraying is practiced. Basic sugar techniques, such as pounced, blown and pulled sugar are practiced. Students create chocolate and sugar showpieces as final projects. Prerequisites: 10-316-365 and 10-316-370.

31-314-375 Experimental Baking
1 credit
Provides the opportunity to discover foods of ingredients through lab experiments. Ingredient amounts and procedures are varied in specific formulas and results are observed to determine optimum formulation. Prerequisite: 10-316-101 and 10-316-108.

31-314-384 Cake Decorating
2 credits
Provides students with hands-on practice in the basics of production cake decorating and decorative bakery work, with attention given to the techniques of iced cakes. Cake decorating areas include script, borders, drop and nail flowers, as well as the use of edible images. Students practice icing cakes and decorating them in a timely manner. Emphasis is placed on accuracy and speed of decorating to simulate industry conditions. Prerequisite or concurrent enrollment in 10-316-101 or consent of instructor.

31-314-386 Plated Desserts
2 credits
Provides hands-on practice with pastry and decorative bakery work. Students learn all aspects of plated dessert techniques from plate selection to product design and appropriate garnishing. Students are required to complete a pastry buffet. Prerequisites: 31-314-315, 31-314-325 and 10-316-101.

31-314-388 Advanced Cake Decorating
2 credits
Hands-on practice with advanced cake decorating techniques is provided. Rolled fondant, modeling with gum paste and marzipan, advanced air brushing and tiered cake assembly are covered. Prerequisites: 31-314-384 and 10-316-101 or consent of instructor.

31-314-389 Bakery Seminar
1 credit
Covers current and relevant issues as they relate to baking and pastry arts. Guest professionals provide expertise and knowledge about specific areas in the baking industry. In-depth research is conducted on selected topics. A research paper is required. Must be taken in final semester of Baking/Pastry Arts program.

31-314-390 Baking Internship
2 credits
Provides an opportunity to gain practical work experience through supervised internship at approved job sites. Students develop written competency plans with individualized objectives that complement and enhance instruction given in bakery labs. Prerequisite: completion of all core courses in the Baking/Pastry Arts program or consent of instructor.
316 Culinary

10-316-101 Principles of Sanitation 1 credit
Covers food service sanitation principles and the role of food service personnel in the prevention of contamination and food borne illness. Certification through the National Restaurant Association Educational Foundation is a requirement for completion and can be used to apply for state certification.

10-316-104 Introduction to Gourmet Food Preparation 3 credits
Provides students with an introduction to classical and ethnic cooking techniques common to full-service restaurants. Students will have an opportunity to apply and develop skills in the MATC Gourmet Dining Room, a simulated restaurant environment. Prerequisite: grade of C or better in all first-year lab courses and concurrent enrollment in 10-316-132 and 10-316-140.

10-316-106 Food Theory 2 credits
This lecture class teaches students basic culinary technique, classifications, equipment identification, and all rudimentary aspects of professional cooking. Discussion includes culinary history, food group identification, and raw and cooked food classifications. Topics also cover stock making, knife skills, and equipment operation. Corequisites: 10-316-111.

10-316-108 Baking Theory 1 credit
Provides a general understanding of basic baking principles and knowledge of the functions and appropriate usage of the major ingredients used in production baking. Different types of bakery products are classified according to their characteristics. Ingredient cost-outs are calculated.

10-316-111 Professional Cooking 1 4 credits
Students apply classroom work and lectures into hands-on cooking situations. All methods of cooking are covered and knife skills and other vital techniques are reinforced. Students experience practical situations as they produce food in a simulated food service environment. Emphasis on regional cooking, fusion cooking, classical cuisine and Nouvelle cuisine. Students create menus from scratch and interpret more refined recipes. Prerequisite or concurrent enrollment in 10-316-101; concurrent enrollment in 10-316-108.

10-316-112 Cuisines of the World 4 credits
Students explore foods from North America and other prominent regions of the world. Course gives students the opportunity to further practice and reinforce cooking techniques and knife skills needed to produce stocks and sauces, starches, meats and other food items. Protein fabrication and heat transfer techniques are also covered. Prerequisite or concurrent enrollment in 10-316-101; concurrent enrollment in 10-316-108.

10-316-115 Culinary Baking Lab 2 credits
Introduces students to the fundamentals of production baking through hands-on application in a modern baking lab using production equipment. Students prepare a variety of standard bakery products, such as cookies, muffins, pies and breads, to obtain knowledge of the many processes of baking. Students also practice basic cake decorating techniques. Prerequisites: 10-316-101 and 10-316-108 or concurrent enrollment.

10-316-118 Meat Cutting 2 credits
Provides hands-on experience of cutting and fabricating wholesale cuts of meat. The importance of safety and hygiene, equipment utilization and yield costing are also discussed. Prerequisite: first-semester culinary lab course or previous knife skills.

10-316-121 Professional Cooking 2 4 credits
Continuation of 10-316-111 with emphasis placed on the demands of "cutting edge" cuisine. Students elevate their skills to such diversity as infusions, emulsions, terrines, reductions, and fat-free cuisine. Students interpret intense recipes, create dishes from scratch; and research international cuisine. Students prepare themselves for the rigor of the food service industry as they fine-tune all of their skills. Research will be done on modern cuisine and trends. "Great American Chef Tours" including examination of the culinary epicenters of New York, San Francisco, and New Orleans. Students learn the specialty of catering, gourmet store operation, and private chef occupations. Prerequisites: grade of C or better in 10-316-101, 10-316-106 and 10-316-111.

10-316-130 Gourmet Foods 4 credits
Expanding on the first semester of Intro to Gourmet Foods, students will incorporate the culinary skills they have learned over the last one-and-a-half of the culinary arts program. Utilizing up to date cooking techniques and following industry standards for high-end foods students will maintain all aspects of the kitchen with the utmost care. With an emphasis on working on presentation, flavors, cooking skills and time management students will gain a real work environment with the lab component of learning to prepare high-end foods.

Students are expected to have completed the first semester of Intro to Gourmet before entering the Gourmet Foods class.

10-316-132 Wait Staff Training 1 credit
Focuses on types of dining room service appropriate to various restaurant operations. Students gain understanding of relationship between "front" and "back" of the house. Corequisites: 10-316-104.

10-316-133 Garde Manger/Décorative Foods 2 credits
The art and craft of the cold kitchen as it applies to modern day chefs. Students will work with ice and learn a basic technique for carving ice. From the ice students will gain knowledge of the professional garde manger and all areas that are classified cold food. Understanding the science that is involved with garde manger and how to correctly prepare, store and use cold foods.

10-316-135 Dining Room Operations 1 credit
Students learn and practice the responsibilities common in dining room management. Various styles of table service, table-side presentations and beverage service are implemented. Corequisites: 10-316-130.

10-316-139 Catering 2 credits
Provides an understanding of catering concepts through demonstration and hands-on experience by completing various food functions. The events vary from black tie multi-course dinners for the community to BBQ lunches. Prerequisites: grade of C or better in 10-316-101 and 10-316-111.

10-316-140 Menu Planning 1 credit
Addresses advanced culinary terminology and principles of menu planning for various types of facilities and service. Students apply their skill in creating menus for the MATC Gourmet Dining Room.

10-316-145 Regional European Cuisine 1 credit
Hands-on application and interpretation of various regional dishes stretching from the delicate cuisine of the French Alpine area down to the robust, diverse cuisine of the Mediterranean. Focus will be placed on comparisons between cuisine of Northern Italy and Southern Italy. There will be discussion on how "Italian" cuisine has been influenced by France, Germany, Greece, and Spain and the transformation these regional cuisines took on when brought to the Americas. In addition to cooking, students will taste, examine, and critique authentic classical dishes throughout the semester. Prerequisite: first-semester culinary lab course or previous knife skills and 10-316-101.

10-316-152 Nutrition 2 credits
Provides information about nutrition as it applies to the food service industry. The six classes of nutrients are discussed as well as the latest guidelines set forth by governmental agencies and health organizations. Students learn about healthful cooking methods needed to modify and create menus for specific health concerns. The role of diet in disease prevention is also discussed.

10-316-158 Food Purchasing Analysis 2 credits
Focuses on the mechanics of food and beverage purchasing: what and where to buy, the selection of suppliers, the various purchasing systems, and the practical aspects and legal considerations of food buying.

10-316-178 Americana Cuisine 2 credits
Students will learn the thin line that separates Americana Cuisine throughout North America-from southwest to Cajun and how certain foods have similar ingredients that carry through to other cooking styles. Students will also learn the history or roots of each particular style of cooking.

10-316-189 Breakfast and Lunch Cookery 2 credits
Students will learn the principles and techniques of breakfast and lunch food preparation in a simulated work environment. Products will include eggs, omelets, bacon, sandwiches, salads and salad dressing.
10-316-184 Culinary Internship
This course is designed to give students an opportunity to gain practical work experience through a supervised internship at an approved job site. This course is intended to complement and enhance program core courses. Selection of a site is based on the student's individual professional objectives. Prerequisites: for Culinary Arts students—grade of C or better in 10-316-111 and 10-316-121, 10-316-101, 10-316-115, 10-316-108 and 10-316-106; for Food Service Production students—grade of C or better in 10-316-111, 10-316-101, 10-316-115, 10-316-108 and concurrent enrollment in 10-316-121.

403 Drafting—Architectural
31-403-309 Codes and Regulations
2 credits
Units of instruction include zoning requirements, residential and commercial building codes, sanitary regulations, permit applications, building permits and inspection procedures. Contract documents and office practice are also discussed.

404 Automotive Technician
32-404-316 Accessories
2 credits
Students study equipment supplied by both the major manufacturers of automobiles and after-market suppliers. Classroom and lab activities help students understand basic electricity, electrical circuits and use of test equipment to troubleshoot problems in circuits such as lighting, windshield wipers, power windows, instruments and sound systems. Prerequisites: 32-404-319 or consent of instructor.

32-404-319 Heating and Air Conditioning
2 credits
Covers the basic principles of heating and air conditioning. Detailed studies of heating systems, air conditioning systems, including vacuum and electrical controls, and automatic temperature control systems are carried out in the classroom and the lab. Diagnosis and typical service jobs are done in the lab using up-to-date tools and diagnostic equipment. Students will receive State of Wisconsin AG 136.09 certification upon completion of this course. Prerequisites: 32-404-319 or concurrent enrollment.

32-404-319 Automotive Electrical/Electronics
3 credits
Because of the rapid advancement of electrical/electronic controls and systems within the contemporary automobile, the need for more advanced training of these systems is essential. Upcoming technicians within the service industry must become better acquainted with the application and diagnostic approaches to this complex subject area. Every system within the current and upcoming production vehicles will be electronically controlled or will be, at the very least, heavily influenced by this constantly evolving technology. This course will study the science of basic electricity through the application of advanced electronic controls. Sound basic diagnostic techniques are studied and practiced in the laboratory setting. Must complete this course with a grade of C or better.

32-404-335 Powertrain Management Systems
5 credits
All engine operating systems are studied: engine breathing, ignition systems, computer control and sensors, fuel and air management and emission systems. Students learn how these systems operate, how to test for proper operation of systems and components, and how to use test equipment. Prerequisites: 32-404-340, 32-404-319 or concurrent enrollment.

32-404-333 Engine Rebuilding
5 credits
Students become familiar with the tools, machines and equipment used to repair automotive engines. Emphasis is placed upon the development of diagnostic ability and work skills. Prerequisites: 32-404-340, 32-404-319, 32-404-335 or consent of Instructor.

32-404-339 Braking Systems
5 credits
This course covers fundamentals of automotive brake systems including drum brakes, disc brakes, hydraulic systems, power brakes and anti-lock systems. Covers wheel and tire diagnosis and repair. Steering and suspension safety inspection is covered. Laboratory work stresses brake overhaul and component reconditioning and troubleshooting of brakes. Prerequisites: 32-404-319 or concurrent enrollment.

32-404-340 Minor Repair
5 credits
The theory, design and operation of the automobile engine, along with maintenance, light-duty repair and safety inspection are studied. Engine lubricating, cooling, exhaust systems and headlight aiming are studied and serviced. Theory and proper use of hand tools, test equipment, seatbelts and fasteners are emphasized. Prerequisites: 32-404-319 or concurrent enrollment.

32-404-341 Suspension and Steering Systems
5 credits
Covers basic principles of passenger car construction, suspension and wheel alignment. Laboratory work stresses inspection, correction or replacement of all suspension parts and the role they play in proper vehicle handling and operation. Alignment procedures and the use of modern wheel alignment machines and troubleshooting are stressed. Prerequisites: 32-404-319 or concurrent enrollment.

32-404-355 Automatic Transmissions
6 credits
Students study the electrical, mechanical and hydraulic systems of the modern automatic transmission and transaxle. Demonstrations and practice provide the opportunity to become proficient in diagnosis, service and complete rebuilding of these systems. Prerequisites: 32-404-340, 32-404-319 or consent of Instructor.

32-404-356 Manual Drive Trains and Axles
4 credits
Clutches, standard transmissions, manual transaxles, drivelines and differentials are studied. Demonstrations and practice provide the opportunity to become proficient in diagnosis, service and complete rebuilding of these systems. Prerequisites: 32-404-340, 32-404-319 or consent of Instructor.

32-404-357 Driveability Diagnosis
5 credits
Practical application of principles, concepts and diagnostic abilities covered in the three prerequisite courses. Advanced electrical/electronic diagnostic applications will reinforce prior competency development. Prerequisites: 32-404-340, 32-404-319, 32-404-335 or consent of Instructor.

405 Auto Collision Repair and Refinish
31-405-374 Collision Repair Occupational Orientation
2 credits
A study of the operation of all departments of a collision repair center. Special attention is given to the business operations of paper flow, job costing, budget preparation, insurance and AG 132 law. The students receive specific occupational information that enables them to effectively seek employment in the collision repair industry. Personal data sheets, job interviewing techniques, letters of application, seeking references and writing resumes are covered. In addition, personal concerns such as finances, time management, first impressions and evaluating strengths and weaknesses are discussed. Prerequisites: 32-405-330, 32-405-331, 32-405-360, 32-405-361 and 32-405-363.

32-408-338 Collision Repair/Refinishing I
11 credits
Introduction to oxy-acylene welding and brazeing, with a heavy emphasis on ring welding techniques as related to the collision repair industry. Students learn the proper use of the hammer and dolly, other metal straightening tools and the process of metal finishing and plastic filling. The refinishing phase includes instruction in the proper use of the spray gun, refinishing panels and fenders, spot repairing of panels and fenders and blending and lining of paint. Shop and paint safety practices are emphasized. Corequisites: 32-405-361.

32-408-331 Collision Repair/Refinishing II
11 credits
Further development of welding, straightening and painting skills is achieved by performing these activities on automobiles. Such operations as welding on replacement panels, straightening of damaged sheet metal, complex refinishing, spot repair and panel repair are completed on vehicles. Supplementary operations include trim removal and minor mechanical. Further skill is developed in the use of hand and power tools. Paint mixing skills are also taught so that students can mix paint to acceptable color matches. Prerequisites: 32-405-330, 32-405-381; corequisites: 32-405-363.

20-316-200 Automotive Technician
3 credits
A course designed to teach the student the theory, operation and maintenance of the modern automotive air conditioning system. Students learn the rudiments of troubleshooting and repair of systems including theory and practical diagnosis of refrigerant systems. Theory and practice of electrical elements of systems are taught. Prerequisites: 32-404-319 or concurrent enrollment.

30-403-309 Architectural Drafting
2 credits
Units of instruction include zoning requirements, residential and commercial building codes, sanitary regulations, permit applications, building permits and inspection procedures. Contract documents and office practice are also discussed.
32-405-332 Basic Unibody Collision Repair
- Advanced Refinishing  
11 credits
All the skills learned in Collision Repair/Refinishing 1 and 2 are applied in the repair of collision-damaged vehicles. Includes the proper welding procedures of HSS (High Strength Steel) and HSLA (High Strength Low Alloy) steel, various panel replacement and unibody structural sections. Complete refinishing and blending of paint are performed on the repaired vehicles. Safe working procedures are emphasized. Prerequisites: 32-405-330, 32-405-331, 32-405-360, 32-405-361 and 32-405-363. Corequisites: 32-405-365.

32-405-333 Advanced Unibody-Collision Repair  
11 credits

32-405-334 Collision Damage Report Writing  
2 credits
This lecture, demonstration and discussion course covers vehicle damage estimating. Students learn the proper sequence for writing an estimate, the use of estimating guides and the various uses of an estimate of repairs. Each student has an opportunity to do some actual estimating of damaged vehicles. Corequisite: 32-405-333.

32-405-360 Auto Body Accessories  
2 credits
Covers basic principles of brake system operations, air conditioning and cooling components. Also covers the automotive electrical system including basic electricity, soldering, troubleshooting with a meter, exterior lighting, instruments, windshield wipers, motors and their circuits.

32-405-361 Collision Repair/Refinishing Theory 1  
2 credits
Covers related information on all phases of auto body welding and metal straightening with hand tools. Collision damage analysis of sheet metal and unibodies is studied. Different types of sheet metal, such as HSS and HSLA, as well as the properties of sheet metal are discussed. Where and how to use plastic filler is presented. Paint equipment such as the operation and maintenance of the spray gun is studied. Extensive discussion takes place on refinishing products, surface preparation, sanding and polishing, thinners and reducers and top coat application. Instruction in shop, tool, paint safety, and state and federal environmental concerns and regulations are presented. Corequisite: 32-405-330.

32-405-360 Collision Repair/Refinishing Theory 2  
2 credits
To further promote knowledge of repair skills related to auto body, the following discussion areas are included: the evaluation of automobile bodies and damage, repair techniques, body construction and repair techniques, collision damage diagnosis, vehicle preparation, metal correction and parts replacement. Additional instruction may include glass installation, electrical accessories, door and window servicing and trim replacement. Prerequisite: 32-405-330, 32-405-361; corequisite: 32-405-331.

32-405-365 Unibody Collision Repair Theory  
2 credits
Introduces the computer electronic system for repair of unibody vehicles, and proper anchoring and pulling procedures. Instruction on removing and replacing drive train components is included. The proper care and protection of on-board computers in auto is stressed. Sheet metal alignment, and frame and unibody straightening, along with procedures for restoring severely damaged vehicles are studied. Prerequisites: 32-405-330, 32-405-331, 32-405-360, 32-405-361, and 32-405-363. Corequisite: 32-405-332.

47-405-450 Introduction to Airbrushing  
.40 credit
This course is a prerequisite for all other custom paint course offerings. It is set up to take a student who has little or no airbrush experience and instruct students on how to disassemble, clean and set-up his or her own brush. Provides instruction in paint mixture and how different reducers affect the end result (cleanliness, etc.) This course also demonstrates practical drills and proper techniques for brush strokes towards building control and skill. Instruction on types and methods of stencil use, from hand taping to computer cut materslere, as well as quick overviews of commonly found "hand held" barriers and masks that provide some simple background and fill techniques. Prerequisite: one-year of MATC's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Basic Painting, 47-405-449.

47-405-451 Color Mapping, Graphics & Stencils  
.40 credit
Learn the importance of "mapping out" or planning a project as the first step in deciding color usage and determining if the "base color" is painted first or last. The technique of "stacking" or use of multiple piece stencils to create popular graphics is covered. Students learn how shadows in proper places give an illusion of depth. Prerequisites: one year of MATC's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

47-405-452 Advanced *Noise*
Special Effects  
.20 credit
Learn how to use hand-held stencils and barriers to achieve creative or popular backgrounds and fill techniques. Illustrates techniques in aging or patina with airbrush. Prerequisite: one year of MATC's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

47-405-453 Multi-Color Blending/Fading  
.20 credit
Learn how professionals make seamless smooth color transition free from mottling and/or "dry spray." Explore color variation using known theory and methods to build eye-pleasing color schemes. Also learn the benefits and drawbacks of popular paint effects such as transparencies, metallics and pearls. Prerequisite: one year of MATC's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

47-405-454 Flames and Real Fire  
.40 credit
Uses computer or hand-out stencils to create popular graphics representations of real fire and freehand stencil/barrier use to illustrate fire. Prerequisite: one year of MATC's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

47-405-455 Hand Striping  
.20 credit
Demonstrates the proper set-up for paint mixture and brush shaping that is vital to the art of "fine lining" or outlining graphics or lettering. Showing the tools and techniques of the "brush" or hand strip will demonstrate the steps necessary to achieve nostalgic as well as modern use for this age-old skill yielding quality projects. A brief overview of "gold leafing" and other effects is presented. Prerequisite: one year of MATC's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

409 Cabinetmaking and Millwork

31-409-330 Woodworking 1: Machinery & Methods  
5 credits
Introduces the learner to the operation of traditional woodworking equipment. Students perform numerous exercises to gain familiarity with portable power tools and industrial woodworking machinery while building their skills and familiarity with wood. Units include layout, siding, surfacing, boring and assembly.

31-409-331 Woodworking 2: Materials and Processes  
5 credits
Building on skills acquired in Woodworking 1, students incorporate an understanding of wood as a material to properly execute joinery and cabinetry projects. Instruction includes units in shaping, adhesives, joinery and face-frame cabinetry. Prerequisites: Woodworking 1, 31-409-330.

31-409-332 Cabinetmaking, Millwork & Furniture 1  
5 credits
Planning and execution of cabinet, millwork and furniture projects are explored in this class. Standards for kitchen cabinetry and design are applied as students work together in teams on a group project. Additional areas of study include: jigs & fixtures, 32mm cabinetmaking and leg & rail furniture. Prerequisites: Woodworking 1, 31-409-330 and Woodworking 2, 31-409-331 or instructor consent.

31-409-333 Cabinetmaking, Millwork & Furniture 2  
5 credits
Preparation for employment is emphasized in the final quarter of this program as students propose and execute projects of their choice. Students have the opportunity to experience a real work environment while completing an internship with an area employer. Areas of exploration include veneering, CNC technology and curved and circular work. Prerequisite: Cabinetmaking, Millwork & Furniture 1, 31-409-332.
31-409-337 Workplace Safety (9 weeks) 
A safe working environment is not only essential, it's the law. This course covers several key areas of OSHA workplace safety, including proper procedures for locking out and tagging equipment to be serviced, HASCOM (Hazardous Materials Communication), PPE (Personal Protective Equipment) and proper machine guarding.

31-409-340 Tool & Machine Maintenance 
1 credit
Proper maintenance is essential in order to obtain accurate and repeatable results. This course focuses on keeping machinery in proper working order and maintaining sharp cutting tools. Students learn to troubleshoot problems and to establish routine maintenance procedures. Corequisites: Wood Finishing 1, 31-409-341.

31-409-341 Wood Finishing 1 
1 credit
Finishing is both an art and a science. This course demystifies the process of finishing wood and explores the materials used. Hand applied, brushed and sprayed finishes will be covered. Proper finish selection and safe use of finishes is emphasized. Corequisite: Tool & Machine Maintenance, 31-409-340.

31-409-342 Countertops and Surfaces 
2 credits
Introduces the student to the field of countertop fabrication. Plastic laminates are emphasized. Students learn about selecting proper grades and textures of plastic laminate, types of adhesives, and methods of application to secure laminate. Students also have the opportunity to experience Solid Surfacing (Cabinet) application techniques while producing their own countertop sample.

31-409-345 Wood Finishing 2 (8 weeks) 
1 credit
Finishing is both an art and a science. This course demystifies the process of finishing wood and explores the materials used. Hand applied, brushed and sprayed finishes will be covered. Proper finish selection and safe use of finishes is emphasized. Prerequisite: Wood Finishing 1, 31-409-341.

31-409-385 Drawing and Estimating 
2 credits
Drawing is essential for quickly and accurately communicating three-dimensional ideas. This class will introduce the learner to drawing and estimating as they relate to woodworking occupations. Areas of instruction include sketching techniques, orthographic projection and isometrics, oblique and perspective drawings. Methods of estimating materials and construction costs, reading prints and interpreting drawings are included.

31-409-387 Fundamental of Construction 
3 credits
Introduces the student to the identification, safe use and care of hand and portable power tools. Lab work includes the construction of sawhorse using techniques learned in class. Corequisites: 31-410-301 and 31-410-302.

31-410-336 Machine Maintenance 
1 credit
This course provides instruction in Interpretation of framing. A variety of building methods are discussed in the context of current understanding of how buildings work and why they fail. Corequisites: 31-410-290 and 31-410-399. This course focuses on keeping machinery in proper working order and maintaining sharp cutting tools. Students learn to troubleshoot problems and to establish routine maintenance procedures. Corequisite: Wood Finishing 1, 31-409-341.

31-410-357 Workplace Safety (9 weeks) 
1 credit
This course will cover several key areas of OSHA workplace safety, including: erection of ladders and scaffolds, HASCOM (Hazardous Materials Communication), selection and use of PPE (Personal Protective Equipment), proper machine guarding, and prevention of slips, trips and falls.

31-410-345 Construction Materials and Estimating 
2 credits
The course introduces drawing and estimating as they relate to construction occupations. Areas of instruction include sketching techniques, orthographic projection and isometrics, oblique and perspective drawings. Methods of estimating materials and construction costs, reading prints and interpreting drawings are included.

412 Diesel and Heavy Equipment Technology

10-412-112 Mobile Hydraulics 
3 credits
Prepares the student with the knowledge and skills needed to adjust, diagnose, service, and repair mobile hydraulic systems found on trucks and construction equipment. Prerequisite: 10-412-140.

10-412-125 AC Refrigeration Systems 
3 credits
Lectures/labs provide skills to diagnose, maintain and service air conditioning and transport refrigeration equipment found on truck trailers and off-road equipment. Prerequisites: 10-412-112 and 10-412-145.

10-412-137 Preventative Maintenance/Vehicle Inspections 
3 credits
Students maintain fleet vehicles and equipment, including record-keeping, computerized maintenance systems, automated shops and cost-effectiveness.

10-412-138 Diesel Shop Management 
3 credits
The student will gain the knowledge needed to function in a typical service department setting. The student will learn what it takes to manage a service department, the costs involved in running the department and the day-to-day problems that arise in the service department. General business operational procedures, record keeping and cost effectiveness will also be part of this course. Prerequisites: all first year courses or consent of program director.

10-412-140 Introduction to Diesel Technology 
2 credits
Discusses job requirements, skills needed, career options and employment opportunities in diesel equipment repair and maintenance. Introduces shop procedures, safety practices, tools and using service manuals. Prerequisite: Enrollment permitted only with adequate COMPASS (or equivalent assessment test) scores in reading, writing, math and mechanical reasoning.

32
10-412-144 Introduction to Diesel Electrical/Electronics Systems 4 credits
- Introduces electrical/electronic systems on modern trucks and construction equipment. Covers basic theories of electricity and electronics, using test equipment, types of electrical circuits, wiring, components, batteries and wiring diagrams. Prerequisite: Enrollment permitted only with adequate COMPASS (or equivalent assessment test) scores in reading, writing, math and mechanical reasoning.

10-412-165 Electrical/Electronics Systems Diagnostics 3 credits
- Students learn to diagnose, service and repair heavy-duty electrical systems on modern trucks and off-road equipment. Corequisite: 10-412-144.

10-412-155 Heavy Duty Drive-trains 4 credits
- Prepares the student with the knowledge and skills needed to adjust, diagnose, maintain, service and repair heavy-duty drive-trains found on trucks and construction equipment. Prerequisite: 10-412-140.

10-412-184 Brake and Suspension Systems 4 credits
- Prepares the student with the knowledge and skills needed to adjust, diagnose, service and repair heavy-duty brake and suspension systems. Prerequisite: 10-412-140.

10-412-176 Diesel Fuel Systems 4 credits
- Lectures and labs cover diagnosing, servicing, maintaining and adjusting modern hydro-mechanical diesel fuel injection systems. Prerequisites: 10-122-112, 10-412-140 and 10-412-143.

10-412-177 Diesel Engine Diagnostics 2 credits
- Lectures and labs use the latest in diagnostic equipment to evaluate engine performance and diagnose power complaints on modern hydro-mechanical diesel fuel injection systems. Prerequisite: 10-412-175.

10-412-178 Diagnostic Strategies 3 credits
- Explores the logical thought process used analyzing and diagnosing system malfunctions and performance problems. Practical hands-on experiences of diagnostic and problem solving techniques will be included. Also included will be evaluating failures, classifying failures, problems and documentation of findings. Prerequisites: All first year courses or consent of program director.

10-412-184 Diesel Engine Technology 2 credits
- Students develop basic knowledge of design, construction and operating principles of the diesel engine. The course emphasizes the service, maintenance and the types of repairs made on diesel engines and diesel engine support systems. Prerequisite: 10-412-140.

10-412-185 Diesel Engine Repair 4 credits
- Lectures and labs teach students to maintain, service and repair diesel engines and engine support systems. The course also includes precision measuring, failure analysis and parts inspection. Prerequisites: 10-412-140 and 10-412-184.

10-412-198 Electronic Control Systems 2 credits
- Provides the student with the experience needed to diagnose and service modern electronic control systems used on trucks and construction equipment. The course includes electronic controlled diesel engines, ABS brake systems, electronic controlled transmissions and other computer controlled electronic vehicle systems. Prerequisites: 10-163-160, 10-412-153, 10-412-164 and 10-412-176.

10-412-199 Diesel Equipment Lab Experience 1 1 credit
- Students service various trucks, construction and industrial equipment. Emphasizes daily shop operations, procedures and safe work habits. Simulated on-the-job experiences develop and apply students' knowledge and skills. Prerequisite: all first-year courses or consent of program director.

10-412-191 Diesel Equipment Lab Experience 2 1 credit
- Students continue servicing various trucks, construction and industrial equipment. Simulated on-the-job experiences to develop and apply knowledge and skills. Prerequisites: all first-year courses, concurrent enrollment in second year courses or consent of program director.

10-412-195 Occupational Experience 2 credits
- As interns, students work on electrical/electronic systems, vehicle and equipment maintenance, heavy duty brakes, suspensions, drive trains and general shop maintenance. Types of jobs and competencies employed may vary depending on what area of the industry the employer represents. Technical competencies for this course may be performed either alone, as an experienced technician's helper or a combination thereof. Prerequisites: all first year courses or consent of the program director.

414 Electronic Servicing

10-414-319 Programmable Logic Controllers I 3 credits
- Fundamentals of programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn about PLCs connected to Windows-based PCs running state-of-the-art programming tools. Students study discrete and analog input and output; hardware sensor interface and troubleshooting techniques; fundamentals of digital systems and will program PLCs using timer, counter, latch, data movement, sequencing, integer arithmetic and other instructions. Prerequisites: 10-405-112.

32-414-318 DC/AC Circuits for Maintenance 3 credits
- Introduces the practical DAC/AC concepts including electrical quantities and components and measurement instruments for AC and DC circuits. Students analyze and construct circuits and measure voltage, current, resistance and power for both AC and DC sources. Covers fundamentals of NEC wiring, soldering and relay ladder logic. Corequisite: 31-404-361.

32-414-319 Electronic Circuits for Maintenance 3 credits
- Presents semiconductor devices with an emphasis on their practical use. Students construct and troubleshoot power supplies, amplifiers, electronic switches, relay drivers, photo-optical isolation and power control electronics. Students learn to identify and troubleshoot diodes, bipolar transistors (BJTs), field-effect transistors (FETs), silicon controlled rectifiers (SCRs and Triacs), light-emitting diodes (LEDs) and other components found in industrial electronics. Prerequisites: 452-303, 31-404-361 and 31-406-363.

32-414-319 Programmable Logic Controllers I 3 credits
- Fundamentals of programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn about PLCs connected to Windows-based PCs running state-of-the-art programming tools. Students study discrete and analog input and output; hardware sensor interface and troubleshooting techniques; fundamentals of digital systems and will program PLCs using timer, counter, latch, data movement, sequencing, integer arithmetic and other instructions. Prerequisite: 32-414-316.

32-414-320 Programmable Logic Controllers II 3 credits
- Advanced programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn how to connect advanced PLCs in a typical industrial PLC network utilizing Ethernet, DH+, RS232 and RS485 communication paths. Students learn to connect PLCs with various sensors and to analog input modules of programmable controllers and to A/D converters for computer systems. Prerequisite: 32-414-319.

419 Industrial Hydraulics

10-419-103 Hydraulics and Pneumatics 2 credits
- Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

32-419-308 Hydraulics and Mechanics 2 credits
- Covers fundamentals of fluid and mechanical power components their principle function, terminology and use. The basic power train systems are studied and include hydraulic components, gears, belt and chain drives, shafting, bearings, lubrication systems and speed and limit controls found on common industrial equipment.
420 Machine Tooling Techniques

32-420-128 Manufacturing Materials Processing 2 credits
Instructional units include safety, oxy-acetylene welding, brazing and cutting, shielded metal arc welding, gas metal arc welding, gas tungsten arc welding, flux cored arc welding, plasma arc cutting and conventional machining.

32-420-384 Intermediate Metrology Applications 1 credit
Course studies precision inspection methods while utilizing optical and electronic precision measurement instruments such as the protractor, optical comparator, microscope, laser alignment machines, the Coordinate Measuring Machine and state-of-the-art computerized vision system. Prerequisite: 32-420-381.

32-420-330 Metal Processes 1 2 credits
This basic metalworking course is designed to provide the student with instruction in metalworking processes. Instructional units include safety, layout and measuring, oxy-acetylene welding, brazing and cutting, arc welding and properties of metals.

32-420-331 Metal Processes 2 2 credits
This study of metals provides instruction in sheet metal work, sanding and brazing, forging and heat treatment, grinding, tool sharpening, metal casting, MIG and TIG welding, metal fabrication and the repair of metal objects. Prerequisite: 32-420-330.

32-420-345 Drawing Interpretation 1 2 credits
Basic principles of engineering drawings and manufacturing procedures. Through interpretation and sketching, students learn to visualize the part, section or assembly. Uses drawings pertinent to the trade with examples.

32-420-346 Computer Numerical Control 1 1 credit

32-420-351 Elements of Basic Metrology 2 credits
This course introduces the principles of basic dimensional measurement, layout techniques for machines, use of direct and indirect measuring tools as well as the use of length standards relative to calibration of measuring instruments and the basic operation of the Coordinate Measuring Machines.

32-420-370 Computer Numerical Control 4 1 credit
The advanced course requires students to draw complex wire-frame models and produce CAD parts. This geometry is then used to program three-dimensional toolpaths. Prerequisite: 32-420-382.

32-420-380 Machine Tool 1 6 credits
Introduces the basic concepts and skills using engine lathes, power saws, drill presses and bench applications. Emphasizes safety and proper operation of tools and machines, speeds, feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality of parts. Prerequisites: 32-420-346 and 32-420-381. Note: the course is offered in a shorter format for 1 credit in the summer semester.

32-420-381 Machine Tool 2 6 credits
Covers advanced engine lathes operations, including special tooling, attachments, thread and taper cutting, introduces milling and surface grinding, emphasizing safety, types of machines, cutters and grinding wheels, speeds, feeds and work-holding devices. Includes squaring, taper milling, indexing, pockets, mounting work, finish and parallel. Stresses dimensional accuracy, finish, quality and efficiency. Prerequisites: 32-420-351, 32-420-380, 32-340-345, 31-604-381 and 32-420-346.

32-420-382 Machine Tool 3 6 credits
Provides the student with the skills necessary for advanced setups and procedures on milling machines, grinders and lathes. Students are also introduced to both cylindrical grinding and tool and cutter grinding. Special emphasis is given to Electrical Discharge Machining and electronic development of CNC machining applications to complete course projects is also enhanced. Students build a stamping die. Throughout the course, safety, precision, measurement and craftsmanship are stressed. Prerequisites: 32-420-381/5.

32-420-383 Machine Tool 4 9 credits
Provides the student with the skills necessary to set up and operate CNC EDM, CNC machining center, and select and use superabrasives for grinding and machining. Advanced machining setups, procedures and operations are covered to enable students to accomplish the machining of a small MUD plastic injection mold or special machining project. Throughout this course, safety, precision measurement and craftsmanship are stressed. Prerequisites: 32-420-382, 32-420-389, 32-420-381/5, 32-420-399, or corequisites: 32-420-390, corequisites: 32-420-391 and 32-420-393.

32-420-384 Computer Numerical Control Applications 1 1 credit
Hands-on instruction using the CNC vertical milling machine and CNC Turning Center. Emphasizes two-dimensional contouring, pocketing, drilling and basic turning and threading. Prerequisites: all first semester courses. Corequisite: 32-420-397.

32-420-385 Tool and Fixture Design 1 1 credit
Introduces tool design and gauging. Emphasizes jigs, fixture design, clamping, locating devices and tooling and production methods. Presents preset and qualified tooling for N/C CNC as they relate to conventional practice. Prerequisite: 32-420-390.

32-420-386 Computer Numerical Control Applications 2 2 credits
Advanced CNC Vertical Milling and Machining Center, including three-dimensional parts and multiple machining operations. Introduces the CNC wire cut machine and machines both simple and complex parts. Prerequisites: 32-420-384, 32-420-397 and concurrent enrollment in 32-420-390 and 32-420-392.

32-420-387 Fundamentals of Metalurgy 2 credits

32-420-389 Computer Numerical Control Applications 3 1 credit
Our most advanced CNC applications course devoted to machining complex toolpaths, including mold cavities and graphite electrodes. Emphasizes hands-on instruction and operation of CNC turning centers, vertical milling machines, machining centers and advanced CNC wire cut. Prerequisites: 32-420-386, 32-420-389, 32-420-397 and 32-420-392. Corequisite: 32-420-381.

32-420-390 Fundamentals of Metalworking 2 credits
Covers specific occupational information, including personal data sheets, job interviews, resumes and recommendations. Guest speaker lecture on varying employment, management and industry trends. Prerequisite: third semester placement, employment eligibility or completion of the Basic Manufacturing Training Program. 1 credit.

32-420-391 Computer Numerical Control Applications 4 1 credit
Lecture touring introduces Machine Tool Lab activities. Major emphasis is placed on the nomenclature, theory, construction features, design and the technology of stamping and forming dies. Students also will spend time designing and planning a special die, mold or advanced CNC project. Prerequisites: 32-420-384 and 32-420-390.

32-420-392 Tool Making Theory 1 2 credits
Lecture touring introduces Machine Tool Lab activities. Major emphasis on the nomenclature, theory, construction features, design and the technology of mold dies. The seven molding processes will be discussed. Students also spend time designing and planning a special mold, tool, or CNC project. Prerequisite: 32-420-394.

32-420-393 Tool Making Theory 2 2 credits
Lecture touring introduces Machine Tool Lab activities. Major emphasis on the nomenclature, theory, construction features, design and the technology of mold dies. The seven molding processes will be discussed. Students also spend time designing and planning a special mold, tool, or CNC project. Prerequisite: 32-420-394.

32-420-394 Computer Numerical Control 3 2 credits
Manual programming of numerical control machines. Covers history, justification and types of control systems. Students program and make a part on a computer numerical control control and turning center. Includes introduction to two-dimensional CAD-CAM computer programming system. Prerequisites: all first semester courses. Corequisite: 32-420-394.
32-420-398  Computer Numerical Control 3   2 credits
Using a CAD-CAM computer programming system, students construct parts - from the simple to complex and then download the information to the CNC milling and EDM wire out machines. Prerequisites: 32-420-367 and 32-420-384 and concurrent enrollment in 32-420-380 and 32-420-382.

421 Mechanical Drawing

32-421-392  Drawing Interpretation - Industrial Maintenance 2 credits
Studies basic principles of interpreting engineering drawings and schematics. Through interpretation and sketching, students develop a visualization of the part, section or assembly. Uses drawings pertinent to the trade along with examples and discussions of manufacturing procedures.

442 Welding

10-442-128  Metal Repair Techniques 2 credits
This course covers safety, layout and measurement, drilling, drill press and lathe operation, filing, threading, properties of metals, oxy-acetylene welding, brazing and cutting, and SMAW, GMAW, GTAW and FCAW.

31-442-304  Oxy-fuel Processes 2 credits
Covers safety, theory and techniques of welding, braze welding, soldering on steels, cast iron and non-ferrous metals processes and applications using oxy-acetylene and alternative fuels and spray powder torches.

31-442-312  Oxy and Plasma Cutting 2 credits
Perform manual and semi-automatic cutting and gouging using oxy-fuel and plasma arc cutting processes. Also, oxy-fuel and plasma cutting safety and proper handling of cylinders is covered. Applications will be to English and metric dimension.

31-442-313  Related Welding 1 credit
A lecture/hands-on course; students learn basic welding processes, equipment, operations and safety procedures. Emphasizes welding procedures and practices commonly used in the machine tool industry.

31-442-314  Arc Welding Theory 2 credits
Emphasizes welding theory, safe use of welding equipment, hand and power tools, oxy-fuel and plasma arc cutting, AWS (code, weld procedures, defects and their causes. Electrical applications, effects of welding machine power sources, electrode selection and welding symbols will also be covered.

31-442-315  Basic Arc (SMAW) 2 credits
Students in this course will develop manipulative skills on all types of joints in the flat position using shielded metal arc welding electrodes on mild steel. Welding techniques used for structural, pipe and maintenance welding will be developed.

31-442-316  Arc Welding (SMAW) Horizontal 1 credit
Emphasizes shielded metal arc welding (stick arc) techniques in the horizontal position, included are AWS filet and groove welds using 1/8", to 5/32" diameter, E-6010, iron powder and low hydrogen electrodes on welded assemblies.

31-442-318  Gas Tungsten Arc Welding (GTAW/TIG) 2 credits
Emphasis is placed on gas tungsten arc welding (TIG) techniques of stainless, steel. Development of skills and techniques on all types of joints in flat and horizontal positions. Aluminum and steel techniques may also be covered.

31-442-320  Welding Occupational Development 1 credit
Applications of welding terminology, use of forms, contracting, professional ethics and employment relations are studied. Specific topics germane to the welding field in decision-making, responsibility and preparation for the welding career are covered.

31-442-321  Arc Welding (SMAW) Vertical 2 credits
Students develop manipulative skills on all types of joints in the vertical up and down positions, using E7018 & E6010 shielded metal arc welding electrodes on mild steel. Students will also develop welding techniques used for fillet and groove weld competencies to AWS D1.1 structural steel welding code.

31-442-322  Advanced Welding Techniques 2 credits
Develops manipulative skills on all types of joints in the overhead and/or pipe positions using E7018 & E6010 shielded metal arc welding electrodes on mild steel. Develop welding techniques used for fillet and groove weld competencies to AWS D1.1 structural steel welding code. Course also includes air carbon arc gouging (ACC), repairs, and other advanced welding processes and applications for related trades.

31-442-323  Basic Gas Metal Arc Welding (GMAW/MIG) 2 credits
Students develop manipulative skills on all types of joints in the flat, horizontal and vertical up and down position using short circuiting transfer. Students will perform gas metal arc welding techniques using 1/8" to 1/2" structural fabricated parts, as per AWS code standards. Emphasis is placed on operating gas metal arc welding equipment in a safe manner and determining machine set-up for metal thickness, wire size and speed.

31-442-324  Layout and Fabrication Techniques 3 credits
Students perform welding fabrication techniques on common shaped products like hoods, hoppers, structural beams and manufactured products using geometric, triangulation and plate layout. Fabrication projects develop students' knowledge of hand and power tools, shearing, oxy-fuel and plasma arc cutting, calculating weld joint and bend allowances, metal forming, grinding and polishing. Layout is applied to fabrication of welded assemblies from drawings or developing a drawing and bill of materials for a part. Welding repairs and crane safety are also covered. Prerequisite: Arc Welding Theory, 442-314 or consent of instructor.

31-442-326  Flux Cored & Advanced Gas Metal Arc Welding (FCAW/GMAW) 2 credits
Continuation of development of skills and techniques on all types of joints in the flat, horizontal and vertical up and down positions, using short circuiting and spray arc transfer. Students will also learn flux-cored gas shielding and self-shielding welding techniques. Mild steel, stainless steel and aluminum (1/16" to 1" thickness) are the metals used in welding joint assemblies, as per AWS code standards.

31-442-328  Gas Tungsten Arc Welding 2 (GTAW/TIG) 2 credits
Students develop manipulative skills on all types of joints in the flat, horizontal, vertical, over head and pipe positions. Gas tungsten arc welding of stainless, steel, aluminum, and steel welding techniques will be covered using 1/8" to 1/2" (11 ga to 20 ga) structural fabricated parts, pipe, repair welding and for other related trades, as per AWS and ASME welding code standards.

31-442-350  Fundamentals of Metallurgy 2 credits
Introduction to metallurgy with emphasis on applications, selection, identification methods and alloy influences. Properties are studied utilizing testing, microstructure interpretation and heat treatment processes. Tool steels, weld heat effects, failure analysis as well as machinability variations in cast iron, alloy steels and non-ferrous materials are covered in detail.

31-442-393  Drawing Interpretation 2 credits
The basic principles of interpreting welding drawings are interpreted through explanation, sketching and orthographic projections. The student develops and learns the procedures of interpreting industrial welding drawings, and develops a visualization of parts and fabrication assemblies. AWS welding joints, symbols and their applications on fabricated models and company prints are also covered.

461 Motorcycle, Marine and Outdoor Power Equipment

31-461-324  Basic Two- and Four-Cycle Engines 5 credits
This nine-week course covers the principles of small internal combustion engines, including two-cycle and four-cycle. Design, construction, engine testing, and diagnosing are all covered. Students become familiar with the tools, machines and equipment that are used for engine repair work in the power equipment shop. Corequisites: 31-461-325 and first semester 31-461-328.

31-461-325  Engine Rebuilding 5 credits
This nine-week course covers disassembly, repairing, re-assembly and engine break-in. Other topics covered include engine tune-up, carburetion and electrical systems such as as snowmobiles, chain saws, sharpening and balancing of rotating elements are included. Corequisites: 31-461-324 and first semester 31-461-328.
31-461-326 Electrical and Hydraulic Systems 5 credits
This nine-week course covers electrical systems in great detail. Students study the basic principles of electricity and magnetism. The proper use of meters is covered. Students learn how to service and troubleshoot charging, ignition, starting, safety interlocks and instruments. Basic hydraulic systems are also covered. Prerequisites: 31-461-324 and 31-461-325.

31-461-327 Power Transmissions and Motorcycles, Marine and Outdoor Power Products 5 credits
This nine-week course covers power transmissions of all of the above equipment. Topics include transmissions, clutches, hydraulic systems, wheels, tires, belts, chains and steering drives. ATV's are also studied in detail. Prerequisite: 31-461-326.

31-461-328 Small Engine Lab 1 credit
Students work on individual projects that have been approved by the instructor, such as building a motorcycle engine, stand or developing advanced technical knowledge or skill in any of the motorcycle, marine or small engine service areas. First semester corequisites: 31-461-324 and 31-461-325, second semester prerequisite: first semester of 31-461-328.

31-461-330 Service Shop Management 2 credits
Covers basic principles of testing and operating a small engine shop. Students study the financial, operational and marketing aspects of a small engine dealership or service shop. Students work in groups to set up their own small engine service shop business in a written proposal. Prerequisite: second semester standing or completion of 31-461-324 and 31-461-325.

462 Industrial Maintenance

10-462-103 Industrial Equipment Mechanisms 5 credits
Studies basic principles of physics specific to electro-mechanical systems. Emphasizes measurement, lubrication, energy, power, machines and fluid and chemical properties, as well as installation, timing and synchronization of machine drive components. Includes hands-on disassembly and assembly of industrial components. Studies motors, transformers and various electro-mechanical devices to enhance AC power distribution and control topics. Introduces programmable logic controllers in the on/off mode. Prerequisites: 10-405-112.

32-462-303 Industrial Equipment Mechanisms/Industrial Electricity and Controls 5 credits
Studies basic principles of physics specific to electro-mechanical systems. Emphasizes measurement, lubrication, energy, power, machines and fluid and chemical properties, as well as installation, timing and synchronization of machine drive components. Includes hands-on disassembly and assembly of industrial components. Studies motors, transformers and various electro-mechanical devices to enhance AC power distribution and control topics. Introduces programmable logic controllers in the on/off mode. Prerequisites: 32-414-316 and second semester standing or instructor consent.

32-462-304 Introduction to Industrial Computers 1 credit
Studies the processes of computers in industrial applications and activities such as keyboarding, equipment usage, storage, microcontrollers and information retrieval systems, and other processes applied to industrial equipment.

32-462-306 Industrial Fluid Power 3 credits
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

32-462-308 Heating and Air Conditioning 1 3 credits
Covers basic environmental equipment maintenance. Presents applications of HVAC components, refrigeration controls, condensers, hydronics, boilers, heat exchangers, pumps, compressors, plumbing, pumps, measurement, blowers and preventive maintenance/repair. Also covers EPA CPC certification.

32-462-309 Heating and Air Conditioning 2 3 credits
Advanced environmental equipment installation and maintenance course that puts the theory learned in 32-462-308 into practice including boiler competencies. Prerequisite: 32-492-308 or instructor consent.

32-462-311 Industrial Maintenance Mechanic 1 3 credits
Emphasizes basic tools used for maintenance. Presents information on lock out/tag out, confined space and safe rigging practices, manufacturing machine types and operations, torque, metal properties and hardness, gaskets, pumps, gauges, motors, pulleys and alignment.

32-462-313 Maintenance Management 2 credits
Emphasizes maintenance management and quality control techniques to give maintenance students an understanding of their roles in an organization. Covers maintenance record keeping, parts ordering and shop operation.

32-462-314 Manufacturing Systems, Application and Control 3 credits
Introduces computer control systems and fundamentals of motion control. Presents programmable logic controllers (PLCs) along with design, integration and troubleshooting techniques. Prerequisite: 32-414-318 or instructor consent.

32-482-315 Building Management Systems 3 credits
Studies computer-based energy and building control systems in detail. Includes sensors, devices, pneumatic and otherwise, as well as basic energy efficiency calculations. Also presents and discusses cost- and energy-saving ideas and plans. Prerequisites: 32-462-309 or instructor consent.

32-462-316 Fluid Distribution Systems 2 credits
Covers installation and repair of fluidic systems. Includes fittings, thread cutting, pipe swaging, hanger grooving, sander, plastic cementing, repair equipment and tools. Pumps, valves, water supply systems and fire protection distribution systems covered.

32-462-317 Building Service Maintenance 3 credits
Covers safety, schematics, wall framing, electrical services, insulation, drywall applications, painting, floor applications, roofing and siding applications. Includes the study of appropriate applications of materials to facilities.

32-462-318 Safety Management 2 credits
Focuses on laws governing workplace safety and environmental concerns such as those covered by OSHA, EPA, OSHA and the MHR. Reviews general and model codes (NEC, NFPA, ANSI, etc.) as well as shop safety.

32-462-322 Industrial Maintenance Mechanic 2 3 credits
Emphasizes on-the-job installing, troubleshooting and maintaining manufacturing systems with special focus on automated systems. This course is completed as an internship. Prerequisite: 32-462-311 or consent of instructor.

32-462-335 Metal Processes for Maintenance 2 credits
Includes machine shop operations, sheetmetal work, soldering and brazing, forging and heat treatment, grinding, tool sharpening, metal casting and other metal applications as related to industrial machinery repair. Prerequisite: 32-420-330 or instructor consent.

501 Health

10-501-101 Medical Terminology 3 credits
Focuses on the component parts of medical terms: prefixes, suffixes and word roots. Students practice formation, analysis and reconstruction of medical terms. Emphasizes on spelling, definition and pronunciation: introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as well as systemic and surgical terminology, is included.

10-501-153 Body Structure 3 credits
This course is designed to give the student an insight into basic human anatomy and physiology including fundamentals needed for the understanding and evaluation of health practices related to each system and the body as a whole.

10-501-180 Medical Terminology 2 2 credits
Introduces medical terminology—how medical terms are formed; the meaning of many word roots, prefixes and suffixes; spelling, definitions and pronunciation of word components; and how to use a medical dictionary.

10-501-181 Medical Terminology 3 credits
This continuation course expands the information in 10-501-180, Medical Terminology 1. Prerequisite: 10-501-180.
502 Barber/Cosmetologist

31-502-315 Nail Technician 9 credits
Semester-long 300 hour Nail Technician coursework provides a Nail Technician certificate. Curriculum includes both theoretical instruction and clinical training and prepares the student for the State License Exam.

31-502-301 Barber/Cosmetology Techniques 1 12 credits
Introduces various services performed by the barber/cosmetologist. Emphasis is on hair analysis, shampooing, basic permanent waving and haircutting techniques, scalp and hair conditioning treatments, and introductory hair styling services. Students spend the first part of the semester working on manikins and each other. The second part of the semester, students develop skills through instruction in the salon while working on clients. Prerequisites: 31-502-311, 31-502-390 and 31-502-312. Corequisite: 31-502-391.

31-502-302 Barber/Cosmetology Techniques 2 12 credits
A continuation of 31-502-301, this course emphasizes the development of advanced techniques in hair cutting and styling and permanent waving. This course also introduces the hands-on application of various hair coloring techniques, chemical relaxing, manicuring, pedicuring, and facial services. Students continue to work on clients with instructors and guidance. Prerequisites: 31-502-301, 31-502-391, 31-502-390, 31-502-312 and 31-502-391.

31-502-303 Barber/Cosmetology Techniques 3 8 credits
Emphasizes advanced training in the techniques presented in 31-502-301 and 31-502-302. Students continue to work on clients to further develop skills to prepare them for entering the job market and passing the state examination. Prerequisite: all first- and second-semester courses.

31-502-311 Barber/Cosmetology Theory 1 2 credits
Students study the theories related to introductory salon services such as professional image, hair cutting and product knowledge. Included are nomenclature, selection, care, and proper usage.

31-502-312 Barber/Cosmetology Theory 2 2 credits
Prerequisite: Theory 1. Presents the theories of hair coloring and advanced hair coloring techniques; hair cutting methods are continued. This course also covers the history of the industry and related governing laws. Prerequisites: 31-502-311 and 31-502-390.

31-502-313 Barber/Cosmetology Theory 3 5 credits
Prepares students for the State Board Exam. Students continue their study of theoretical, hands-on skills in preparation for State Board Exam. Prerequisites: 31-502-311 and 31-502-391.

31-502-390 Barber/Cosmetology Theory 2 3 credits
Students study bacteriology, decontamination, and first aid procedures, terminology and the basic theory of shampooing and conditioning hair. Basic permanent-waving, hair design and hairstyling services are also included. Prerequisite: 31-502-311.

31-502-391 Barber/Cosmetology Theory 4 3 credits
This course includes the anatomy and physiology of the skin and nails, manicuring, pedicuring, skin care and facial services, Advanced hair styling and chemical relaxing are included. Prerequisites: 31-502-311, 31-502-390 and 32-502-312. Corequisite: 31-502-301.

31-502-392 Barber/Cosmetology Sales and Advertising 1 1 credit
Introductory sales course stressing the proper application of sales techniques to skilled occupations. The sales and advertising techniques as applied to job disciplines are designed not only to create greater efficiency on the job, but also to improve working relationships with fellow employees and customers. Includes the application of sales approach, demonstration and close.

31-502-393 Barber/Cosmetology Sales and Advertising 2 1 credit
Students learn to recognize different types of sales and the opportunities each has to offer. Students also learn to identify and overcome obstacles that they may encounter. Students gain a firm grasp of duties of a salon employee. Prerequisite: 31-502-392.

503 Fire Protection Technician

10-503-105 Chemistry of Hazardous Materials 4 credits
Survey course presents an analysis of hazardous materials classifications as well as specific hazards of materials found in today's environment. Students are given practice in research skills to enable them to prepare for the safe handling of a hazardous materials incident. Prerequisites: 10-503-108, 10-503-114, 10-503-131 and 10-503-134.

10-503-108 Hazardous Materials Tactics 3 credits
Provides an overview of the tactics for handling a hazardous materials incident. Students involve participation in exercises of handling and decontamination of chemicals and the implementation of emergency and incident termination tactics. Prerequisites: 10-503-108, 10-503-110, 10-503-112, 10-503-114 and 10-503-131.

10-503-106 Building Construction and Design 3 credits
Covers the basic principles of construction and specific classifications of buildings and buildings used as incident command posts to determine cause and origin of accidental, incendiary and arson fires. Prerequisites: 10-503-108, 10-503-114, 10-503-131 and 10-503-134.

10-503-110 Fire Investigation 3 credits
Covers fundamentals of fire investigation practices. Students examine the role of the firefighter in the investigative process as well as the modern fire investigator techniques used to determine cause and origin of accidental, incendiary and arson fires. Prerequisites: 10-503-108, 10-503-114, 10-503-131 and 10-503-134.

10-503-112 Fire Prevention 4 credits
Examines and explores the need for a thorough fire prevention program in all areas of society. Fire prevention organizations both public and private, fire inspection, plan review, code enforcement, and records and reports, are covered. Public education programs are emphasized. Prerequisites: 10-503-108, 10-503-114, 10-503-131 and 10-503-134.

10-503-114 Fire Protection Systems 4 credits
Prerequisite: 10-503-112
Students study and examine various detection and suppression systems. High-tech fire, heat and smoke detection devices, as well as portable fire extinguishers, automatic sprinklers, and foam, carbon dioxide, dry chemical and other special systems are studied. Prerequisites: 10-503-108 and 10-503-134.

10-503-120 Equipment and Apparatus 3 credits
Involves a complete study of conventional and custom firefighting apparatus and equipment. Includes the theory of operation and problems of maintenance as well as considerations for new apparatus and equipment purchases. Prerequisites: 10-503-131 and 10-503-134.

10-503-125 Fire Service Management 3 credits
A survey of the management system requirements of today's fire department. Included are units on the evaluation of the fire service, planning, organizing and evaluating community fire protection, personnel, labor relations, budgeting; training, legal aspects, affirmative action and information systems. The implementation of special services, including emergency medical service and hazardous materials response, are discussed along with the future of the fire service including alternative delivery systems. Prerequisites: 10-503-105, 10-503-108, 10-503-110, 10-503-112, 10-503-114 and 10-503-120.

10-503-131 Principles of Fire Control 3 credits
Covers the procedures involved in the task and tactical levels of fire suppression. Basic company functions are studied in accordance with their role in an incident management system. Prerequisites: 10-503-108 and 10-503-134.

10-503-134 Introduction to Fire Organization 3 credits
Presents an overview of the fire service both in the public and private sectors. Emphasis on fire protection includes its history, fire safety, fire behavior and fire loss. Also surveys the topics presented in other Fire Protection Technician Program courses. Corequisites: 10-503-108.
10-503-145 Water Supply Hydraulics 4 credits
Provides a basic study of hydraulics in theory and practice. Students compute water-flow problems for industrial and municipal fire service applications. An actual field laboratory demonstrates practical application at the conclusion of this course. Prerequisites: 10-503-105, 10-503-108, 10-503-110, 10-503-112, 10-503-114, 10-503-131, 10-804-106.

10-503-149 Internship 3 credits
The purpose of the internship program is to enable the MATC Fire Protection Technician student, in conjunction with a sponsoring fire department, to directly participate in a period of learning and insight into fire department organization and procedures. The student must have completed Intro to Fire Organization and Principles of Fire Control and have the consent of the instructor to enroll in the class.

10-503-153 Strategic Operations 4 credits
Examines the patrol operation as it exists in the modern police department. Provides an in-depth view of criminal law. Familiarizes students with the basic issues involved in policing in a diverse society and universal concepts that apply to all world situations. Provides knowledge and tools necessary to recognize and respond to situations that require the application of police discretion.

10-503-169 Rescue Techniques 2 credits
Reviews six aspects of extrication, including auto, agricultural, industrial, water, and other areas in which the paramedic may be involved in gaining access and assessing/treating patients. Field settings with hands-on experience included in this course.

39-503-300 Fire Recruit Academy 5 credits
200 hours of fire fighting training prepares students for the State of Wisconsin Firefighter I and Firefighter II certification examinations. Completion of the EMT Basic Course also will provide the student with a diploma in Fire Service Certification.

594 Criminal Justice—Law Enforcement

10-504-102 Organization and Administration 3 credits
Introduces managerial theory, organizational behavior and culture. Presents universal concepts that apply to all work situations. Provides knowledge and insights about workplace climates. Options to either learn independently or as a group. Prerequisite: completion of first-year courses.

10-504-111 Introduction to Criminal Justice 3 credits
Explores the role law enforcement officers play in a democracy and apply this knowledge in classroom exercises, including role-plays and other scenario-based training. Belief systems, social pressures, moral problems, decision-making, and the consequences of decisions are discussed. Identify the resources available in communities to assist law enforcement officers. Discuss issues involved in policing in a diverse society and identify strategies for working effectively with a diverse community. Course covers Wisconsin requirements for written law enforcement agency policies and procedures. Meets LESB performance objectives.

10-504-113 Criminal Law 3 credits
Provides an in-depth view of criminal law. Familiarizes students with the basic criminal justice process and procedures. Analyzes the substantive criminal law, its scope and definition, classification and the elements constituting the more common crimes. Prerequisites: 10-504-111, 10-504-135. Meets LESB performance objectives.

10-504-115 Constitutional Law 3 credits
Introduces the student to the legal process, procedures and forum in which guilt or innocence is determined. Explores the history and development of criminal evidence law and the necessity for having legal evidence. Prerequisite: 10-504-113. Meets LESB performance objectives.

10-504-121 Patrol Procedures 3 credits
Examines the patrol operation as it exists in the modern police department. Explores the historical development of patrol, the various styles, techniques of decision-making, hazards, patrol techniques, police subculture and the future of policing. Identifies techniques in dealing with disasters, hazardous materials, mental health acts, victim assistance and enforcement of alcohol beverage laws. Prerequisites: 10-504-111, 10-504-135. Meets LESB performance objectives.

10-504-123 Criminal Investigation 3 credits
In this course, students learn how to recognize, process and preserve physical evidence. Students learn of law enforcement's response to a victim of crime— including the dynamics of victimization and victim's rights, and integrate professional communication with law enforcement's responsibilities to victims. Students also learn the statutory elements of each of the sensitive crimes and the dynamics, impacts and investigative strategies unique to them. Prerequisites: 10-504-113, 10-504-121. Meets LESB performance objectives.

10-504-131 Traffic Theory 3 credits
Students learn knowledge, skills and attitudes necessary for effective traffic law enforcement and accident investigation. Student learning goals will include demonstrating knowledge of goals, methods and statutes pertaining to traffic law enforcement; preparing and issuing traffic law citations, ranging from verbal warning to arrest; demonstrating correct procedures for investigating the offense of operating a motor vehicle while under the influence of alcohol or controlled substance; demonstrating knowledge of traffic control techniques, day and night; and demonstrating knowledge of principles and methods of traffic accident investigation. Prerequisites: 10-504-113, 10-504-121. Meets LESB performance objectives.

10-504-135 Juvenile Justice 3 credits
Study of juvenile justice system that emphasizes factors and causes that explain delinquent behavior. The course also examines the juvenile as a defendant and as a victim of abuse and neglect.

10-504-136 Juvenile Law 3 credits
Examines the philosophy and workings of the Wisconsin Court of Children's (Chapter 48) and Juvenile Code (Chapter 939) beginning with the police and ending with the disposition of a child in need of protective services (C.H.I.P.S.) or a delinquent juvenile. Also examines sensitive crimes (Chapter 948). Prerequisites: 10-504-135. Meets LESB performance objectives.

10-504-141 Report Writing 3 credits
In this course, students learn how to write wide variety of law enforcement reports to accurately and fairly convey necessary information for use by investigators, prosecutors, and the public. Understanding who will be using these reports and the multitude of audiences and reason they will be using the law enforcement report is an essential skill. Essential to all law enforcement personnel is to take affective field notes and translate pertinent information from these notes into official detailed police reports. Prerequisites: 10-504-113, 10-801-151, 10-801-152. Meets LESB performance objectives.

10-504-143 Criminology for Law Enforcement 3 credits
Exposes criminal justice students to these questions: what is crime and why is it a problem? Focusing on those questions, the course will look at what is known about crime and how it is known. Also touches on crimes, criminalities and theories, while focusing on the police in the criminal justice system. Prerequisite: completion of first-year courses.

10-504-145 Investigative Photography 3 credits
Investigative Photography is a basic photography course with emphasis placed on practical photographic applications used in recording evidence and documenting crime scenes. Introduction to photographic techniques and application of forensic photographic theories are presented through demonstration, lectures and practical assignments. Students will be presented with information on camera operation, exposure determination/controls, entry-level photographic theory, basic lighting techniques and use of electronic flash equipment. Forensic topics covered will include: crime scene and autopsy protocols, use of scales, photographing evidence, fingerprint and pattern impression photography and current trends in forensic technology. Presentation and use of demonstrative exhibits in court is also covered by a guest lecturer.

10-504-160 Professional Communications 3 credits
This course familiarizes the student with the technical skills utilized by Criminal Justice Professionals to handle situations without physical force. It explores dialog skills, and strategies for overcoming barriers through effective problem solving. The course familiarizes students with interpersonal techniques for various professional contacts, conflict resolution and court proceedings. Prerequisite: 10-504-115. Meets LESB performance objectives.
10-504-163 Defensive and Arrest Tactics 2 credits
Wisconsin's system of Defensive and Arrest Tactics (DAT) is the standard for training of law enforcement officers in proper use of force. The overall purpose of this section of recruit training is to give recruit law enforcement student a basic understanding of the principles and concepts of Defensive and Arrest Tactics and to enable them to perform the basic physical skills necessary to implement the system. Prerequisites: completion of first-year courses and concurrent enrollment in 10-504-164. Special application process is required. Meets LESC performance objectives.

10-504-164 Firearms 2 credits
This course will familiarize the student with maintenance of and techniques for the use of common police firearms. This will include: selection and basic maintenance of police sidearms; selecting and maintaining of holster and belt equipment; drawing, loading, reloading and fundamentals of marksmanship; multiple targets, use of cover, low-light and flashlight shooting, basic use of the police shotgun, and making effective deadly force decisions. Prerequisites: completion of first-year courses and concurrent enrollment in 10-504-163. Special application process is required. Meets LESC performance objectives.

10-504-165 Community Policing Strategies 1 credit
Identifies principles, techniques and behaviors that promote community service and effective interaction with a multi-ethnic, multi-ethnic society. Also identifies principles of decision making and problem-oriented policing. Explores the principles and techniques of crime prevention. Meets LESC performance objectives. Prerequisite: completion of first-year courses.

10-504-166 EVOC and Vehicle Contacts 2 credits
Students will learn about proper attitudes, techniques and procedures when involved in emergency vehicle operations, pursuits and vehicle contacts. Court precedents and statutory authority will be the basis for learning about techniques and procedures. Lab examples will focus on practical skills, demonstration and meeting minimum standards. Prerequisites: 10-504-163 and 10-504-164. Special application process is required. Meets LESC performance objectives.

10-504-180 Internship 3 credits
Integrates learned classroom theory and skills with real-life experience under the direct supervision of police practitioners. Students are placed within a police agency to interact, observe and participate—to a limited degree—with practitioners during the performance of their regular duties. Each student receives intensive one-on-one instruction in developing useful police reports based on field experience. Prerequisites: completion of two semesters (30 credits) in the Criminal Justice Program and 2.5 GPA or with department consent.

10-504-301 Policing in America 1 credit
Learn the rules and procedures of the academy and how the various elements of the criminal justice system relate as well as the importance of professionalism. Explore the role law enforcement officers play in a democracy and apply this knowledge in classroom exercises, including role-plays and other scenario-based training. Belief systems; social pressures, moral problems, decision-making and the consequences of decisions are discussed. Identify the resources available in communities to assist law enforcement officers. Discuss issues involved in policing in a diverse society and identify strategies for working effectively with a diverse community. Covers courses Wisconsin requirements for written law enforcement agency policies and procedures.

30-504-302 The Legal Context 2 credits
Covers the structure of the criminal justice system, including criminal procedure. Learn the legal bases for law enforcement action such as arrest, use of force and search and seizure, as well as the limits on law enforcement activity. Learn the classifications of crimes and other violations including felonies, misdemeanors, and ordinance violations, and the elements of crimes listed in the criminal code. Laws and procedures that affect juveniles, including those related to taking a juvenile into custody, are discussed.

30-504-303 Tactical Skills 3 credits
Learn the basics for and limits to use of force by Wisconsin officers including specific techniques for intervention covered in the Wisconsin system of Defense and Arrest Tactiqes. Learn the necessary weapons handling skills and how to care for and maintain duty handguns. Learn to shoot quickly and accurately under a variety of conditions including under low light, while moving and from behind cover. Learn the basics of room clearing, tactical movement, use of cover and concealment, and application to emergency situations.

30-504-304 Relational Skills 3 credits
Learn how to write a wide variety of law enforcement reports to accurately and fairly convey necessary information for use by investigators, prosecutors and the public. Explore the role of communication in law enforcement and develop and apply specific professional communication skills and strategies in a variety of simulated situations. The course covers principles, guidelines and techniques for proper law enforcement response to persons with possible mental disorder, alcohol or drug problems and/or developmental disabilities and the legal bases, requirements and practical guidelines for conducting emergency detentions and protective placements of persons. The basics of presenting effective court testimony also are discussed. Explore evolving police strategies, activities and attitudes that build effective law enforcement and community relationships, as well as problem-oriented policing strategies.

30-504-305 Patrol Procedures 4 credits
Become familiar with Wisconsin's traffic laws and ordinances, including those related to operator licensing and vehicle registration and equipment. Learn to enforce these laws, complete Wisconsin Uniform Traffic Citations and to direct and control traffic effectively. Material covered includes steps taken as first-in officer to stabilize and manage a complex scene, Investigate traffic accidents, take appropriate enforcement actions and prepare accident reports. Learn emergency vehicle operation including basic patrol operation, emergency vehicle response and pursuit driving. Understand the legal bases for making vehicle contacts, how to conduct a threat assessment and how to conduct different types of vehicle contact, including how to administer and interpret the Operating a Motor Vehicle While Intoxicated/Standardized Field Sobriety Test (OMVWI/SFST).

30-504-306 Investigations 2 credits
Provides techniques and procedures necessary to interview or interrogate adult and juvenile witnesses, suspects and victims. Learn how to recognize, proceed and preserve physical evidence and how to respond to crime scenes. Explore the dynamics of victimization and victim's rights. Learn the statutory elements of each of the sensitive crimes and the dynamics, impacts and investigative strategies unique to these crimes.

508 Dental Assistant/Dental Hygiene:

10-508-101 Dental Health Safety 1 credit
Prepares dental auxiliary students to respond proactively to dental emergencies, control infection, prevent disease, adhere to OSHA Standards and safely manage hazardous materials. Students also take patient vital signs and collect patient medical/dental histories. CPR certification is a prerequisite; students will be required to show proof of certification before beginning the course. Prerequisites: Students must be currently recognized/certified in basic life support procedures for health care provider, including cardiopulmonary resuscitation prior to enrollment in this course.

10-508-103 Clinical Dental Hygiene Theory 2 credits
Further study of patient assessment procedures including treatment planning, phase microscope, oral indices, vital signs, occlusion, special needs patients and patient counseling. Prerequisites: satisfactory completion of all first semester, first-year Dental Hygiene courses, 20-806-201 and concurrent enrollment in 10-508-101, 10-508-128, 10-508-135, 10-508-140 and 20-606-273.

10-508-105 Clinical Dental Hygiene Theory 1 2 credits
First in a series of four courses designed to provide student with the knowledge and understanding of the principles in the practice of clinical dental hygiene. Emphasis will be placed on the development and application of the knowledge used in the prevention of oral disease, examination procedures for data collection, clinical and histological anatomy of the gingiva, infection control, medical and dental histories, oral inspection, development of caries and preventive concepts are introduced. Prerequisites: Dental Hygiene course prerequisites plus a grade of C or better in 20-806-206 and concurrent enrollment in 10-508-106, 10-508-134, 10-508-138, 10-508-139, 10-508-146 and 20-606-201.
10-508-106 Clinical Dental Hygiene Laboratory 1 2 credits
Basic principles of instrumentation, infection control, patient assessment and preventive treatment are introduced and practiced. Prerequisites: Dental Hygiene course prerequisites plus a grade of C or better in 20-806-206 and concurrent enrollment in 10-508-105, 10-508-134, 10-508-138, 10-508-143, 10-508-148 and 20-806-204.

10-508-113 Dental Materials 2 credits
Prepares dental auxiliary students to handle and prepare dental materials such as liners, bases, cements, amalgams, resin restorative materials, gypsum products, and impression materials. Students also learn to take accurate impressions and clean removable appliances. Prerequisites: completion of, or concurrent enrollment in Dental Health Safety (10-508-101).

10-508-117 Clinical Dental Hygiene Theory 3 2 credits
Emphasizes the relationship of diet and dental health. Nutrients are discussed in terms of sources, absorption, metabolism, and utilization, deficiency and requirements. Student apply their knowledge through nutritional counseling of patients who wish to prevent or control nutritional-related oral health problems. Food habits, socioeconomic status, and the food environment will be examined. Prerequisites: 10-508-105, 10-508-106, 10-508-139, 10-508-148, and 20-806-201.

10-508-118 Clinical Dental Hygiene Laboratory 3 4 credits
Special emphasis on advanced instrumentation techniques. Prerequisites: satisfactory completion of all second semester, first year Dental Hygiene courses and 20-806-273 and concurrent enrollment in 10-508-118, 10-508-142, 10-508-145 and 10-508-190.

10-508-123 Clinical Dental Hygiene Theory 4 1 credit
Emphasis on treatment planning, X-ray interpretation, advanced instrumentation, pain control, four-handed dental hygiene, patient motivation and paralleling radiographic techniques. Prerequisites: satisfactory completion of all second semester, first year Dental Hygiene courses and 20-806-273 and concurrent enrollment in 10-508-117, 10-508-142, 10-508-145 and 10-508-190.

10-508-124 Clinical Dental Hygiene Laboratory 4 4 credits
This course offers further practice of techniques and procedures already learned. Prerequisites: satisfactory completion of all first semester, second year Dental Hygiene courses and concurrent enrollment in 10-508-123.

10-508-128 Dental Materials 2 credits
Introduces the nature, qualities and general characteristics of modern dental materials and dental operative procedures. Sources, properties, uses and techniques of manipulation for materials commonly used in dentistry are covered. Laboratory practice is provided for preparation of materials used for restorations, impressions and models. Prerequisites: satisfactory completion of all first semester, first year Dental Hygiene courses, 20-806-201 and concurrent enrollment in 10-508-101, 10-508-103, 10-508-135, 10-508-140 and 20-806-273.

10-508-134 Periodontics 1 1 credit
A thorough study of the anatomy, physiology and histology of the supporting structures of the teeth in health and disease. A study of the inflammatory process and the clinical changes that occur in the periodontium during inflammation. Includes a look at plaque as an etiologic factor in the disease process. Prerequisites: Dental Hygiene course prerequisites plus a grade of C or better in 20-806-206 and concurrent enrollment in 10-508-105, 10-508-106, 10-508-138, 10-508-139, 10-508-148 and 20-806-201.

10-508-135 Periodontics 2 2 credits
A continuation of Periodontics 1. Involves a complete study of etiologic factors in the disease process. Includes a study of the microbial, systemic and local factors that influence periodontal disease. Involves the components of gathering information to identify, classify and treat the different periodontal diseases. Emphasizes the relationship of periodontics to the practice of dental hygiene.

10-508-138 Dental Hygiene Radiography 2 credits
A study of the nature, effects, generation and use of roentgen rays. Discussion and practice with equipment, materials, safety measures and techniques followed in making dental roentgenograms are covered. The course features lectures and demonstrations of the application of roentgen rays for dental diagnostic purposes. Electrophysics of the equipment, position of films, angulation of the machine and processing and mounting of dental radiographs are also discussed. Prerequisites: satisfactory completion of all first semester, first year Dental Hygiene courses and concurrent enrollment in 10-508-105, 10-508-106, 10-508-134, 10-508-139, 10-508-148 and 20-806-201.

10-508-139 Histology 1 credit
Encompasses an overview of embryological processes, especially those involved in the formation of face, oral and dental structures. A study of cells and tissues is presented, along with a study of the composition and microscopic anatomy of the teeth and their supporting structure. Prerequisites: Dental Hygiene course prerequisites plus a grade of C or better in 20-806-206 and concurrent enrollment in 10-508-105, 10-508-106, 10-508-134, 10-508-138, 10-508-148 and 20-806-201.

10-508-140 Nutrition and Oral Health 2 credits
This course covers the fundamentals of nutrition with an emphasis on the relationship of diet and dental health. Nutrients are discussed in terms of sources, absorption, metabolism, and utilization, deficiency and requirements. Student apply their knowledge through nutritional counseling of patients who wish to prevent or control nutritional-related oral health problems. Food habits, socioeconomic status, and the food environment will be examined. Prerequisites: 10-508-105, 10-508-106, 10-508-139, 10-508-148, and 20-806-201.

10-508-142 Pharmacology 2 credits
A study of the principles of pharmacology and the pharmacology of representative drugs that are in current use and affect dental practice. Special consideration is given to antibiotics, sedatives, pain-relieving drugs and anesthetics. Prerequisites: satisfactory completion of all second semester, first year Dental Hygiene courses and 20-806-273 and concurrent enrollment in 10-508-117, 10-508-118, 10-508-135, 10-508-145, and 10-508-190.

10-508-143 Pathology 2 credits
An attempt to understand oral disease so that it can be properly diagnosed and adequately treated. Presents a correlation of human biology with the clinical signs and symptoms of oral disease. Where possible, the prognosis of each disease is considered as a reflection of underlying tissue alteration and of contemporary therapeutic measures. Emphasis is placed on the pathological and chemical aspects of oral disease. Prerequisites: satisfactory completion of all second semester, first year Dental Hygiene courses and 20-806-273 and concurrent enrollment in 10-508-117, 10-508-118, 10-508-142, and 10-508-190.

10-508-148 Oral Anatomy and Physiology 3 credits
Covers functions and characteristics of the primary, mixed and permanent dentitions; forms and position of individual teeth and oral tissues; and anatomy and physiology of the head and neck including osteology, myology, neurology, swallowing and insufflation. Prerequisites: satisfactory completion of all second semester, first year Dental Hygiene courses and 20-806-201.

10-508-183 Personal and Community Health 2 credits
Concerned with developing an understanding of public health methods and an awareness of the dental hygienist's role in the promotion of dental health within the context of the total health of the community. Prerequisites: satisfactory completion of all second semester, first year Dental Hygiene courses and 20-806-273 and concurrent enrollment in 10-508-117, 10-508-118, 10-508-142, and 10-508-145.

10-508-199 Clinical Dental Hygiene Laboratory 2 2 credits
Encompasses application of the theory and principles of dental hygiene practice and further study of dental instrumentation, including treatment of prophylaxis patients in a clinical setting. Prerequisites: satisfactory completion of all first semester, first year Dental Hygiene courses, 20-806-201 and concurrent enrollment in 10-508-103, 10-508-128, 10-508-135, 10-508-140 and 20-806-273.

31-508-302 Dental Chairside 5 credits
Prepares dental assistant students to chart oral cavity structures, dental pathologies, and restorations and to assist a dentist with basic dental procedures including examinations, pain control, amalgam restoration, and cosmetic restorations. Student will also develop the ability to educate patients about preventive dentistry, brushing and flossing techniques, and dental procedures, using lay terminology. Throughout the course, students will apply decoding strategies to the correct use and interpretation of dental terminology. Prerequisites: completion of, or concurrent enrollment in, Dental Health Safety (10-508-101).
31-509-301 Medical Assistant Admin Procedures 1 credit
Introduces medical assistant students to office management and business administration in the medical office. Students learn to schedule appointments, perform filing, record keeping, telephone and reception duties, communicate effectively with patients and other medical office staff, and keep an inventory of supplies.

31-509-302 Human Body In Health & Disease 3 credits
Focuses on diseases that are frequently first diagnosed and treated in the medical office setting. Students learn to recognize the causes, signs, and symptoms of diseases of the major body systems as well as the diagnostic procedures, usual treatment, prognosis and prevention of common diseases.

31-509-303 Medical Assistant Lab Procedures 1 2 credits
Introduces medical assistant students to laboratory procedures commonly performed by medical assistants in a medical office setting. Students perform routine laboratory procedures commonly performed in the ambulatory care setting under the supervision of a physician. Students follow laboratory safety requirements and federal regulations while performing specimen collection and processing, microbiology and urinalysis testing.

31-509-304 Medical Assistant Clinical Procedures 1 4 credits
Introduces medical assistant students to the clinical procedures performed in the medical office setting. Students perform basic examining room skills including reexamination, vital signs, patient history, minor surgery and patient preparation for routine and specialty exams in the ambulatory care setting. Co/Prerequisites: 10-501-101, 31-509-302 and admitted to Medical Assistant program.

31-509-305 Medical Assistant Lab Procedures 2 2 credits
Prepares medical assistant students to perform laboratory procedures commonly performed by medical assistants in the ambulatory care setting under the supervision of a physician. Students perform phlebotomy, immunology, hematology and chemistry laboratory procedures. Prerequisite: 31-509-303.

31-509-306 Medical Assistant Clinical Procedures 2 3 credits

31-509-307 Medical Office Insurance And Finance 2 credits
Introduces medical assistant students to health insurance and finance in the medical office. Students perform bookkeeping procedures, apply managed care guidelines, and complete insurance claim forms. Students use medical coding and managed care terminology to perform insurance-related duties. Co/Prerequisites: 10-501-101, 31-509-302 and a computer course.

509 Medical Assistant
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>31-512-227</td>
<td>ST Introduction to Surgical Technology</td>
<td>4 credits</td>
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<tr>
<td>31-512-328</td>
<td>ST Fundamentals 1</td>
<td>4 credits</td>
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<td>31-512-330</td>
<td>ST Clinical 1</td>
<td>3 credits</td>
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<tr>
<td>31-512-331</td>
<td>ST Surgical Procedures</td>
<td>4 credits</td>
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<td>31-512-332</td>
<td>ST Clinical 2</td>
<td>4 credits</td>
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<tr>
<td>31-512-334</td>
<td>ST Fundamentals 2</td>
<td>2 credits</td>
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<tr>
<td>31-513-110</td>
<td>Basic Lab Skills</td>
<td>1 credit</td>
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<td>31-513-111</td>
<td>Phlebotomy</td>
<td>2 credits</td>
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<td>31-513-112</td>
<td>Laboratory Quality Assurance and Mathematics</td>
<td>1 credit</td>
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<tr>
<td>31-513-114</td>
<td>Urinalysis</td>
<td>2 credits</td>
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<td>10-513-110</td>
<td>Basic Immunology Concepts</td>
<td>2 credits</td>
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<td>10-513-120</td>
<td>Basic Hematology</td>
<td>3 credits</td>
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<tr>
<td>10-513-122</td>
<td>Introduction to Blood Bank</td>
<td>2 credits</td>
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<tr>
<td>10-513-123</td>
<td>Advanced Blood Bank</td>
<td>2 credits</td>
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<tr>
<td>10-513-130</td>
<td>Advanced Hematology</td>
<td>2 credits</td>
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<tr>
<td>10-513-131</td>
<td>Introduction to Clinical Chemistry Diagnostics</td>
<td>3 credits</td>
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<tr>
<td>10-513-132</td>
<td>Advanced Clinical Chemistry Diagnostics</td>
<td>2 credits</td>
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<tr>
<td>10-513-133</td>
<td>Clinical Microbiology</td>
<td>4 credits</td>
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<tr>
<td>10-513-134</td>
<td>Clinical Experience</td>
<td>11 credits</td>
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</table>

Provides the foundational knowledge of dissection, sterilization, infection control, and asepsis. Examines weights and measures /metric system, pharmacology and anesthesia. Legal and ethical issues encountered in the healthcare environment are explored. Simulated laboratory practice enables the learner to develop beginning technical skills. Prerequisites: one year of high school math with a grade of C or better in each semester.

Includes the basic clinical skills needed by the Surgical Technologist in the scrub role. Learners develop skills in identifying basic instrumentation, supplies, suture, dressings, and report results on laboratory information systems. Satisfactory completion of all first semester, first year Clinical Laboratory Technician courses.

Uses basic surgical theories, principles, and procedural techniques in the operating room. Students begin to function as team members under the guidance of the instructor and authorized clinical personnel.

Provides the foundational knowledge of surgical core and specialty procedures. Examines the pathophysiology, diagnostic interventions and surgical interventions for a variety of surgical procedures. Incorporates the integration of clinical sciences and technical knowledge to complete a plan of action for a surgical procedure.

Further experience in a clinical setting allows the student to continue to improve technical skills while accepting more responsibilities during surgical procedures.

Enhances the student's technical experience and employee skills. Serves as a transition between student and employee. Application of advanced skills for the entry-level Surgical Technologist in the clinical setting.

Provides opportunities to perform routine phlebotomy, capillary puncture, and special collection procedures. Prerequisite: 10-513-110:

Focuses on mathematical calculations used in the laboratory. Explores concepts of quality control and quality assurance, regulatory compliance requirements, and certification and continuing education programs. Prerequisites: successful completion of the following high school courses with a grade of C or better: three years of English, one year of chemistry, one year of general biology, two years of algebra or one year of algebra and one year of geometry; and a satisfactory score on the COMPASS test or equivalent substitute.

Provides an overview of the immune system and discusses the role of the immune system in disease processes. Prerequisites: successful completion of the following high school courses with a grade of C or better: three years of English, one year of chemistry, one year of general biology, two years of algebra or one year of algebra and one year of geometry; and a satisfactory score on the COMPASS test or equivalent substitute.

Covers theory and principles of blood cell production and function. Introduces basic practices and procedures in the hematology laboratory. Prerequisites: satisfactory completion of all first semester, first year Clinical Laboratory Technician courses.

Covers theory and principles of coagulation and explores mechanisms involved in coagulation disorders. Emphasis is placed on laboratory techniques used to diagnose disease and monitor treatment. Prerequisites: 10-513-120.

Focuses on basic banking concepts and procedures including blood typing and compatibility testing. Prerequisites: satisfactory completion of all first semester, first year Clinical Laboratory Technician courses.

Covers advanced blood banking concepts and procedures including techniques for adverse reaction to transfusions and disease states. Prerequisites: 10-513-122.

Focuses on the development of hematologic disorders. Emphasis is placed on laboratory techniques used to diagnose disorders and monitor treatment. Prerequisites: 10-513-120.

Introduces techniques and procedures for routine analysis using spectrophotometric, potentiometric and separation techniques. Covers pathophysiology and methodologies for carbohydrate, lipid, protein, renal function, and blood gas analysis. Prerequisites: satisfactory completion of all second semester, first year Clinical Laboratory Technician courses and 20-606-231.

Covers pathophysiology and methodologies for hepatic, bone, cardiac markers, tumor markers, endocrine function, renal function, miscellaneous body fluids, and toxidromes. Includes techniques and procedures for analysis using sophisticated laboratory instrumentation. Prerequisites: 10-513-131.

Presents the clinical importance of infectious diseases with an emphasis on the appropriate collection, handling, and identification of clinically relevant bacteria. Disease states, modes of transmission, and methods of prevention and control, including antibiotic susceptibility testing, will be discussed. Prerequisites: satisfactory completion of all second semester, first year Clinical Laboratory Technician courses and 20-606-273.

Introduces laboratory methods used in the isolation and initial identification of pathologic microorganisms. Prerequisites: 10-513-133.

Covers topics in clinical laboratory and the identification of causative agents. Prerequisites: satisfactory completion of all Clinical Laboratory Technician program courses and concurrent enrollment in 10-513-141.
514 Occupational Therapy Assistant

10-514-101 Introduction to Occupational Therapy 3 credits
Introduces occupational therapy and professional role expectations for the OT assistant. Includes history, values and scope of the profession. Emphasizes development of skills related to therapeutic use of self, teamwork, interviewing, skilled observation and cultural competence. Recommend concurrent enrollment in 10-514-148.

10-514-102 Medical Conditions 2 credits
Introduces students to common medical conditions encountered in OT practice. Includes medical terminology and the development of basic computer skills.

10-514-105 Field Observation 2 credits
Orients students to Level I and Level 2 Fieldwork. A 40-hour placement in an OT practice setting provides opportunities to observe and participate in various treatment contexts. Emphasizes developing basic competencies in professional skills and documentation for successful completion of fieldwork experiences. Prerequisites: completion of first and second semester courses; concurrent enrollment in 10-514-130 and 10-514-135.

10-514-112 Therapeutic Skills 2 credits
Explores therapeutic use of self and group process. Emphasizes skills needed to plan, implement and evaluate group activities. Group activities and leadership skills are used to meet therapeutic goals. Prerequisites: 10-514-101; 10-514-102 and 10-514-145.

10-514-115 Developmental Principles 4 credits
Applies human development and related principles to analyze occupational performance in various contexts. Emphasizes specific client conditions and OT interventions related to infants, children and adolescents.

10-514-117 Biological Foundations of Human Performance 2 credits
Students in this course study anatomical and physiological foundations of sensory and motor systems of human performance, effects of dysfunction, and therapeutic interventions to enhance affected human performance.

10-514-120 Occupational Therapy Process 4 credits
Examines the role of the COTA in the service delivery to elders in a variety of settings. Includes the analysis of the impact of age-related changes and disease processes on the function of elderly. Practical experiences with consumers occur within the course.

10-514-125 Community Practice 2 credits
Emphasizes using community resources to develop interventions for clients in home, work and community contexts. Explores emerging career opportunities in the community for occupational therapy personnel.

10-514-130 Physical Rehabilitation Practice 4 credits
Emphasizes OT evaluation and treatment of common medical conditions in physical rehabilitation. Covers prevention, maintenance and rehabilitation. Prerequisites: completion of first and second semester courses and 10-514-150; concurrent enrollment in 10-514-105 and 10-514-135.

10-514-135 Mental Health Practice 4 credits
Emphasizes occupational therapy evaluation and therapeutic interventions to meet psychosocial needs and work with individuals affected by mental health conditions. Includes performance skills assessment, treatment planning, and intervention simulation. Prerequisites: completion of first and second semester courses and 10-514-150; concurrent enrollment in 10-514-105 and 10-514-135.

10-514-140 Health Care Systems 2 credits
Examines medical, educational, and social models of service delivery from the perspectives of consumer, client advocate and service provider. Course describes how these systems are affected by legislation, regulations, reimbursement and trends.

10-514-145 Recreation Practice 3 credits
Introduces leisure analysis and planning. Studies practice organizing and conducting individual and group leisure activities for individuals with mental illness, developmental disabilities, aging and substance abuse.

10-514-148 Minor Media 1 1 credit

10-514-149 Minor Media 2 1 credit

10-514-150 Media and Skills 4 credits
Refines skills used when analyzing, selecting and performing activities with emphasis on pediatric and mental health populations. Includes woodworking, leather work, ceramics, music, splinting, electric switch construction, computer and assistive technology. Prerequisites: completion of 10-514-148, 10-514-115 and 10-514-117.

10-514-160 Fieldwork 1 5 credits
Full-time fieldwork placements in approved training centers throughout Wisconsin and adjoining states. Focuses on integrating academic, technical and professional skills to achieve competencies necessary for entry-level OT assistant practice. Includes varied client groups and service delivery settings. Prerequisites: completion of academic curriculum; demonstration of prerequisite professional skills.

10-514-165 Fieldwork 2 5 credits
Continuation of 10-514-160, Fieldwork 1. See description.

10-514-170 Seminar on Practice and Management 2 credits
Develops basic management skills related to planning, personnel, budgets, legal and ethical issues. Prepares for managerial employment roles. Corequisites: 10-514-160 and 10-514-165.

10-514-180 Special Projects 1-3 credits
Provides an opportunity for students to work with faculty to design an individualized career development learning experience. Open enrollment. Recommended elective for OTA program students.

515 Respiratory Therapist/PolySomnography

10-515-136 Advanced Cardiac Life Support/NPR 2 credits
Offered two days during spring clinical and gives training in Advanced Cardiac Life Support (ACLS). Concurrent enrollment with 10-515-183.

10-515-138 Respiratory Care Advanced Cardiac Life Support/NPR 2 credits
Offered two days during spring clinical and gives training in Advanced Cardiac Life Support (ACLS). Prerequisite: successful completion of 10-515-136.

10-515-140 Introduction to PolySomnography 2 credits
An overview of the field of PolySomnography including job responsibilities, normal and abnormal sleep patterns, and integrating the physiologic functions of the nervous, respiratory, cardiovascular systems, and common sleep disorders. Emphasis placed on basic sleep sciences, neurophysiology, monitoring, electrical safety, diagnosis and treatment methods including CPAP, BIPAP, Oxygen therapy, and surgical interventions. This course runs six hours a week for six weeks.

10-515-141 PolySomnography Fundamentals 1 2 credits
A basic discussion of recording sleep apnea. Patient setup, electrode application for overnight recordings, the sleep history, and the technologist’s assessment of the patient are discussed in detail with emphasis on instrument settings and calibration, recording parameters, and an introduction to commonly used ancillary equipment. This course runs six hours a week for six weeks.
10-515-142 Polysomnography Fundamentals 2 2 credits
Presentation and discussion of the techniques of sleep staging. Respiratory event scoring, movement and arousal scoring criteria are also outlined. Covers recognition of normal and abnormal sleep patterns, effects of medication on sleep patterns, respiratory patterns and movement and arousal patterns, along with criteria for recognition of EEG and EKG abnormalities. Introduces the student to the major categories of sleep disorders in the infant and pediatric patient, provides an overview of specific polysomnographic features and the special preparation needed in these populations. This course runs six hours a week for six weeks.

10-515-144 Polysomnography Clinical Practice 1 1 credit
Directed practice in the clinical setting in a sleep laboratory or a sleep center. Emphasis in overseeing periodic cessation of respiratory activity based on placement and monitoring of the following: electro-encephalography (EEG), electro-coulography (EOG), electrocardiography (EKG), electromyography (EMG), pulse oximetry (SpO2), inductive plethysmography and airflow thermocouple. Can be taken concurrently with 10-515-141.

10-515-145 Polysomnography Clinical Practice 2 2 credits
Directed practice in the clinical setting in a sleep laboratory or a sleep center. Asists in adult and pediatric patient setup and discontinuance in monitoring complete sleep studies. Emphasis on scoring a sleep montage related to respiratory cessation. This course can be taken concurrently with 10-515-142.

10-515-170 Respiratory Therapy Survey 4 credits
Examines the role of the Respiratory Therapist within the healthcare community. Reviews the ethical, legal, and regulatory principles that guide practice across diverse populations. Introductory patient assessment and critical thinking processes used in the development of respiratory care plans are explored. Corequisites: 20-808-206 General Anatomy & Physiology & 10-806-134 General Chemistry.

10-515-171 Respiratory Therapeutics 1 3 credits
Introduces the topics of medical gas administration and humidity and aerosol therapy. The learner will apply physics, math and patient assessment concepts to oxygen, aerosol and humidity therapy. Prerequisites: successful completion of all first semester, first year courses and concurrent enrollment in 10-515-172, 10-515-173, and 10-515-174.

10-515-172 Respiratory Therapeutics 2 3 credits
Introduces therapeutic procedures including arterial puncture, bronchial hygiene, lung expansion therapy, and pulmonary rehabilitation. Prerequisites: successful completion of all first semester, first year courses and concurrent enrollment in 10-515-171, 10-515-173, and 10-515-174.

10-515-173 Respiratory Pharmacology 3 credits
Examines basic pharmacology principles, drug dosage, and calculations. Medications for inhalation including mucolytics, bronchodilators, and anti-inflammatories. Also includes cardiac drugs, anesthetic drugs, neuromuscular blockers, and antimicrobials. Prerequisites: successful completion of all first semester, first year courses and concurrent enrollment in 10-515-171, 10-515-172, and 10-515-174.

10-515-174 Respiratory & Circulatory Physiology 3 credits
Provides the student with an in-depth knowledge of the structure and function of the respiratory and circulatory systems necessary to function as a competent Respiratory Therapist. Prerequisites: successful completion of all first semester, first year courses and concurrent enrollment in 10-515-171, 10-515-172, and 10-515-173.

10-515-175 Respiratory Therapy Clinical Practice 1 2 credits
Introduces respiratory therapy practice in the hospital setting. Includes the development of skills such as basic therapeutics, patient assessment, medical record review, safety practices, patient interaction and communication. Prerequisites: successful completion of all first-year courses.

10-515-176 Respiratory Disease 3 credits
Exploration of signs, symptoms, causes, progression, and treatment of obstructive, restrictive and infectious diseases or disorders of the body that effect the respiratory system. Prerequisites: successful completion of all first year courses and interim courses and concurrent enrollment in 10-515-177, 10-515-178, and 10-515-179.

10-515-177 Respiratory Life Support Technology 4 credits
Focuses on adult respiratory critical care including management of mechanical ventilation and artificial airways. Prerequisites: successful completion of all first year courses and interim courses and concurrent enrollment in 10-515-175, 10-515-176, and 10-515-179.

10-515-178 Respiratory Therapy Clinical Practice 2 3 credits
Continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses on monitoring, analyzing and interpreting data to make appropriate modifications in patient care. This course includes the complete program competency list. At the completion of this clinical, learners must demonstrate competence in a minimum of 12 (required and/or simulated) competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisites: successful completion of all first year courses and interim courses and concurrent enrollment in 10-515-176, 10-515-177, and 10-515-179.

10-515-179 Respiratory Therapy Clinical Practice 3 3 credits
Continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses on monitoring, analyzing and interpreting data to make appropriate modifications in patient care. This course includes the complete program competency list. At the completion of this clinical, learners must demonstrate competence in a minimum of 10 (required and/or simulated) competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisites: successful completion of all first year courses and interim courses and concurrent enrollment in 10-515-176, 10-515-177, and 10-515-178.

10-515-180 Respiratory Neonatal/Pediatric Care 2 credits
Provides a comprehensive orientation to the field of neonatal and pediatric respiratory care to include fetal development, birth, neonatal physiologic, pulmonary dynamics, abnormal cardiopulmonary conditions, diseases, noninvasive and invasive therapeutic interventions. Prerequisites: successful completion of all second year, first semester courses and concurrent enrollment in 10-515-181, 10-515-182, and 10-515-183.

10-515-181 Respiratory & Circulatory Diagnostics & Monitoring 3 credits
Advanced invasive and noninvasive diagnostic cardiopulmonary procedures including pulmonary function, hemodynamics and rescue medicine. Prerequisites: successful completion of all second year, first semester courses and concurrent enrollment in 10-515-180, 10-515-182, and 10-515-183.

10-515-182 Respiratory Therapy Clinical Practice 4 3 credits
Continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses on monitoring, analyzing and interpreting data to make appropriate modifications in patient care. This course includes the complete program competency list. At the completion of this clinical, learners must demonstrate competence in a minimum of 24 (required and/or simulated) competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisites: successful completion of all second year, first semester courses and concurrent enrollment in 10-515-183, 10-515-181 and 10-515-183.

10-515-183 Respiratory Therapy Clinical Practice 5 3 credits
Focuses on the completion of respiratory therapy competencies and transition to employment. This course includes the complete program competency list. At the completion of this clinical, learners must demonstrate competence in all of the required and/or simulated competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisites: successful completion of all second year, first semester courses and concurrent enrollment in 10-515-180, 10-515-181, 10-515-182 and 10-515-183.

516 Optometric-Technician
31-516-301 Ophthalmic Pre-Testing 3 credits
Covers the history of optometry, relationships between optometry, ophthalmology and opticianry and various paraprofessional careers in vision care. The course involves the study of and practical experience in patient pre-testing such as case history, visual acuity, color vision, pupil evaluation and depth perception as well as the specialized testing procedures such as keratometry and blood pressure.
31-516-305 Basic Optical Concepts 3 credits
Covers the properties of light and the function of a lens in vision correction. Included is a review of basic math needed in vision care and the physiological aspects of vision. This course begins the study of the neutralization and verification of spectacle lens powers, to include spherical, cylindrical and prism lenses.

31-516-315 Ocular Anatomy 2 credits
Familiarizes the optometric technician with the form and function of the human eye. The foundation of the lecture material is the anatomy of the eye, but we will discuss the physiology and function of the eye as much as possible. We will also discuss the actions and uses of diagnostic pharmaceutical agents, as their function is based on interference with normal ocular physiology. This course also covers optometric terminology as well as prescription translation.

31-516-323 Optical Dispensing 1 3 credits
Covers frame definition, parts and types of frames, measurement of frames and lenses, alignment of frames, inserting and removing lenses, introduction to dispensing of eyewear and frame repairs.

31-516-326 Optical Dispensing 2 2 credits
This course enables the student to develop a mastery of the alignment and adjustment of eyewear. It also covers the various lens materials, multifocal, styles and lens tints. Prerequisites: 31-516-323 and 31-516-305.

31-516-327 Clinical Ophthalmic Procedures 2 credits
This course prepares the technician to assist the doctor in advanced office techniques in the area of ultrasound, in-office surgical procedures, case history and charting. Students will also study various systemic diseases and their affect on the eye. The performance of various skills is emphasized in the laboratory sessions. Prerequisites: 31-516-315, 31-516-301, 31-516-305, 31-509-303.

31-516-330 Contact Lenses 3 credits
Gives the student in-depth exposure to the technical aspects of contact lens practice. Lecture and laboratory experiences emphasize lens verification, patient education and evaluation. Prerequisites: 31-516-301, 31-516-305 and 31-518-315.

31-516-333 Ophthalmic Specialty Testing 3 credits
Provides the student experience and knowledge in areas of special vision care procedures: subjective refraction, visual field testing; slit lamp, Goldmann and non-contact tonometry, basic concepts of orthoptics and the treatment of eye diseases including instillation of eye medications and eye patching. Patient instruction and assistance are emphasized in laboratory sessions. Prerequisites: 31-518-301, 31-518-305, and 31-518-315.

31-516-339 Human Relations 1 credit
Introduces students to their personal and vocational responsibilities as an optometric technician. The development of communication skills one needs as an optometric technician are introduced. The ethical and legal responsibilities of an optometric technician are defined. Time management techniques will be presented. Basic concepts of stress and how it affects behavior, and stress management are discussed. The course also covers writing a job application letter and resume as well as interview techniques.

31-516-340 Patient Relations and Practice Management 2 credits
Provides a study of front office management techniques including telephone and appointment book management, filing, recall systems, bookkeeping and insurance claim processing.

31-516-345 Preclinical 2 credits
Prepares students for clinical affiliation by having them complete vision screenings on patients from the college. Class discussions are held analyzing the results of the screening as well as the students' performance. Prerequisites: 31-516-301, 31-516-305 and enrollment in 31-516-335.

31-516-350 Clinical Experience 3 credits
Students participate 40 hours per week for six weeks of assigned clinical experience in an optometric or clinic setting. The student is expected to achieve specific educational objectives determined for this experience. Prerequisite: satisfactory completion of all first-semester courses plus enrollment in second-semester courses.

520 Human Services Associate

10-520-105 Introduction to Human Services 3 credits
Examines the scope, values and principles of the human service profession. Introduces the typical roles and duties of human service workers. Students assess their own motivations, attitudes and interests. In addition to the regular classroom hours, 45 hour of volunteer work in a community human services agency are required. Prerequisites: Human Services Associate course prerequisites.

10-520-106 Orientation to Human Services Populations 3 credits
Introduces social problems that contribute to the dysfunction of individuals, groups, families and communities. Addresses problems, needs, conditions and events that bring people to human service organizations. Prerequisites: Human Services Associate course prerequisites.

10-520-115 Group Work Skills 3 credits
Covers skills needed to organize, facilitate and participate in groups. Through reading and experiential exercises, students learn about group process, stages of group development, leadership styles, their own behavior in a group and the types of groups used in human services work. Prerequisite: 10-520-117.

10-520-117 Interviewing 3 credits
Students learn principles and techniques needed to conduct informational and supportive interviews. Students practice interviewing skills during class. Prerequisites: Human Services Associate course prerequisites.

10-520-120 Community Service Agencies 3 credits
Focuses on characteristics and functions of human services organizations and the roles of human service workers in those organizations. Covers organizational skills of assessment, planning, budgeting, grant writing, evaluation and consulting. Prerequisite: 10-520-105.

10-520-130 Social Change Skills 3 credits
Introduces principles and strategies of planned change and the role of human services workers as community organizers. Covers how consumers affected by a social problem can clearly define an issue, set a goal and organize to bring about social change. Prerequisite: 10-520-103.

10-520-135 Issues in Alcohol and Other Drug Abuse 3 credits
Provides students with a basic understanding of the use and abuse of alcohol and other drugs. Examines the role of human service providers in the rehabilitation of substance abusers. Emphasizes historical and social perspectives on drug use, trends of use and legal and social responses to illicit drug use. Additionally, this course provides an accurate description of the effects of psychoactive drugs, identifies methods of substance abuse treatment and introduces the student to local treatment services. Prerequisites: Human Services Associate course prerequisites.

10-520-136 Counseling Alcoholics and Other Drug Abusers 3 credits
Introduces students to the typical roles and duties of human service workers working directly or indirectly with clients in community agencies. Students develop skills in basic listening and responding skills, familiarizes students with the 12 core functions performed by AODA counselors (screening, intake, orientation, assessment, treatment planning, counseling, case management, crisis intervention, client education, referrals, reports, record keeping and consultation) and provides a structured learning environment in which students can develop skills in these core functions.

10-520-139 Human Services Agency Experience 1 4 credits
Students develop skills as human services workers by working directly or indirectly with clients in community agencies 15 hours per week. An agency supervisor and a faculty member closely supervise the student. The human services staff makes field placement assignments. Prerequisites: 10-520-105, 10-520-115, 10-520-117 and concurrent enrollment in 10-520-188.

10-520-140 Human Services Agency Experience 2 5 credits
Students continue their on-the-job training in community agencies for 20 hours per week. By the end of the course, students have the skills of an entry-level human services worker. Prerequisites: 10-520-139 and 10-520-188, and concurrent enrollment in 10-520-189.

10-520-141 Introduction to Community Mental Health 3 credits
Introduces the major diagnostic categories of mental illness, with a focus on the psychiatric management of these mental illnesses. Examines the unique treatment needs of people who have a coexisting psychiatric-disorder and substance-abuse problem.
10-520-150 Alcohol and Other Drug Abuse — Special Populations 3 credits
Provides an understanding of the unique AODA concerns, problems and needs of particular special populations, including youth, women, older adults, people with disabilities, gays and lesbians, ethnic and other minority groups.

10-520-157 Human Services Counseling Skills 3 credits
Introduces basic concepts of ego counseling, Rogerian counseling, transactional analysis, rational-emotive therapy, reality therapy, narrative therapy and solution focused therapy. Covers how counseling theories identify and define problems, explain personality development and treat problem situations. Prerequisites: 10-520-116 and 10-520-117.

10-520-188 Human Services Experience Conference 1 3 credits
A small-group seminar designed as a companion/supportive course to the agency experience. Relates theory and principles of practice to agency field study experience. Students learn to develop supportive relationships with clients and apply the values of confidentiality and client self-determination. They learn how their values and personal experiences affect their work with clients. Prerequisites: 10-520-105, 10-520-115, 10-520-117 and concurrent enrollment in 10-520-109.

10-520-189 Human Services Experience Conference 2 3 credits
Students develop skills specific to their fieldwork placement and complete a major project for their fieldwork agency. Taken concurrently with 10-520-140. Prerequisites: 10-520-139 and 10-520-188.

524 Restorative and Rehabilitation Therapy

10-524-124 Restorative and Rehabilitation Therapy Aide 3 credits
The 60 hour, 3 credit, Restorative and Rehabilitation Therapy Aide Program prepares Certified Nursing Assistants for employment as aides in restorative and rehabilitation therapy settings. Rehabilitation therapy aids work in the therapy department under the supervision of the therapist in hospitals, long term care and clinic settings. Restorative aides work under the supervision of the registered nurse. Training includes classwork, lab and clinical instruction in therapeutic interventions and approaches to care.

526 Radiography

10-526-101 Introduction to Radiologic Technology 4 credits
The basic field of radiologic technology is introduced, focusing on radiation protection, professional ethics, patient care, medical-legal issues, medical terminology, prime exposure factors, technical factors of film quality, and clinical aspects of radiologic technology. Energized x-ray units are demonstrated. Prerequisites: Radiography course prerequisites and concurrent enrollment in 10-526-102, 10-526-111, 10-526-113 and 10-526-181.

10-526-102 Radiographic Anatomy 1 2 credits
Introduces the interrelationship of anatomical parts. Illustrates three-dimensional location and external landmarks using skeletons, phantoms and radiographs, gross physiology and organ size, shape and location using anatomical models and/or radiographs. Prerequisites: Radiography course prerequisites and concurrent enrollment in 10-526-101, 10-526-111, 10-526-113 and 10-526-181.

10-526-103 Radiographic Physics 2 credits
Demonstrates the use of fundamental and derived units and reviews basic mathematics, mechanics, subdivision of matter, mass-energy equivalence, magnetism, electricity, electromagnetism, electromagnetic spectrum energies, generators and motors, transformers, rectifiers and voltage-current controlling devices. Prerequisites: Radiography course prerequisites, 10-526-101, 10-526-111, 10-526-113 and 10-526-181.

10-526-104 Radiographic Anatomy 2 2 credits
A continuation of Radiographic Anatomy 1 (10-526-102), this course addresses the interrelationship of anatomical parts, illustrates three-dimensional location and external landmarks using skeletons, phantoms and radiographs, gross physiology and organ size, shape and location using anatomical models and/or radiographs. Body systems covered are digestive, urinary, reproductive, circulatory, nervous, endocrine, lymphatic and special senses.

10-526-111 Radiographic Procedures 1 4 credits
Fundamentals and terminology of radiographic positioning are studied. Body areas covered are the chest, abdomen and extremities. Prerequisites: Radiography Course Prerequisites and concurrent enrollment in 10-526-101, 10-526-102 and 10-526-181.

10-526-112 Radiographic Procedures 2 4 credits
Body areas covered include urinary and gastro-intestinal tracts, skull and spine. Prerequisites: satisfactory completion of all first-semester, first-year Radiography courses.

10-526-113 Radiography Lab 1 2 credits
Students apply information from Radiography classes (Introduction to Radiologic Technology, Radiographic Procedures 1 and Radiographic Anatomy) and practice patient care and techniques and positioning skills in a simulated setting.

10-526-114 Radiography Lab 2 2 credits
Students apply information from Radiography classes (Radiographic Techniques 1, Radiographic Procedures 2, Radiographic Physics and Radiographic Anatomy) and knowledge and skills acquired in Radiography Lab 1 to practice positioning skills in a simulated clinical setting.

10-526-131 Radiographic Techniques 1 4 credits
A discussion of radiographic principles, protection, film and film quality, construction and design of dark rooms, and manual and automatic processing techniques and chemistry. Reducing patient exposure to ionizing radiation by selecting proper exposure factors and using accessory devices is demonstrated. Prerequisites: satisfactory completion of all first-semester, first-year Radiography courses.

10-526-140 Radiographic Pathology 1 credit
The various disease classifications are explored. Students study pathological conditions of the various body systems. The effect(s) of disease on radiographic technique are addressed and illustrated on radiographs.

10-526-141 Radiologic Science 1 credit
A discussion of x-ray properties, including production, interaction with matter, basic single- and three-phase x-ray circuits, x-ray tube construction, and radiation, detection and measurement methods. Experiments demonstrate effect of KVP, MAS, distance and collimation upon patient exposure. Radiation dosimetry, biology, patient and personnel protection, health physics, x-ray spectra, HVL, depth dose, structural shielding and radiation codes are studied. Prerequisites: satisfactory completion of all first-semester, first-year Radiography courses.

10-526-142 Radiographic Quality Assurance 2 credits
The theory of quality assurance in the x-ray environment is emphasized. After a detailed study of test theory, students perform a question and answer survey of a medical imaging department. Film critique portion of course offers a review of radiographic technique, positioning, anatomy and pathology.

10-526-143 Radiation Protection 1 credit
Designed to give the student functional knowledge of the biological effects of ionizing radiation and radiation standards and practices, includes a review of cell structure and reproduction. Interactions of various types of radiation with matter are studied, with an emphasis on the interactions between x-rays and human tissue. Genetic and somatic effects of x-radiation on human are examined on both the cellular and systemic levels. Standards and methods of radiation detection and measurement are included. Patient and occupational radiation protection are reviewed. The course draws on the student's knowledge of human anatomy and their clinical experience, and prepares the student for the Radiography certification exam.

10-526-144 Applied Clinical Radiography 1 1 credit
Students perform standard radiographic examination of patients—chest, abdomen, urinary and gastro-intestinal tracts, extremities, skull, shoulder and pelvic girdles, surgery, and trauma—with supervision. Various clinical educational sites are used. Prerequisite: all first-year radiography courses.

10-526-154 Applied Clinical Radiography 2 2 credits
A continuation of examination performances in all radiographic imaging areas with limited supervision as clinical competency indicates. Prerequisites: satisfactory completion of all second semester, second-year Radiography courses.
10-526-155  Specialized Imaging 3 credits
An introduction to specialized and higher technical procedures in radiography, including fluoroscopy, mammography, portables, surgery, supervised practice with CT scanners and digital subtraction angiography equipment. Medical indications and anatomy, including cross-sectional anatomy for each examination are surveyed. Students rotate through portables, surgery and look at the sub-specialties of MRI, radiotherapy, nuclear medicine and ultrasound. This course develops interests in areas where cross training is acceptable and includes assisting in nuclear medicine and ultrasound at a basic level. This training is not sufficient for certification in advanced certification examinations.

10-526-156  Applied Clinical Radiography 3 credits
A continuation of examination performances in all radiographic imaging areas with limited supervision as clinical competency indicates. Prerequisites: all prior radiography courses.

10-526-157  Radiographic Techniques 2 3 credits
This course is a review of the program materials for the purpose of preparing students for the American Registry of Radiologic Technologist certification examination. Emphasis is placed on simulated registry examinations with study where necessary. Prerequisite: All technical and occupational supportive courses. May be taken concurrently with 10-526-156.

10-526-161  Practicum 1 3 credits
Students perform both standard radiographic examinations and special views and positions of chest, abdomen, extremities, and shoulder and pelvic girdles. Various clinical sites are used. Prerequisites: Radiography Course Prerequisites and concurrent enrollment in 10-526-101, 10-526-102 and 10-526-111.

10-526-162  Practicum 2 3 credits
A continuation of radiographic exam performance in all imaging areas with decreasing supervision as skills and clinical competency improve. Students perform both standard radiographic examinations and special views and positions of chest, abdomen, extremities, shoulder and pelvic girdles. Various clinical sites are used. Prerequisites: Satisfactory completion of all first semester, first year Radiography courses.

10-526-163  Practicum 3 4 credits
Continuation of radiographic exam observation, assistance and performance of all radiographic imaging areas with decreasing direct supervision by a qualified technologist as the student improves skills and improved clinical competency increases. Students perform standard radiographic examinations of patients—chest, abdomen, urinary and digestive tracts, extremities, skull, shoulder and pelvic girdles, portables and surgery with direct supervision, and trauma with direct supervision. Students assist technologists with special positions of examinations for above-standard tests. Various clinical education centers are used. Prerequisite: Satisfactory completion of all first-year courses.

10-526-169  Mammographic Instrumentation and Quality Assurance 3 credits
Provides the student with the foundational concepts of mammographic equipment and quality assurance testing. This course will include types and functions, factors that govern and influence Image production and recording, and quality control equipment. The student will gain the knowledge to construct a quality assurance program for a mammography program following the ACR and MQSA Guidelines. Offered online only.

10-526-166  Mammographic Positioning and Anatomy 3 credits
Provides the fundamentals of mammography positioning. The course will include breast anatomy and physiology, pathology and treatment of breast disease, and interventional procedures. Course content will emphasize the importance of establishing a positive relationship with the patient, addressing their psychological needs, and providing patient information related to the procedure. Offered as a combination online and traditional class.

10-526-167  Clinical Mammography 3 credits
Provides the student with the clinical experience required to become competent in performing mammographic procedures, mammographic film critique, and time to perform required quality control testing. Upon course completion, the student will be competent in completing the entire examination from request and chart review, to patient positioning, explaining the procedure to the patient, positioning the patient, using required accessories, setting the equipment, making a correct exposure, processing the film, completing paperwork, using the computer to store patient data, and maintaining quality control.

530 Medical Coding Specialist

10-530-181  Introduction to the Health Record 1 credit
Prepares students to illustrate the flow of health information in various health care delivery systems and within the health information department. It prepares students to retrieve data from health records. Professional ethics, confidentiality and security of health information are emphasized.

10-530-182  Human Diseases for the Health Profession 3 credits
Focuses on the common diseases of each organ/body system as encountered in all types of health care settings by health professionals. Emphasis is placed on understanding the etiology (cause), signs and symptoms, diagnostic tests, treatment (including pharmacological) of each disease.

10-530-183  ICD-9-CM Coding 3 credits

10-530-184  CPT Coding 3 credits
Prepares students to assign CPT codes, supported by medical documentation with entry-level proficiency. Students apply CPT instructional notations, conventions, rules, and official coding guidelines when assigning CPT codes to case studies and actual medical record documentation. Co-requisite: 10-530-183.

10-530-185  Health Care Reimbursement 2 credits
Prepares the students to compare and contrast health care payers, illustrate the reimbursement cycle, and to comply with regulations related to fraud and abuse. Students assign Diagnosis Related Groups (DRGs), Ambulatory Payment Classifications (APCs), and Resource Utilization Groups (RUGs) with entry-level proficiency using computer encoding and grouping software. Prerequisite or Co-requisite: 10-530-183 and 10-530-184.

10-530-186  Advanced ICD-9-CM Coding 3 credits
Requires the student to apply and expand the knowledge gained from the basic course, ICD-9-CM Coding, to more difficult cases. The student will develop critical-thinking skills by using current references to research coding questions and issues. Computerized encoding software is utilized.

10-530-187  Advanced CPT Coding 3 credits
Requires the student to apply and expand the knowledge gained from the basic course, CPT Coding, to more difficult cases. The student will develop critical-thinking skills by using current references to research coding questions and issues. Computerized encoding software is utilized.

10-530-188  Certification and Professional Development 1 credit
This course prepares students for coding certification and includes mock coding certification exams. Students participate in professional development activities and discuss career progression opportunities.

10-530-189  Management of Coding Services 1 credit
This course focuses on common coding management issues including coding quality, coding productivity, and workflow processes. Recruitment training and retention of coding staff are included.

531 Emergency Medical Services

10-531-110  Paramedic Fundamentals 3 credits
Prepares students for clinical practice in hospital units. Students develop competencies in patient assessment techniques, venipuncture, IV insertion, administration of medication, airway maintenance techniques and record keeping. Also covers medical terminology, acid-base balance and infectious disease precautions. Prerequisites: 10-531-105, 10-531-134 and 10-531-140.
10-531-112 Adult Medical Emergencies 1 3 credits
Covers pathophysiology, patient assessment, differential diagnosis and prehospital treatment of common adult emergencies, including pulmonary, cardiovascular, gastrointestinal, neurological, endocrine, renal, environmental and psychological emergencies. Prerequisites: 10-531-105, 10-531-134 and 10-531-140.

10-531-114 Adult Medical Emergencies 2 3 credits
Continuation of Adult Emergencies 1. Prerequisites: 10-531-110, 10-531-112, 10-531-118 and 10-531-128.

10-531-116 Paramedic Pharmacology 2 credits
Enables students to safely administer the commonly used pre-hospital medications. Prerequisites: 10-531-105, 10-531-134, and 10-531-140.

10-531-118 ECG Interpretation for Paramedics 2 credits
Includes the etiology and ECG characteristics of all major arrhythmias. Interpretation will focus on utilization and Interpretation of Lead 2 and 12 Lead rhythm strips. Prerequisites: 10-531-105, 10-531-134 and 10-531-140.

10-531-120 Pre-Hospital Obstetrical and Pediatric Emergencies 3 credits
Covers pathophysiology, patient assessment, differential diagnosis and prehospital treatment of common obstetrical and pediatric emergencies. Clinical experience in pediatric and obstetrical units is required. Prerequisites: 10-531-110, 10-531-112, 10-531-116, 10-531-118 and 10-531-128.

10-531-122 Advanced Paramedic Procedures 1 credit
Provides demonstration and supervised performance of cardioversion, pericardiocentesis, thoracic decompression and intra-osseous infusion in a laboratory setting. Prerequisites: 10-531-110, 10-531-112, 10-531-116, 10-531-118 and 10-531-128.

10-531-124 Advanced Cardiac Life Support for Paramedics 1 credit
Includes all the mandatory content areas and testing stations as outlined by the American Heart Association for an ACLS course. Students must achieve certification in ACLS according to American Heart Association Standards. Prerequisites: 10-531-110, 10-531-112, 10-531-116, 10-531-118 and 10-531-128.

10-531-128 Psycho-Social Issues in Emergency Care 1 credit
Covers issues and problems facing paramedics in pre-hospital emergency care, including job stress, ethical issues, legal aspects and death. Students ride one shift with a police officer. Prerequisites: 10-531-110, 10-531-112, 10-531-116, 10-531-118 and 10-531-128.

10-531-129 Paramedic Clinical Experience 1 4 credits
Supervised clinical experience in selected units of a hospital. Students observe patient care and participate within the scope of paramedic practice. Prerequisites: 10-531-105, 10-531-134 and 10-531-140.

10-531-130 Paramedic Clinical Experience 2 4 credits
Continuation of Paramedic Clinical Experience 1. Prerequisites: 10-531-110, 10-531-112, 10-531-116, 10-531-118 and 10-531-128.

10-531-132 Field Internship 6 credits
Upon successful completion of didactic and clinical training, paramedic students participate in a field internship. Students apply knowledge and skills to prehospital patient situations, supervised by clinical instructors, on ambulance calls. Prerequisites: 10-531-114, 10-531-120, 10-531-122, 10-531-124, 10-531-126 and 10-531-130.

10-531-140 EMS Management Principles 2 credits
Covers the history of the paramedic and reviews current operation of paramedic services. Management practices and skills are stressed, and opportunities to observe and learn from EMS managers are provided. Prerequisite: 30-531-301.

10-531-150 Emergency Response for Protective Services 2 credits
Covers the immediate and temporary care given in case of accident, illness or emergency childbirth. This course qualifies students for the standard or advanced Red Cross first aid certificate. Meets LEB performance objectives.

10-531-190 Ag Tech CPR/First Aid 1 credit
A combination of safety, first aid and CPR for emergencies that may occur in the agricultural equipment industry. Prerequisite: 10-531-190. Presents the instruction and practical content of the American Heart Association's basic life support course.

10-531-301 Emergency Medical Technician Basic 4 credits
Follows the US Department of Transportation EMT-Basic course curriculum. Patient contact experience required. This course meets requirements for certification with the National Registry of Emergency Medical Technicians and educational requirements for EMT licenses in Wisconsin. Prerequisite: initial CPR certification at professional level. Students must be at least 16 years old.

10-531-317 Emergency Response for Protective Services 1 credit
Learn how to perform an initial medical assessment for injury or medical condition, how to provide immediate treatment for a variety of injuries and conditions, and how to perform CPR and use an automated emergency defibrillator.

10-531-351 Advanced Emergency Care 1 4 credits
Students learn advanced patient assessment, communication skills and intermediate advanced life support interventions. Prerequisite: valid EMT-Basic license.

10-531-352 Advanced Emergency Care 2 4 credits
Students continue to learn advanced patient assessment, communication skills and intermediate advanced life support interventions. Prerequisite: Advanced Emergency Care 1, 30-531-351.

10-531-353 Emergency Medical Technician Intermediate Internship 4 credits
Upon successful completion of Advanced Emergency Care 1, 30-531-351, and Advanced Emergency Care 2, 30-531-352, students participate in a field internship. Students apply knowledge and skills to prehospital patient situations, supervised by clinical instructors, on ambulance calls.

10-531-360 EMT Intermediate Technician 3 credits
Students learn advanced patient assessment, communication skills and beginning advanced life support interventions. Meets requirements for licensure in Wisconsin. Prerequisite: valid EMT-Basic License.

10-531-378 Introduction to Advanced Emergency Care 2 2 credits
Provides an introduction to the paramedic program with an emphasis on the role and responsibilities of a paramedic. Subjects covered include the study of human growth and development, and anatomy and physiology. The course continues with legal and ethical issues, communication and patient assessment. Medical history, data collection, physical examination and clinical decision-making will be addressed in both lecture and lab format. This course is based on the Department of Transportation National Standard Curriculum Wisconsin Revised Version for EMT-Paramedic. Prerequisites: Healthcare Provider CPR course, course and Emergency Medical Technician-Basic, 30-531-301, Corequisites: 30-531-371, 30-531-374, 30-531-377, 30-531-378.

10-531-379 Pharmacology 2 credits
Offers an introduction to basic vocabulary and principles of pharmacology, and clinical therapeutics. Study of fluid and electrolytes along with acid base balance are addressed. Administration of drugs, including intramuscular, subcutaneous, and intravenous therapy will be studied along with the drugs and protocols. This course is based on the Department of Transportation National Standard Curriculum Wisconsin Revised Version for EMT-Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Medical Technician-Basic, 30-531-301, Corequisites: 30-531-371, 30-531-374, 30-531-377, 30-531-378.

10-531-372 Trauma Care for the Paramedic 2 credits
Review of all systems, which include mechanism of injury, patient presentation and assessment, management techniques, including pharmacology and local protocols. Lecture format is used followed by a lab to utilize the knowledge learned in the classroom to apply in the laboratory setting. This course is based on the Department of Transportation National Standard Curriculum Wisconsin Revised Version for EMT-Paramedic. Prerequisites: all first-semester courses. Corequisites: 30-531-373, 30-531-375, 30-531-376, 30-531-378.
30-531-373 EMS Operations 1 credit
Addresses the current issues involved in bioterrorism and the management of incidents involving hazardous materials. The operations, roles and responsibilities are addressed along with the resources available. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT-Paramedic. Prerequisites: all first-semester courses. Corequisites: 30-531-372, 30-531-375, 30-531-376, 30-531-379.

30-531-374 EMT-Paramedic Clinical 1 3 credits
Clinical experience provided during which the paramedic student utilizes the knowledge and skills learned in the classroom and lab. A preceptor will evaluate the student in the following areas: emergency department, operating room and intensive care units. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT-Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Technician-Basic, 30-531-301. Corequisites: 30-531-370, 30-531-371, 30-531-377 and 30-531-378.

30-531-375 Medical Emergencies 1 2 credits
Review provided of systems, definitions, signs and symptoms, assessment, management techniques including pharmacology and local protocols. The following specialties are addressed: general pathology, hematology, emergency medicine, system, physiology, toxicology and communicable diseases. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT-Paramedic. Prerequisites include all courses in the first semester. Corequisites: 30-531-372, 30-531-373, 30-531-376, 30-531-379.

30-531-376 Emergency Care for Specialties 2 credits
Continuation of review of systems, definitions, signs and symptoms, assessment, management techniques including pharmacology and local protocols. The following specialties are addressed: gastroenterology, hematology, emergency department, operating room and intensive care units. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT-Paramedic. Prerequisites: all first-semester courses. Corequisites: 30-531-372, 30-531-373, 30-531-375, 30-531-379.

30-531-377 Advanced Cardiopulmonary Emergency Care 2 credits
Overview of the course includes the pulmonary, cardiovascular and renal systems. Systems, definitions, signs and symptoms, assessment, management techniques are reviewed and discussed. Labs include airway and ventilation management, ECG interpretation and pharmacology as it relates to the above systems. Upon completion of the course with a grade of C or higher, the student will be eligible to attend the ACLS certification course. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT-Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Medical Technician-Basic, 30-531-301. Corequisites: 30-531-370, 30-531-371, 30-531-374, 30-531-379.

30-531-378 Adult and Pediatric Advanced Cardiac Life Support 1 credit
The American Heart Association sponsored courses of advanced certification in the adult and pediatric patients. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT-Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Medical Technician-Basic, 30-531-301. Corequisites: 30-531-370, 30-531-374, 30-531-377.

30-531-379 EMT-Paramedic Clinical 2 3 credits
Clinical experience provided during which the paramedic student utilizes the knowledge and skills learned in the classroom and lab. A preceptor will evaluate the student in the following areas: hospital, clinic, public health department and home health. This course is based on the Department of Transportation National Curriculum, Wisconsin Revised Version for EMT-Paramedic. Prerequisites: all first semester courses. Corequisites: 30-531-372, 30-531-373, 30-531-375, 30-531-376.

30-531-380 Paramedic Seminar 1 credit
Allows the paramedic students' preceptors and clinical instructors to meet, plan, implement and evaluate the clinicals along with the field Internship. Instruction on how to study for the licensure exam is included. Prerequisites: completion of all courses in the one-year diploma paramedic program with a grade of C or higher. Corequisite: 30-531-381.

30-531-381 EMT-Paramedic Internship 4 credits
Field Internship includes hours participating on-call, riding in the ambulance with directed patient care. Duties include direct patient care in the pre-hospital setting, documentation, maintenance and inventory of equipment, and duties are assigned by the preceptor and sponsoring agency. Students are eligible to sit for the National Registry Certification Exam upon successful completion of all Field Internship clinical hours. Upon passing the National Registry Exam for EMT-Paramedic, the student will be eligible for licensure by the State of Wisconsin. Prerequisites: completion of all courses in the one-year diploma paramedic program with a grade of C or higher. Corequisite: 30-531-380.

30-537-336 Musculoskeletal Anatomy 1 credit
Course focuses on the anatomy and physiology of the skeletal and muscular systems of the body. Students will learn the names, locations, insertion points, and actions of many of the muscles of the human body. An optional cadaver lab is offered to interested students.

30-537-337 Body Structure and Function 2 credits
Covers the chemical composition of the body, structure of the cells, tissue types, and organ systems throughout all of the systems of the body. This anatomy/physiology course is designed principally for massage and bodywork students.

30-537-338 Kinesiology 1 credit
Students further study the musculoskeletal system with an emphasis on muscle groups used to perform specific actions. This course will assist students in making assessments and identifying muscles involved in certain injuries. Prerequisites: 30-537-336 and 30-537-338.

30-537-339 Pathology 1 credit
Covers the types of disorders that may occur in each of the major body systems and more specifically, the signs and symptoms of selected disorders that could endanger the health of either the massage client or the practitioner. Students also gain a basic understanding of pharmacology and the possible interactions between medications and massage. Prerequisites: 30-537-335, 30-537-337, 30-537-338 and 30-537-342.

30-537-340 Introduction to Therapeutic Massage 1 3 credits
This course introduces students to the field of "touch therapies." Topics covered include the history of massage, educational and legal requirements, effects, benefits, and contraindications of massage, basic massage techniques, proper draping techniques, body mechanics, chair massage, and selecting a massage table. Many learning activities help students in developing increased body awareness and relaxation skills. Prerequisites or Co-requisites: 30-537-339 and 30-537-337.

30-537-341 Introduction to Therapeutic Massage 2 3 credits
Topics covered include personal and professional ethics, medical terminology, sanitation and safety, choosing massage equipment and supplies to create the massage environment, interviewing clients, assessments, and keeping client records. Students are instructed in making positive choices for a healthy lifestyle. Massage techniques include learning a full body massage routine. Prerequisite: 30-537-340.

30-537-342 Specialized Techniques 3 credits
Students learn to work with clients with special needs such as pregnant clients, the elderly and individuals with particular health challenges. Remedial techniques taught include trigger point therapy, cross fiber friction, sports massage, reflexology, and other therapeutic techniques. Related and complementary fields are explored. Prerequisite: 30-537-342, 30-537-338 and 30-537-339.

30-537-344 Massage Clinic and Business Practices 3 credits
This training provides the massage student with an opportunity to practice and refine their massage skills and to deal with clients with varying needs. The student-run clinic affords the student experience in scheduling appointments, keeping client records, and creating a restful, relaxing atmosphere for clients. In the business portion of the class, students explore career opportunities and compare advantages. Students must be certified in First Aid/CPR before beginning clinic. Prerequisites: 30-537-341, 30-537-338 and 30-537-339.
31-538-301 Intro to Interpreting 1 credit
This initial interpretation course develops students' listening and memory skills and provides strategies to translate texts orally (slight) from Spanish into English or vice versa while maintaining the same style and register as the original. Development and enhancement of students' bilingual potential in both English and Spanish through the acquisition of non-technical vocabulary and comparative syntax will also be emphasized. Class is taught in English.

31-538-302 Intro to Basic Translation Skills 1 credit
Principles and procedures for the translation of written materials. Includes an introduction to translation, translation preparation, translation procedures, basics of grammar. Class is taught in English.

31-538-303 Cultural Competency 1 credit
An orientation to some of the factors that influence people to speak, act, negotiate and make decisions. The objective is to modify personal assumptions and habits that impede success in the workplace, at whatever level of employment, whether domestic or international. Students will learn how to develop, use systems and policies/socialemotional effects of relationships. Special consideration will be given to international communication, negotiations, marketing, and host international visitors. Class is taught in English.

31-538-304 Intro to Interpreting in Spanish 2 credits
Specific theories and practices in interpreting oral communication from English to Spanish and Spanish to English. Includes theories of interpretation, techniques of interpretation, interpretation strategies, interpretation procedures, and modes of interpretation. Class is taught in English and Spanish. Prerequisite: 31-538-301.

31-538-305 Intro to Basic Translation Skills in Spanish 2 credits
Principles and procedures for the translation of written materials. Includes an introduction to translation, translation preparation, translation procedures, basics of grammar in the target languages English and Spanish. Analysis of the Spanish language from the translator's point of view. Includes the structure of Spanish, cultural and stylistic components, paragraph and document development, mechanics and punctuation for editing, and writing resources. Class is taught in English and Spanish. Prerequisite: 31-538-302.

31-538-306 Intro to Computer Basics 1 credit
This course provides an overview of the computer for all levels. Focus will be on using software to keep your freelance Interpretation business running smoothly. Class is taught in English.

31-538-307 US Health Care System 2 credits
This course is designed to give the student a broad understanding of the dynamics, key elements and overall principles of the health care system in the U.S. Particular attention is given to terms used by health service professionals and pay/payer/provider relationships. Class is taught in English.

31-538-308 Interpreting in Health Care in Spanish 1 credit
This course develops the techniques, practice and knowledge needed to function as interpreters in a medical environment. Interpretation modes such as sight translation and consecutive interpretation as they apply to the medical setting are emphasized. Medical vocabulary/terminology in both English and Spanish will also be introduced. Class is taught in English and Spanish. Prerequisites: 31-538-301; 31-538-302; 31-538-304; 31-538-308. Corequisites: 31-538-303.

31-538-309 Interpreting in Mental Health in Spanish 1 credit
This course develops the techniques, practice and knowledge needed to function as interpreters in a mental health care setting. Interpretation modes such as sight translation and consecutive interpretation as they apply to the mental health care setting are emphasized. Mental health vocabulary/terminology in both English and Spanish will also be introduced. Class is taught in English and Spanish. Prerequisites: 31-538-301; 31-538-302; 31-538-303; 31-538-304; 31-538-305.

31-538-310 Ethics 1 credit
This course provides an in-depth examination of the ethical principles, the National Code of Ethics for Interpreters in Health Care and their application in the work setting. Prepares students to display professionalism and perform within legal and ethical boundaries. Class is taught in English.

31-538-311 Business Practices 1 credit
This course covers the business basics of working as a freelance medical interpreter. Gives a brief overview of marketing, insurance, tax implications, home office, organization, managing your finances, legal do's and don'ts, business resources and technology as they pertain to freelance interpreting. Class is taught in English and Spanish.

31-538-312 Medical Practicum 1 credit
Engaging in a study area internship to produce a translated product. Includes agency/individual sponsor, internship goals, portfolio project and on-site or supervised training.

31-538-313 Cultural Competency in Medical Setting 1 credit
This course provides an overview of cultural diversity as it relates to the delivery of health care services. Culture, diversity and cultural competence will be examined. Strategies to assess and evaluate the culturally diverse client will be discussed to prepare health care providers to meet the changing needs of clients. Class is taught in English. Prerequisite: 31-538-303.

543 Nursing (Includes Associate Degree Nursing, Practical Nursing and Nursing Assistant)

10-543-101 Nursing Fundamentals 2 credits
This course focuses on basic nursing concepts that the beginning nurse will need to provide care to various patient populations. Current and historical issues impacting nursing will be explored within the scope of nursing practice. The nursing process will be introduced as a framework for organizing the care of patients with attention to cognition, elimination, comfort, grief, stress, mobility, integument, and fluid/electrolyte balance.

10-543-102 Nursing Skills 3 credits
This course focuses on the development of clinical skills and physical assessment across the lifespan. Content includes mathematical calculations and conversions related to clinical skills, blood pressure assessment, aseptic technique, wound care, oxygen administration, tracheostomy care, suctioning, management of enteral tubes, basic medication administration, glucose testing, enemas, ostomy care, and catheterization. In addition the course includes techniques related to obtaining a health history and basic physical assessment skills using a body systems approach.

10-543-103 Nursing Pharmacology 2 credits
This course introduces the principles of pharmacology, including drug classifications and their effects on the body. Emphasis is on the use of the components of the nursing process when administering medications.

10-543-104 Nursing: Introduction to Clinical Practice 2 credits
This introductory clinical course emphasizes basic nursing skills and application of the nursing process in meeting the needs of diverse clients. Emphasis is placed on performing basic nursing skills, the formation of nurse-client relationships, communication, data collection, documentation, and medication administration.

10-543-105 Nursing Health Alterations 3 credits
This course integrates the basic concepts of health and illness as presented in Nursing Fundamentals. It applies theories of nursing in the care of clients through the lifespan, utilizing problem solving and critical thinking. This course will provide an opportunity to study conditions affecting different body systems and apply therapeutic nursing interventions. It will also introduce concepts of leadership, team building, and scope of practice.

10-543-106 Nursing Health Promotion 3 credits
This course will cover topics related to health promotion in the context of the family. We will cover nursing care of the developing family, which includes reproductive issues, pregnancy, labor and delivery, postpartum, newborn, and the child. Recognizing the spectrum of healthy families we will discern patterns associated with adaptive and maladaptive behaviors applying mental health principles. An emphasis is placed on teaching and supporting healthy lifestyle choices. Nutrition, exercise/stress management, empowerment, and risk reduction practices are highlighted. Study of the family will cover dynamics, functions, discipline styles, and stages of development.
10-543-107 Nursing Clinical Care Across the Lifespan 2 credits
This clinical experience applies nursing concepts and therapeutic interventions to clients across the lifespan. It also provides an introduction to concepts of teaching and learning. Extending care to include the family is emphasized.

10-543-108 Nursing: Intro. to Clinical Management 2 credits
This clinical experience applies nursing concepts and therapeutic nursing interventions to groups of clients. It also provides an introduction to leadership, management and team building.

10-543-109 Nursing Complex Health Alterations 1 2 credits
Complex Health Alterations 1 prepares the learner to expand knowledge from previous courses in caring for clients with alterations in musculoskeletal, cardiovascular, respiratory, endocrine, and hematologic systems as well as clients with fluid/electrolyte and acid-base imbalance, and alterations in comfort.

10-543-110 Nursing Mental Health Community Concepts 2 credits
This course will cover topics related to the delivery of community and mental health care. Specific health needs of individuals, families, and groups will be addressed. Attention will be given to diverse and at-risk populations. Mental health concepts will concentrate on adaptive/ maladaptive behaviors and specific mental health disorders. Community resources will be examined in relation to specific types of support offered to racial, ethnic, economically diverse individuals and groups.

10-543-111 Nursing Intermediate Clinical Practice 3 credits
This intermediate level clinical course develops the RN role when working with clients with complex health care needs. A focus of the course is developing skills needed for managing multiple clients and priorities. Using the nursing process, students will gain experience in adapting nursing practice to meet the needs of clients with diverse needs and backgrounds.

10-543-112 Nursing Advanced Skills 1 credit
This course focuses on the development of advanced clinical skills. Content includes advanced IV skills, blood product administration, chest tube systems, basic EKG interpretation and nasogastric feeding tube insertion.

10-543-113 Nursing Complex Health Alterations 2 3 credits
Complex Health Alterations 2 prepares the learner to expand knowledge and skills from previous courses in caring for clients with alterations in the immune, neuro-sensory, musculoskeletal, gastrointestinal, hemodialysis, renal/urinary and the reproductive systems. The learner will also focus on management of care for clients with high risk peripheral conditions, high risk newborns and the ill child. Synthesis and application of previously learned concepts will be evident in the management of clients with critical care threatening situations.

10-543-114 Nursing Management Concepts 2 credits
This advanced clinical course covers nursing management and professional issues related to the role of the RN. Emphasis is placed on preparing for the RN practice.

10-543-115 Nursing Advanced Clinical Practice 3 credits
This advanced clinical course requires the student to integrate concepts from all previous courses in the management of groups of clients facing complex health alterations. Students will have the opportunity to further develop critical thinking skills using the nursing process in making clinical decisions. Continuity of care through interdisciplinary collaboration is emphasized.

10-543-116 Nursing Clinical Transition 2 credits
This clinical experience integrates all knowledge learned in the previous courses in transitioning to the role of the graduate nurse. The course promotes relatively independent clinical decisions, delegation, and works collaboratively with others to achieve client and organizational outcomes.

31-543-301 Nursing Fundamentals 2 credits
This course focuses on basic nursing concepts that the beginning nurse will need to provide care to diverse patient populations. Current and historical issues impacting nursing will be explored within the scope of nursing practice. The nursing process will be introduced as a framework for organizing the care of patients with alterations in cognition, elimination, comfort, grief/loss, mobility, integument, and fluid/electrolyte balance.

31-543-302 Nursing Skills 3 credits
This course focuses on development of clinical skills and physical assessment across the lifespan. Content includes mathematical calculations and conversions related to clinical skills, blood pressure assessment, aseptic technique, wound care, oxygen administration, tracheostomy care, suctioning, management of central lines, basic medication administration, glucose testing, enemas, ostomy care, and catheterization. In addition the course includes techniques related to obtaining a health history and basic physical assessment skills using a body systems approach.

31-543-303 Nursing Pharmacology 2 credits
This course introduces the principles of pharmacology, including drug classifications and their effects on the body. Emphasis is on the use of the components of the nursing process when administering medications.

31-543-304 Nursing: Introduction to Clinical Practice 2 credits
This introductory clinical course emphasizes basic nursing skills and application of the nursing process in meeting the needs of diverse clients. Emphasis is placed on performing basic nursing skills, the formation of nurse-client relationships, communication, data collection, documentation, and medication administration.

31-543-305 Nursing Health Alterations 3 credits
This course elaborates upon the basic concepts of health and illness as presented in Nursing Fundamentals. It applies theories of nursing in the care of clients through the lifespan, utilizing problem solving and critical thinking. This course will provide an opportunity to study conditions effecting different body systems and apply therapeutic nursing interventions. It will also introduce concepts of leadership, team building, and scope of practice.

31-543-306 Nursing Health Promotion 3 credits
This course will cover topics related to health promotion in the context of the family. We will cover nursing care of the developing family, which includes reproductive issues, pregnancy, labor and delivery, post-partum, the newborn, and the child. Recognizing the spectrum of healthy families we will discern patterns associated with adaptive and maladaptive behaviors applying mental health principles. An emphasis is placed on teaching and supporting healthy lifestyles choices. Nutrition, exercise, stress management, empowerment, and risk reduction practices are highlighted. Study of the family will cover dynamics, functions, discipline styles, and stages of development.

31-543-307 Nursing: Clinical Care Across the Lifespan 2 credits
This clinical experience applies nursing concepts and therapeutic interventions to clients across the lifespan. It also provides an introduction to concepts of teaching and learning. Extending care to include the family is emphasized.

31-543-308 Introduction to Clinical Management 2 credits
This clinical experience applies nursing concepts and therapeutic nursing interventions to groups of clients. It also provides an introduction to leadership, management and team building.

31-543-309 Body Structure and Function 2 credits
This course provides insight into basic human body structure and functions, including fundamental concepts needed to understand and evaluate health practices related to each system and the body as a whole. May be taken prior to entering the program (on a space-available basis). Prerequisite: one year each of high school math and science with a grade of C or better in each course, each semester.

30-543-345 Video-Based Nursing Assistant 3 credits
This course provides students for employment as nursing assistants. Students learn communication skills, basic nursing and personal care skills, client rights, and care of clients with disabilities. A supervised clinical experience with direct client care is a major component of the course. Upon completion, the student is eligible to take the certification exam. This program meets all CBRA regulations and is approved by DHFS as a nurse aide training program.

30-543-346 Nursing Assistant 3 credits
Prepares students for employment as nursing assistants. Students learn communication skills, basic nursing and personal care skills, client rights, and care of clients with disabilities. A supervised clinical experience with direct client care is a major component of the course. Upon completion, the student is eligible to take the certification for the Wisconsin Nurse Aide Registry.
31-543-358 Growth and Development 2 credits
Studies growth and development from conception through the older adult, based on Erikson's conceptualization of the developmental process through the entire life cycle. Implications for nursing practice in caring for middle and older age individuals in a variety of settings are explored. May be taken prior to entering the program (on a space-available basis). First eight-week block. Prerequisites: one year each of high school math and science with a grade of C or better in each course, each semester.

575 CBRF Caregiver

30-575-301 Client Related Training .05 credit
This video-based course prepares students for employment in CBRFs. Topics include residents' rights, meeting client needs for the elderly and persons with Alzheimer's disease, challenging behaviors, personal care, communication, individual plans and assessment.

30-575-302 Standard Precautions .10 credit
This video-based course trains students to understand precautions in the CBRF.

30-575-303 Medications in the CBRF .30 credit
This video-based course trains students to manage and administer medications in the CBRF. It includes basic medication therapy, actions and effects of medications, responsibilities of the caregiver and how to administer medications.

30-575-304 Dietary .10 credit
This video-based course trains the student to meet the dietary needs for clients in the CBRF. It includes menu planning, food preparation, and sanitation in the CBRF.

30-575-305 First Aid and Choking .15 credit
This video-based course trains the student to perform the first aid needs of clients in the CBRF.

30-575-306 Fire Safety .15 credit
This video-based course trains the student to perform the fire safety needs of clients in a CBRF.

602 Automotive Technology

10-602-102 Service Repair Procedures 5 credits
Automobile engine theory, design and operation are studied. Other studies included are the diagnosis and repair procedures of the engine cooling, lubricating and exhaust systems. Balancing, starting and charging systems are covered in detail along with the proper use of meters and the latest test equipment. Shop safety and proper use of hand tools is emphasized. Please note: Must complete this course with a grade of C or better to continue in the program (or consent of program director).

19-602-150 Internal Combustion Engines 4 credits
The internal combustion automotive engine is studied in detail by discussion, demonstration and laboratory experiments. The latest machining equipment is used to accurately diagnose, disassemble, repair, and reassemble an automobile engine. Diagnosis of engine-related mechanical problems is covered. Prerequisites: 10-602-102, 10-602-166 or consent of instructor.

10-602-152 Drivability Analysis 4 credits
Practical application of fundamentals, concepts and diagnostic abilities covered in the 2 prerequisite courses. Advanced electrical/electronic diagnostic applications will reinforce prior competency development. Prerequisites: 10-602-101, 10-602-102 or consent of instructor.

10-602-153 Manual Drive Train and Axles 3 credits
The operation and theory of clutches, transaxles, standard transmissions, drivelines and differentials are covered. Areas of emphasis include diagnosis, repair, testing and periodic maintenance as recommended by major manufacturers. Classroom and shop time is utilized to develop skills in diagnosis and repair of clutches, drivelines and differentials. Prerequisites: 10-602-102 or consent of instructor.

10-602-154 Fluid Power Transmission 5 credits
The operation and theory of hydraulically and electronically controlled automatic transmissions are studied. Diagnosis, repair, testing and periodic maintenance as recommended by major manufacturers is emphasized. Classroom and shop time are utilized to develop skills in diagnosis and repair of automatic transmissions. Prerequisites: 10-602-102 or consent of instructor.

10-602-155 Comfort Control Systems 2 credits
Study includes basic principles of refrigeration and air conditioning including the component parts that make up the HVAC units on passenger cars and light trucks. Heating and automatic temperature controls are also studied. Students will receive State of Wisconsin AG 136.06 certification upon completion of this course. Prerequisite/Corequisite: 10-602-102 or consent of instructor.

10-602-156 Technical Braking Systems 4 credits
Topics include principles of drum and disc brake designs, inspection and diagnosis. Covers wheel and tire diagnosis and repair. Steering and suspension inspection is covered. Lab experiences including inspecting, troubleshooting and repair and replacement of defective or worn parts of the complete brake system. The use of correct procedure and tools is stressed. Prerequisite: 10-602-102.

10-602-157 Service Management 3 credits
The principles of various types of business organizations are examined and applied to automotive wholesale businesses, ultimately focusing on the automobile as part of the service department. Service department operation is covered in detail and depth from large organizations to small organizations. The conventional line method of management is stressed. Employment possibilities and job interviewing techniques are discussed. Prerequisite: 10-602-102 and 10-602-153 or consent of instructor.

10-602-159 Accessories 2 credits
Examines equipment supplied by both major manufacturers of automobiles and after-market suppliers. Classroom and lab activity will help students understand basic electricity, electric circuits and use of test equipment to troubleshoot problems in circuits such as lighting, windshield wipers, power windows, instruments and cruise control. Prerequisite: 10-602-102 or consent of instructor.

10-602-163 Technical Suspension & Steering 4 credits
Principles of suspension designs, wheel alignment angles, inspection procedures, parts replacement, steering systems, shock absorbers, struts, sway bars and frame design. On-the-job experiences include inspecting and correcting suspension angles, parts replacement, adjusting steering gears. Covers four-wheel alignment. Prerequisite: 10-602-102.

10-602-166 Powertrain Management Technology 5 credits
All engine operating systems are studied; engine breathing, ignition systems, computer control and sensors, fuel and air management and emission systems. Students learn how these systems operate, how to test for proper operation of systems and components, and how to use test equipment. Prerequisite: 10-602-102 (first nine weeks).

605 Electronics

10-605-112 AC-DC Electronics 3 credits
This course covers basic concepts of electric circuits including Ohm's Law, Kirchhoff's Voltage and current laws, power calculations and components such as resistors, switches, fuses, conductors, insulators, capacitors, inductors, relays, motors, generators and other basic electronic components. Also covered is the use of digital multimeters (DMM); phase relationships; use of oscilloscopes; AC wave forms and parameters including period, frequency, peak, peak-to-peak, and RMS voltages and currents. Corequisite: 10-605-171 for EET and Electronics programs; No Corequisite for Plastics program.

16-605-113 Analog Solid State Devices 3 credits
Introduces electronic devices, circuits and applications. Uses DC characteristics, parameters and operation of electronics devices—PN diode, zener diode, optoelectronic devices (LED, photodiode, phototransistor), function field-effect and bipolar transistors, differential amplifiers and operational amplifiers to learn DC-blasting. Lab procedures emphasize troubleshooting procedures.
10-605-114 AC-DC Electronics 2 (transfer) 3 credits
Continuation of 10-605-112. Covers RL, RC, RLC circuits; transformers; filters; series and parallel resonances; bridge circuits; Thévenin and Norton theorems; wave shaping; internal resistance; motors; generators. Honors section includes additional work to cover: three phase power; power factor and corrections; reactive and apparent power; wye and delta systems. A formal lab reporting required. Prerequisites: 10-605-112, 10-605-113. Corequisites: 10-605-171.

10-605-115 Analog Solid State Devices 2 3 credits
Presents practical theories and concepts of rectifiers, transistor amplifiers, oscillators and operational amplifiers. Enhances proficiency with the oscilloscope and other lab equipment. Prerequisites: 10-605-113, 10-605-114 and 10-605-171.

10-605-116 Advanced Analog Solid State Circuits 3 credits
Reviews small-signal amplifiers and studies basics of various types of transistors, multi-stage amplifiers, power amplifiers, differential amplifiers, integrated circuits and feedback circuits, oscillators and regulated power supplies. Prerequisites: 10-605-114, 10-605-116. Corequisites: 10-605-171.

10-605-118 Digital Electronics 1 3 credits
Topics include: computer and analytical skills basic to digital electronics; schematics, circuit construction; basic gates; binary and hexadecimal number systems, Boolean algebra; Kirchhoffian mapping and microcontroller basics. Software covered includes Visio, Multisim, Circuit Creator and Design Works. Lab work includes computer skills, electronic documentation, electronic circuit construction techniques, circuit repair and soldering. Prerequisites: basic computer (Windows environment) literacy.

10-605-119 Digital Electronics 2 3 credits
Course covers digital logic circuits including basic gates, flip-flops, arithmetic circuits, counters, shift registers, multiplexing circuits, comparators and other similar devices. Other topics include logic families, Boolean concepts and number systems. Lab work includes individual project design, layout, construction, testing and documentation. Prerequisites: 10-605-112, 10-605-118 and 10-605-171.

10-605-131 Technical Calculus 1 4 credits
This is an introductory course that examines analytic geometry, binomial series, differentiation of algebraic, exponential, logarithmic and trig. Functions and integration of algebraic functions. An emphasis is placed on the application of each of these topics to problems in science and engineering. Prerequisite: 10-605-172.

10-605-132 Technical Calculus 2 4 credits
This course is a continuation of Technical Calculus 1. Topics include integration techniques, partial differential equations, applications of partial differential equations, cartesian and polar coordinates, and first and second order differential equations. Emphasis is placed on applications to problems in science and engineering. Prerequisite: 10-605-131.

10-605-138 Biomedical Electronics 3 credits
Course covers the biological and medical applications of electronics. Topics include biological systems and signals (ECG, EEG, etc.); sensor and transducer circuits including: thermistors, thermocouples, and strain gages. Other topics include instrumentation amplifiers and circuits: noise reduction; passive and active filtering; medical imaging systems; and medical telemetry systems. Prerequisites: 10-605-112 or equivalent.

10-605-143 Motors and Control Circuits 3 credits
Course covers AC and DC motors, stepping motors, feedback systems, servo controllers, sensors; relays, SCRs, Tracis, MOSFETs, programmable logic controllers, industrial controllers, and applied systems and online microcomputer controls. Prerequisites: 10-605-115, 10-605-173, 10-605-176.

10-605-150 Electronic Data Transmission 3 credits
Course covers basic circuits, systems and theory of operation for radio frequency and digital data communications systems. Systems covered include transmission, reception, encoding, decoding and reviewing of information. Circuits include oscillators, filters, AM, FM, SSB and pulse modulation, PLLs, codecs, transmission lines, and interfacing. Prerequisites: 10-605-113, 10-605-114 and 10-605-119.

10-605-151 Troubleshooting and Maintenance 3 credits
Covers the methods and procedures utilized in troubleshooting electronic equipment and the types, operation and uses of the various types of instrument used in these procedures. Instrumentation examined includes various types of voltmeters and multimeters, oscilloscopes, signal, function and pulse generators, logic analyzers and others. The effects of different failure modes of various types of circuits are examined. Procedures are examined for reproducing, isolating, and confirming circuit failures, along with typical component failure modes. Documentation, component specifications, and sources of equipment, component, and system failure information are studied. Prerequisites: 10-605-112 and 10-605-171.

10-605-152 Digital Systems Applications 3 credits
An introduction to microcomputer and digital systems. Topics include personal computers, peripherals and software applications. Laboratory exercises and a hardware/software project provide practical experience with digital systems. Prerequisites: 10-605-173 and 10-605-176.

10-605-160 Virtual Reality and TeleRobotics 3 credits
Course covers the concept of virtual reality (VR); its history and development; human senses; current developments in the VR field and the design of VR systems; hardware and important concepts and methods of software design and development. Course also covers sensors and actuators (visual, audio, tactile); displays (including screens, goggles, headsets, etc.); teleconferencing and telepresence; and applications in a variety of fields including entertainment, design, business, medical, telerobotics, remote control, education and others.

10-605-171 Applied Electronics Mathematics 1 (transfer) 3 credits
First of a two-part applied electronics mathematics sequence. Focuses on math concepts most needed by technicians. Closely tied to coursework in 10-605-112. Laboratory sessions focus on math associated with computers, circuits, and simulators to enrich the understanding in a practical context. Transfer section includes expanded work in polynomial equations, binomial theorem, matrices and determinants, and trigonometry to prepare for 10-605-172 (transfer). Prerequisite: satisfactory score on the math portion of COMPASS test.

10-605-172 Applied Electronics Mathematics 2 (transfer) 3 credits
This course continues to develop skills needed by technicians to be successful in their field. Closely tied to 10-605-112. Laboratory sessions continue to integrate math with electronics applications. Transfer section includes expanded work on trig identities, half and double angles, Euler's equations, laws of sines and cosines and exponential equations in preparation for calculus 10-605-131.

10-605-173 Embedded Programming 3 credits
Introduction to the fundamentals of electronic computer languages, systems and structure. Computer processor hardware will be covered from a system level perspective. Programming structures such as loops, branching, data storage and bit-level processing will be covered. Languages include: ANSI C, assembly language and Visual Basic. Prerequisites: basic DOS, Windows and word processing literacy.

10-605-176 Microcontrollers 3 credits
Topics include A/D and D/A conversion, microprocessors, ROM, PROM, RAM, PALS, logic systems design and interfacing, microcontroller architecture, operations, programming, interfacing and parallel and serial I/O. Lab work includes design and fabrication of a digital system project. Prerequisites: 10-605-114 and 10-605-119.

10-605-179 Technical Programming 3 credits
Programming in specialized environments like Lab View, Simulink and Visual Basic. Hardware and programming aspects of Ethernet interconnected computers, microcontrollers, infrared sensors, control equipment and hardware. Prerequisites: 10-605-173 and 10-605-178; prerequisite or concurrent enrollment in 10-605-152.
10-606-100 Engineering Technology Communications 3 credits
Develops skills in creating engineering sketches through the application of drafting standards and procedures. Principles covered include view selection, orthogonal projection, section and auxiliary views, and their utilization in working drawings. The need for engineering sketching is reinforced through a hands-on project requiring measurement, inspection and sketching of orthographic views. In addition, materials, fabrication and assembly methods related to the project will also be explored. Corequisites: 10-606-120 and 10-606-130.

10-606-101 Engineering Technology Fundamentals 2 credits
Introduces the student to the knowledge and skills required to function in today's engineering office environment. Engineering office format, procedures, standards, ethics and application level of engineering office related software is introduced. Students explore the engineering design process and participate in various problem solving and conflict resolution techniques. Career paths available to the Mechanical Design graduate will also be explored. Students must utilize Net Meeting, video conferencing and Internet shared data.

10-606-104 Engineering Technology Practices 3 credits
Focuses on the creation of complete sets of engineering detail and assembly drawings including the accompanying engineering documentation, bill of materials and the application of geometric dimensioning and tolerancing standards. Emphasis is placed on product design analysis, the engineering change process, product data management and an introduction to stress analysis and rapid prototyping. Other areas of study include: threaded fasteners, non-threaded fasteners, springs and gears. Prerequisite: 10-606-140.

10-606-112 Tool Design Technology 3 credits
The fundamentals of tool design are presented to acquaint the student with the language and methods used in designing jigs and fixtures. Through the research and selection of standard tooling components, working tool design drawings are completed. Also explored are common plastic part design and tooling considerations through actual design problems. Prerequisite: 10-606-104.

10-606-116 Machine Design 3 credits
The principles of statics and strength of materials are reviewed and applied to the design of common machine elements. Typical elements studied include: fasteners, shafts, clutches, belts, chains, gears, bearings and springs combined to form machines. Prerequisite: 10-606-170.

10-606-120 2D CAD 3 credits
Introduces the basic capabilities of the current version of 2D CAD software as it applies to mechanical design. Emphasis is placed on basic commands and input required for their application in creating two-dimensional mechanical working drawings. Corequisites: 10-606-100 and 10-606-130.

10-606-130 Solid Modeling 1 2 credits
Introduces the student to the concepts and commands of parametric solid modeling. Students create sketches and add relationships to the sketch, extrude the sketches to create models, add features such as fillets, cutouts, chamfers, holes, draft, shells, plates and sweep features. Emphasis is placed on the design intent of parametric solid models. In addition, students extract 2D documentation from the 3D models and add details to the drawings. Corequisites: 10-606-100 and 10-606-120.

10-606-131 Solid Modeling 2 2 credits
A continuation in the study of parametric design started in 10-606-130. Solid Modeling 1. Topics covered in the course include: assemblies and BOM, the use of equations, part configurations and design tables, defined and modeled parts, thin features and sheet metal, and the application of photovoltaic/edrawings Professional, toolbox and 3D modeling. Prerequisite: 10-606-130.

10-606-133 SolidWorks Presentation Techniques 1 credit
This course is an overview of the software packages that are part of the SolidWorks Office edition. Output is integrated with word processing and presentation software. Software explored includes eDrawings Professional, PhotoWorks and SolidWorks Animator. Prerequisite: 10-606-130, SolidWorks 1.

10-606-140 Dimensioning/GDT 2 credits
Mechanical drafting dimensioning fundamentals are developed including conventional tolerancing and basic hole and shaft tolerancing methods. The course continues with developing the technical knowledge and skills, which are required for meaningful application and interpretation of geometric dimensioning and tolerancing on mechanical drawings in accordance with the current ASME Y14.5M standard. Prerequisites: 10-606-100, 10-606-120 and 10-606-130.

10-606-150 CAE Applications (elective) 2 credits
An introduction to how engineering and manufacturing utilize a parametric modeled file. Students follow parts through the product development cycle, utilizing parametric design, computer aided manufacturing, stress analysis, computer simulation and rapid prototyping. Corequisite: 10-606-158.

10-606-152 PLC, Hydraulics, Pneumatics (elective) 2 credits
An overview of the basics of programmable logic controllers, hydraulics and pneumatics. Basic system components, symbols and schematics are explored. Related engineering analysis software will be utilized throughout the course. Prerequisites: 10-804-114, Corequisite: 10-804-118.

10-606-156 Materials of Manufacturing/Engineering Materials 2 credits
Introduces the student to the knowledge and skills required for use in industry. Material testing methods and their relevance to design applications are studied through various lab activities. In addition, this course begins the examination of various contemporary manufacturing processes used in industry today.

10-606-161 Manufacturing Processes 3 credits
Introduces students to computer aided design and manufacturing concepts through an integrated material removal project. Upon completion of the project, students will use various measurement and inspection equipment to verify part conformance to engineering specifications. Prerequisites: 10-606-133 and 10-806-160.

10-606-163 Manufacturing Analysis 3 credits
An introduction to manufacturing technology and systems as it relates to the mechanical design field. Topics of discussion include: production data, management, project management, manufacturing planning and control, materials requirement planning, just-in-time manufacturing, lean manufacturing, process planning and common methods of product costing. Emphasis is placed upon lab projects and related software. Prerequisite: 10-606-161.

10-606-164 Quality Systems 2 credits
An introduction to the quality concepts that are used in industry. Specific topics of discussion include: a historical review of quality, quality systems used in industry, modern quality management, project management, manufacturing planning and control, materials requirement planning, just-in-time manufacturing, lean manufacturing, process planning and common methods of product costing. Emphasis is placed upon lab projects and related software. Prerequisite: 10-606-161.

10-606-170 Strength of Materials 3 credits
An overview of the principles of strength of materials as they apply to various fasteners, welded joints, beams and shafts through practical design and analysis. Prerequisite: topics covered include: simple stresses, machine parts, commonly used materials, center of gravity, moment of inertia, shear force and bending moments, and beam design. Related engineering analysis software is utilized throughout the course. Prerequisites: 10-606-155.

10-606-186 Engineering Technology Applications 3 credits
A comprehensive application of the Mechanical Design Program, in which students identify a design problem, define the problem solution, identify material requirements, perform a stress analysis of the design, and create a complete set of working drawings for the problem solution. The material is presented as an oral report using presentation software and through a written technical report, documenting the design process. Prerequisites: 10-606-104 and 10-606-116.
607 Civil Engineering Technology

10-607-120 Methods 2 credits
An introductory engineering course that familiarizes students with the civil engineering and construction processes from project concept to completion. Provides new students opportunity to develop and improve their problem-solving skills and prepare for subsequent technical courses.

10-607-133 Estimating 3 credits
Stresses estimating for general civil engineering work. Covers the preparation of estimated costs as presented by contractors for bidding purposes. The general estimator as prepared by engineers and approximate estimates. Areas covered: highways, water and sewer lines, bridges, culverts, streets and general construction grading. Prerequisite: 10-607-177, fourth-semester standing or consent of instructor.

10-607-147 Civil Drawing 1 3 credits
Emphasis on development of graphical communication. Begins with basic manual drafting skills including line work, lettering, drafting tools use and free hand sketching of construction details. Transition in the last half of the semester to a CAD-based environment stressing geometric construction principles and simple engineering drawings. Corequisites: 10-607-120.

10-607-148 Civil Drawing 2 2 credits
Applications-oriented class with CAD emphasis. More complex drafting projects using mapping, modern design elements and structural detail applications. Drawing organization and standards, data conversion and sharing, third-party add-ins. Prerequisites: 10-607-147 and concurrent enrollment in 10-607-156.

10-607-149 Aggregates and Concrete 2 credits
Introduces the fundamental principles of aggregates, Portland cement concrete and bituminous concrete. Emphasizes standards-based sampling and testing in laboratory and field environments. Tests are performed according to standards set by the American Society for Testing and Materials (ASTM) and American Association of State Highway and Transportation Officials (AASHTO). Students communicate results in written reports. Prerequisites: 10-604-114.

10-607-155 Survey 1 3 credits
Basic measurement concepts, procedures, errors and computations underlying the technical aspects of surveying. Students use modern instrumentation to perform elevation, distance, and angular measurements. Coordinate geometry is introduced as a computational tool. Computations are done both manually and on computer using commercial software. Corequisites: 10-604-157.

10-607-157 Survey 2 3 credits
Principles, computations and field methods, from design to stakeout, involving in three-dimensional curvilinear survey applications. AASHTO and WisDOT vertical and horizontal alignment standards; geometric and volumetric calculations. Field work reflecting different construction surveys are performed utilizing modern instrumentation. Prerequisites: 10-607-155 and concurrent enrollment in 10-607-156.

10-607-158 Survey 3 3 credits
Advanced concepts and procedures building on knowledge and skills attained in previous surveying classes. Concepts include geodetic applications, spatial reference systems, equipment adjustment, digital data collection and photogrammetry. Fieldwork includes total station calibration, control leveling, control network establishment and digital topographic data collection. Prerequisites: 10-607-156 and 10-604-114.

10-607-160 Soils 2 credits
Introduces the basic principles of soil mechanics and their application in engineering practice. Topics include soil composition and texture, subsurface investigation, classification, moisture-density relationships, permeability and seepage, consolidation, settlement, shear strength, lateral earth pressures, fundamentals of retaining structures, shallow and deep foundations, slope stability and erosion loss calculations. Prerequisites: 10-607-153, 10-607-149. Corequisite: 10-601-187.

10-607-161 Project 3 credits
Project-driven course through which civil engineering technicians gain firsthand experience with design by developing plans, specifications and reports for a "real-world" project while working in a team environment. Students present written and oral reports to reinforce technical communication skills. Prerequisite: fourth-semester standing and concurrent enrollment in 10-607-133.

10-607-168 Land Surveying 1 3 credits
Covers legal principles relating to the creation of property boundaries. Examines rights and how they can be transferred whole or part, intentionally or not. Identifies specific Wisconsin statutes and administrative code requirements regarding boundary creation and measurement criteria. Writing descriptions minimizing ambiguities and potential common law interpretation. Prerequisites: 10-607-156 or consent of instructor.

10-607-171 Construction Materials 2 credits
Introduction to the design, specification and detailing of steel and reinforced concrete in typical civil engineering projects. Emphasis on structural applications. Prerequisite: 10-607-160.

10-607-174 Introduction to GPS 1 credit
Basic terminology, operation, and use of survey-grade GPS technology. Class emphasizes static GPS. Students design, run, and adjust a control project using survey-grade equipment and commercial software. Prerequisites: 10-607-155 or equivalent, and instructor's consent.

10-607-175 Land Surveying 2 3 credits
Covers the principles and practices of boundary re-establishment. Interpretation of written conveyances, principles of evidence, identification and effect of unwritten rights. Public Land System corner re-establishment and application in Wisconsin. Prerequisite: 10-607-156 or consent of instructor.

10-607-176 Site Hydraulics 2 credits
Basic concepts of hydraulics and hydrology, water resources, distribution systems and sewerage collection systems as applied to site development. Prerequisites: 10-607-149 and 10-604-114.

10-607-177 Legal Elements of Engineering 2 credits
Emphasizes contract relationships. The first half of the semester is spent studying the elements of a valid contract along with a study of the court system. The remainder of the semester concentrates on specifications, contracting procedure and the relationship between the three main parties involved in a construction contract: owner, engineer and contractor. Other topics include professional liability, professional ethics, product liability, discharge and remedies for non-completion. Prerequisite: third-semester standing or consent of instructor.

10-607-179 Introduction to GIS 2 credits
Basic terminology and components of geographic information systems. Capturing and organizing data, integrating graphic and tabular information. Using spatial relationships to answer geographic queries. Civil engineering applications of GIS technology. Prerequisites: 10-607-156 and 10-607-146 or consent of instructor.

10-607-180 Internship 1 credit
Supervised degree-related employment. Student submits a written report of job experience; employer submits an evaluation report. Prerequisite: second semester standing.
10-614 Architectural Technician

10-614-100 Introduction to Architecture 3 credits
This course examines the way one perceives the man-made environment, how to better understand it and related disciplines. An overview of architecture and its elements including design, history, terminology, sustainable design, urban design and landscape architecture will be presented.

10-614-101 Architecture Theory 1 3 credits
A survey and examination of key underlying design tenets, theory, philosophies, and social, cultural and behavioral factors in applied environmental settings. Theoretical design principles are introduced in lecture and readings that incorporate seminal works of architecture. Students combine the creation of collage diagram analysis with interactive writing experiences as a model for learning theoretical design principles. Prerequisites: 10-614-100, 10-614-111 and 20-801-201 or consent of instructor.

10-614-102 Architectural History 3 credits
A general overview that introduces the student to developments in the history, theory and cultural influence of architecture from antiquity to the present. Prerequisites: 10-614-100.

10-614-110 Architecture Graphics 1 4 credits
Emphasizes architectural drafting and the theory of drafting. Proper architectural lettering, line work and use of drafting tools are discussed. Orthographic drafting, isometric, axonometric perspective drawings, contours, shade and shadow are covered in the first semester. Massing studies using the software "Sketch up" is also incorporated. Corequisite: 10-604-114.

10-614-111 Architectural Graphics 2/Studio 4 credits
Small-scale design projects will address the development of design skills. Topics covered include: computer-aided drafting using AutoCAD, computer-supported program, site analysis, building materials, and building code issues will be studied for residential and commercial projects. Prerequisites: 10-614-111 and 10-614-113.

10-614-113 Intro to CAD-Architectural (2nd 9 weeks) 2 credits
Major emphasis is placed on learning the basic commands necessary to complete two-dimensional construction drawings for the architectural community. Approximately 50 percent of the course is spent on lectures/demonstrations concerning software commands and procedures, while 50 percent of the course is spent in on developing operating skills. A basic understanding of Windows and file management is necessary for success within the course. The current version of AutoCAD is used as the teaching tool. Corequisites: 10-614-111 or instructor consent.

10-614-114 Applications of CAD-Architectural 2 credits
This course is designed to explore the more advanced functionality of AutoCAD in the workplace. Concepts such as templates, borders & title blocks, attribute creation and extraction, paper space and external reference files are discussed. Various methods of communicating AutoCAD information are discussed, such as, email, Internet, etc. Various projects are assigned as a method of reinforcing and challenging the students. Students learn a different way of working with AutoCAD, and are expected to be able to handle more complex tasks in the lab. Prerequisite: 10-614-113.

10-614-115 Introduction to Architectural Third Party Applications 2 credits
Introduces the student to some of the architectural products developed by Autodesk, such as Architectural Desktop, Architectural Studio and Revit. It is the intent of this course to make the student aware of the continually changing world of architectural software and its effect on the architectural community. These products are designed to take the student through the building process from conceptual design to the creation of construction documents, scheduling and even preliminary estimating. Discussion and exploration into these products will be held in the design process. Prerequisite: 10-614-113.

10-614-116 Design Communications 2 credits
This course is designed to explore advanced or contemporary topic or project. Course structure is flexible allowing lecture, seminar, lab, or independent study formats, or appropriate combinations. Prerequisite: fourth semester standing or consent of instructor.
10-614-150 Introduction to Specifications 2 credits
An introduction to the recommended techniques and philosophy for preparing, organizing, using and interpreting construction documents. Students become familiar with the use of A.I.A. documents, understand proper product evaluation and selection, and computerized specification writing. Emphasis is on the C.S.I. Manual of Practice. Representatives in the construction field and business will supplement the course.

10-614-154 Site Design 3 credits
Introduces the student to the basic design issues of the urban environment. Explore building massing and site analysis as they relate to the urban context. Learn about vehicular and pedestrian circulation, zoning analysis, contour manipulation and basic plant material selections. Course places a strong emphasis on in-class presentations utilizing the use of multimedia digital technology. Prerequisite: 10-804-114.

10-614-178 Mechanics/Strength of Materials 4 credits
Studies the forces that act on a structural member. Those forces affect all types of structures, including parts of machines. This course will emphasize the use of statistics as it applies to building structures. We will look at forces of structural elements, vectors, resultant forces, moments, truss analysis and reactions. Strength of Materials provides the student with basic knowledge of the various analytical tools necessary for the sizing of specific structural members based on the loading conditions and strength of the material. The student will gain the knowledge necessary to calculate the sizes of members made of specific materials including wood, steel and masonry. Prerequisite: 10-804-116.

10-614-190 Special Problems 2 credits
Through scholarly study and research, students will select a topic in the architectural/engineering/construction field that is of interest to them. Architectural sketching of details that includes wood, masonry and steel commonly found in buildings will be discussed. Prerequisite: third semester standing.

10-614-193 Job Orientation 1 credit
Occupational Information prepares students to seek employment. Includes personal data sheets, job interviews, portfolio design, and letters of introduction and recommendation. Former graduates are invited to discuss needs of students before employment. Representatives of labor, management, business and the professions are invited to discuss points of interest toward becoming an employee. Prerequisite: third-semester standing.

619 Plastics Technology

10-619-100 Introduction to Plastics 3 credits
Introduction to the main plastics processing industries, techniques and commonly used polymers. The students are provided with relevant information that will enable them to investigate the career possibilities in the plastics industry and determine whether plastics is the choice for them to pursue. Provides a foundation on plastics materials, processes, properties and applications.

10-619-101 Interpreting Engineering Drawings 1 credit
Discusses basic principles of engineering drawings and manufacturing procedures. Through interpretation and sketching, students learn to visualize the part, section or assembly. Uses drawings pertinent to the trade with examples.

10-619-102 Precision Measurement 1 credit
Introduces the principles of basic dimensional measurement and layout. Focuses on machined parts. Additional emphasis is placed on the use of direct and indirect measuring tools as well as the use of length standards relative to calibration of measuring instruments.

10-619-110 Plastics Processing 1 3 credits
Provides the student with knowledge of the injection molding and blow molding processes, equipment, components and industry. Lab work includes set-up, start-up, operation, changeover, safety and optimization of an injection molding machine, mold and all associated support equipment. Process troubleshooting through simulation software and actual machine operation will be performed with several common molding materials.

10-619-111 Molding Problems and Solutions 2 credits
Concentrates on troubleshooting problems that may arise in the injection and blow molding processes. Students will utilize the lab equipment to process through processing problems and practice various remedies. This hands-on approach will be supplemented by simulation software and thorough discussion of the theory, cure and proven methods behind the science of injection molding. Efficient operation of quality parts is emphasized. All possible contributing variables are examined to include primary equipment, auxiliary equipment, environment and materials. Students will be encouraged to present "real" problems for analysis in the lab.

10-619-120 Manufacturing Systems 3 credits
Introduces computer control systems and fundamentals of motion control. Presents programmable logic controllers (PLCs) along with design, integration and troubleshooting techniques. Prerequisite: 32-414-319.

10-619-124 Industrial Computer Applications 1 credit
An introductory course which examines the processes of computers in industrial applications and activities such as keying cards, equipment usage, storage, microcontrollers and information retrieval systems, and other processes applied to industrial equipment.

10-619-125 Plastics Testing and Properties 3 credits
Demonstrates the concepts of procedures used in evaluating both theoretical and practical plastic materials, and molded parts. Standard testing methods used for evaluation of plastic materials, in particular ASTM and ISO. Interpretation of testing results with respect to raw materials selection, processing parameters and part design considerations. Basic quality control/quality assurance techniques related to plastics testing.

10-619-130 Plastics Processing 2 3 credits
Provides the student with knowledge of the extrusion and thermoforming processes, equipment, components and industry. Lab work includes set-up, start-up, operation, changeover, safety and optimization of thermoforming machine and all associated support equipment. Process troubleshooting through simulation software and actual machine operations will be performed with several common molding materials.

10-619-150 Plastics Manufacturing-Secondary Operations 2 credits
Takes an in-depth look at the most common secondary operations currently utilized in plastics manufacturing including assembly, finishing, decorating and packaging. The course also investigates new and innovative plastics operations, that may have great potential for cost savings and quality improvement. Lab work includes ultrasonic welding, mechanical fastening, adhesives, decorating, bonding methods, surface preparation and coating.

10-619-155 Plastics Quality System 3 credits
Provides training in the fundamentals of quality control, measurement techniques and Instruments, GC systems only used in the plastics industry, SPC, transducer technology, PLC systems, software and control systems. Students will be required to demonstrate skills needed to plan, implement, maintain and improve quality assurance.

10-619-168 Tool and Fixture Design 1 credit
Introduces tool design and machine design. Emphasizes jigs, fixture design, clamping, locating devices and tooling and production methods.

636 Electron Microscopy

10-636-111 Scanning Electron Microscopy 3 credits
Provides extensive laboratory work in which students become proficient in the operation of scanning electron microscopes (SEM's). Students learn electron-specimen interactions; image processing, effects of microscope variables on the image and the use of various microscope accessories and outputs. Microscope optics are also introduced.

10-636-112 Transmission Electron and Atomic Force Microscopy 4 credits
Students become proficient in the alignment procedures, operation and theory of transmission electron microscopes (TEM's). Introduction to basic theory and operation of atomic force microscopes (AFM's). X-ray microanalysis will also be introduced.
10-636-113  EM Image Processing 1  2 credits
Introduces the theory and application of digital image acquisition from light and
electron microscopes. Using Photoshop, students learn to import images into a
PC for incorporation into scientific documents. Using basic digital imaging
concepts students concentrate on composition, brightness and contrast, focus,
bit depth and enhancement. Student explores basic digital imaging terminology,
issues of the relationships between input resolution and final output resolution
for print, screen and web application; file organization, nomenclature, formatting
and compression, and archiving of digital images.

10-636-115  Light Optics & Lab Safety  2 credits
Students examine safety concerns and procedures encountered in an EM
laboratory. The theory of optics and the practical application of light microscopy
in science are studied. Film and principles of photography are also discussed.

10-636-121  Biological Sample Prep EM  3 credits
Lecture-lab course covering biological sample preparation for both TEM and
SEM. Includes chemical and cryo fixation, embedding, ultramicrotomy and
staining methods. Solution preparation and isolation techniques are also
performed. Prerequisite: grade of C or better in both 10-636-111 and
10-636-112 or consent of the instructor.

10-636-122  EM Physical Preparation and FIB  4 credits
Lecture-lab course covering specimen preparation for both SEM and TEM.
Topics include replica preparation, ion milling, polishing and thinning methods.
Materials studied consider identification of metallographic specimens, frenture
types, dislocation analysis and microstructures of geologic samples, plastics and
ceramics. Prerequisite: grade of C or better in both 10-636-111 and 10-636-112
or consent of the instructor.

10-636-123  EM Image Processing 2  2 credits
Advanced development of digital processing by enhancement and manipulation
of EM images. Scientific filtering, convolution masks, Fourier transforms,
and Gaussian filters are applied in order to produce image for scientific
and aesthetic purposes. Included are modules on scientific
interpolation, analysis, and output media. This course explores in depth
relationships between image quality of the microscope and output to various
media. Scientific poster layout and design using Adobe InDesign and slide
presentation using PowerPoint are covered. Prerequisite: grade of C or better in
10-636-113.

10-636-131  Adv. Biological Techniques and
Ultrastructure Studies  3 credits
Students prepare biological samples for both SEM and TEM using methods not
previously presented, such as colloidal gold labeling. Includes ultrastructure
studies enabling students to identify features encountered in micrographs for
interpretation and analysis. Prerequisite: grade of C or better in both
10-636-121 and 10-636-122, or consent of instructor.

10-636-132  Diffraction and Materials  4 credits
Interpretation and analysis is made for crystals using electron diffraction
methods. Powder diffraction is introduced allowing compounds to be identified.
Concepts of reciprocal lattice space and crystal structures are included. Prerequisite:
grade of C or better in both 10-636-121 and 10-636-122 or consent of instructor.

10-636-133  Image Analysis  2 credits
Involves statistically measured and mathematical transformations of both analog
and digital images. Topics include: sampling techniques; stereology; three-
dimensional reconstruction and analysis, cell or grain-size distribution and
aspect-ratio-analysis. Fourier Transform analysis, and spatial filtering of images.
Students will develop cross-platform computer skills with programs including:
Adobe PhotoShop, NIH Image, ImagePro Plus, and VoxEast. Prerequisite: a
grade of C or better in 10-636-123 or consent of instructor.

10-636-135  Laboratory and Microscope Maintenance  3 credits
Students use oscilloscopes, vacuum leak checkers and other metrology
equipment used for troubleshooting methods for the EM lab. HandS-on
diagnostics, repairs and routine maintenance are made by students in EM lab
setting.

10-636-141  X-Ray Microanalysis  4 credits
Students perform elemental analysis with energy dispersive X-ray systems on
both TEM and SEMs. The use of matrix corrections, qualitative and quantitative
computer analysis routines constitute a major part of this course. Prerequisite:
gegrade of C or better in both 10-638-131 and 10-636-132, or consent of the
instructor.

10-636-143  Special EM Techniques and Spectroscopy  3 credits
Lecture course in which students perform tasks including voltage contrast,
electron beam induced current (EBIC) and electron channelling. Presents other
microscopy methods, such as secondary ion mass spectroscopy (SIMS), focus
ion beam (FIB) and Auger microscopes. Prerequisite: grade of C or better in
both 10-636-131 and 10-636-132.

10-636-147  Electron Microscopy Special Project  2 credits
Students choose an independent project resulting in a final report that will
include micrographs from both TEMs and SEMs and x-ray analysis. Prerequisite:
grade of C or better in Electron Microscopy Program sequence to date or consent of Instructor.

662 Electrical Technology

10-662-112  AC-DC Electronics  3 credits
Topics: Analysis of series and parallel AC RLC circuits, utilizing series
and parallel equivalent circuits, superposition, Delta-Wye transformations, and
Nodal Analysis. Real, reactive, and apparent power in AC circuits along with
load losses in single and three phase circuits are studied. Lab work includes:
analysis, computer simulation and actual measurements. Prerequisites: 10-605-114.

10-662-124  Circuit Analysis  3 credits
Topics: Analysis, frequency analysis of RLC circuits, first order Bode plots,
correlation of time and frequency response. Semiconductors and circuits,
including diodes, bipolar transistors and field effect transistors are studied.
The time and frequency response of single stage BJTs and FETs
amplifiers is examined. Lab work includes analysis, computer simulation and
actual measurements. Prerequisites: 10-662-112 and 10-605-114.

801 English

10-801-140  Introduction to College English  3 credits
This course is designed for students who need additional time to work on their
writing skills. This computer-intensive course, students will learn how to draft,
develop, revise and edit clear written communications. Students also learn how
to use the library to find articles on a current topic and to read and summarize
those articles accurately. In addition, students also study grammar, punctuation,
usage, and vocabulary in a weekly two hour lab.

10-801-151  Communication Skills 1  3 credits
The first course in communication skills at the college level, developing student's
ability to write clearly and concisely, and develop arguments. The course emphasizes
summarizing, analyzing, and synthesizing information from sources, and develops research and presentation
skills. The class assumes competence in English grammar and paragraph
structure. Prerequisite: COMPASS/ASSET English placement test score.
Three credits will be given for either Comm Skills 1 or English 1 but not for both
courses.

10-801-152  Communication Skills 2  3 credits
Applies skills to specific business and professional communication situations.
both written and oral. Students learn how to prepare business reports, write
effective letters and memos and create a job application portfolio. Students also
learn to express themselves in a job interview, to participate in a group
discussion and to organize and deliver a professional presentation. Prerequisite:
10-801-151 Communication Skills 1 or 10-801-201 English 1.
10-801-102 Writing for the Web 3 credits
Writing for the Web will explore the creative potential of writing content for electronic media, which demands concise, clear, well-organized copy and an ability to operate in a nonlinear work. This course will include: writing techniques, technology, culture, and problems of publishing in digital age; evaluate usability and organization when designing content for the web; and use research on copyright law, libel law, and information ethics. This 3-credit college/transfer course is primarily a writing, editing, and research course, but will explore audio and graphic communication on the web, too. Students will explore blogging, podcasting and social software technology. Prerequisites: English 1, 20-801-201 or Comm Skills 1, 10-801-151 or the instructor's consent.

10-801-100 Introduction to Technical Communications 1 credit
Survey of the field of technical communication, focusing on the nature of job requirements. In addition, students analyze the employment outlook within the field.

10-801-195 Written Communication 3 credits
Develops writing skills which include prewriting, drafting, revising, and editing. A variety of writing assignments is designed to help the learner analyze audience and purpose, research and organize ideas, and format and design documents based on subject matter and content. Also develops critical reading and thinking skills through the analysis of a variety of written documents.

10-801-198 Oral Interpersonal Communication 3 credits
Focuses upon developing speaking, verbal, and nonverbal communication and listening skills through individual presentations, group activities, and other projects.

10-801-197 Technical Reporting 3 credits
In-depth practice in preparing and presenting oral and written technical projects. Emphasizes the six stages of preparation and performance: researching, planning, organizing, writing, revising and presenting. In these reports, the use of visual aids/graphic illustrations is stressed along with audience analysis. Also reviews applied technical correspondences and group problem-solving. Students engage in technical activities directly related to their programs. Prerequisites: 10-801-151, Communication Skills 1, and second-semester standing.

10-801-196 Speech 3 credits
Introduces the basic techniques of effective public speaking and listening for students in degree or diploma programs. Students improve their oral communication skills through analysis of various speaking, preparing and presenting informative and persuasive speeches and using the group process to discuss issues and solve problems. Emphasizes audience analysis, audio-visual techniques, speaker evaluation and group work. Prerequisite: Communication Skills 1, 10-801-151 or English 1, 20-801-201.

10-801-201 English 1 3 credits
The first course in communication skills at the college level, developing student abilities in critical reading, writing, listening, and speaking, for both exposition and argumentation. The course emphasizes summarizing, analyzing, and synthesizing information from sources, and develops research and presentation skills. The class assumes competence in English grammar and paragraph structure. Prerequisite: COMPASS/ASSET English placement test scores. Three credits will be given for either Comm Skills 1 or English 1 but not for both courses.

10-801-202 English 2 3 credits
This course is a continuation of English 1. Students will use advanced research skills to write papers from the curriculum. Research papers will be informative and persuasive in nature and will be based on topics from academic disciplines (social sciences, literature and the humanities, or science and mathematics). Students will conduct research using primary and secondary library resources, surveys and questionnaires, observation, and interviews and will use the MLA format and one other format (APA, Chicago) to document their sources. Students will be asked to prepare 25-35 pages of polished writing. Prerequisite: 20-801-201, English 1.

10-801-203 Advanced Composition 3 credits
Continues the study of expository writing for students who wish to attain advanced skills in managing the written language. Students learn critical reading and thinking skills, including textual analysis and evaluations. Prerequisite: 20-801-201, English 1, or Communication Skills 1, 10-801-151.

10-801-204 Introduction to Literature 3 credits
Recommended as a first course in literary analysis, this course introduces students to the major genres of literature and addresses issues related to writing about literature and/or other texts. Individual sections may focus on a particular literary theme or emphasis. Prerequisites: English 1, 20-801-201, or Communication Skills 1, 10-801-151.

10-801-211 Gay and Lesbian Literature 3 credits
Examines works by representative authors in American literature written by and about lesbian and gay people from the 19th century to the present, including short stories, novels, drama, poetry and film. Works will be analyzed in regard to both specific and universal messages they have to offer, for nongay and gay readers alike. Prerequisite: 20-801-201, English 1, or Communication Skills 1, 10-801-151.

10-801-212 Special Topics in Ethnic Literature 3 credits
Explores questions of identity within various cultural contexts. Writers represent one or more ethnic groups working in one or more genres of literature with emphasis on developments in voice, genre, and style over chronological and geographical periods. Individual sections may vary in particular emphasis. Prerequisite: English 1, 20-801-201, or Communication Skills 1, 10-801-151.

10-801-213 Native American Literature 3 credits
Introduces students to the rich, complex and varied literary traditions reflected in the works of contemporary Native American storytellers in fiction, poetry, drama, and film. Issues of language, cultural identity, historical witness, and current social and political experiences are reflected in these genres. The works are discussed in terms of specific cultural and universal themes and their place in the emerging Native American literary canon. Prerequisite: English 1, 20-801-201, or Communication Skills 1, 10-801-151.

10-801-214 African American Literature 3 credits
Introduces students to the rich, complex and varied literary traditions reflected in the works of African American writers. Studies developments and achievements in voice, genre, and style and explores issues of language, cultural identity, historical witness, and social and political experience. Individual sections may focus on a particular theme, genre, or period for emphasis. Prerequisite: English 1, 20-801-201, or Communication Skills 1, 10-801-151.

10-801-215 British Literature 1 (Beowulf to 1740) 3 credits
Examines major authors, works, and periods of British literature from its foundations to the early eighteenth-century within the context of historical, cultural, and philosophical developments. Prerequisite: English 1, 20-801-201, or Communication Skills 1, 10-801-151. English 2 and/or intro to literature strongly recommended.

10-801-216 British Literature 2 (1740 to present) 3 credits
Examines British fiction, biography, autobiography, poetry, and drama from the 1740s through the late twentieth century. Prerequisite: English 1, 20-801-201, or Communication Skills 1, 10-801-151.

10-801-217 American Literature 1 3 credits
Examines major authors and works of the 18th and 19th century to the present in American prose and poetry. Prerequisite: English 1, 10-801-201, or Communication Skills 1, 10-801-151. English 2 and/or intro to literature strongly recommended.

10-801-218 American Literature 2 3 credits
Examines major authors and works from the late 19th century to the present in American prose, poetry, and drama. Prerequisite: English 1, 20-801-201, or Communication Skills 1, 10-801-151.

10-801-219 Western World Literature 1 3 credits
Studies Egyptian and Sumerian myths and legends, and the outstanding literary masterpieces of Western literature, from the Old Testament and Homer to the end of the Renaissance (16th century). The first semester is not a prerequisite of the second. Prerequisite: 20-801-201, English 1, or Communication Skills 1, 10-801-151.
20-801-220 Western World Literature 2 3 credits
Studies the outstanding literary masterpieces of Western literature from the Neoclassic period to modern times. The first semester is not prerequisite of the second. Prerequisite: 20-801-201, English 1, or Communication Skills 1, 10-801-151.

20-801-222 U.S. Latina/Latino Literature 3 credits
Explores U.S. Latino texts, including poetry, fiction, drama, and autobiography by Mexican-American, Puerto-Rican American, Cuban-American, and Dominican-American writers. Writers from other Latino groups may also be included. Class discussion examines the rich and varied literary traditions of Latino communities in the United States. Students analyze issues of theme, genre, language, cultural identity and social and political experiences, as reflected in the texts chosen for the course. Classes are conducted in English. All required texts were originally written in English or are offered in English translation. Prerequisite: English 1, or Communication Skills 1, 10-801-151.

20-801-228 Literature in the Wild 3 credits
Literature in the Wild gives the student a chance to be active in nature while reading, discussing, and writing about the great nature writers/texts of our time and before. Works include those by Robert Frost, Henry David Thoreau, Aldo Leopold, John Muir, Annie Dillard, Rick Bass, David James Duncan, and many more. The course is designed to stretch student horizons both physically and mentally, combining the rigor of a college literature class with the skills and challenges of an outdoor adventure. Prerequisite: English 1, or Communication Skills 1, 10-801-151.

20-801-229 Contemporary Literature 3 credits
Surveys contemporary literature (mainly British and American) in relation to contemporary society and to major developments in the arts of fiction, drama and poetry. Readings mainly cover material published in the last 25 years. Prerequisite: 20-801-201, English 1, or Communication Skills 1, 10-801-151.

20-801-230 Classical Mythology 3 credits
Surveys principal myths and legends of Greek and Roman literature in relation to the historical and sociologicial context of ancient society as well as their importance and influence in modern times. The course will include the reading and analysis of translations of original classical works. Prerequisite: 20-801-201, English 1, or Communication Skills 1, 10-801-151.

20-801-240 Creative Writing 3 credits
Students learn to manage the creative process through exercises and activities that lead to short stories and poetry; drama and creative non-fiction may also be addressed as well. Reading assignments allow students to become familiar with principles and practice of various genres of creative writing and classroom activities prepare students for participating in workshop discussions. Prerequisite: English 1, or Communication Skills 1, 10-801-151, or consent of the instructor.

20-801-241 Creative Writing/Fiction 3 credits
Students develop skills in writing prose fiction including character development, scene structure, dialogue and dramatic tension as they build toward the construction and revision of short stories, novellas, etc. Reading assignments allow students to become familiar with principles and practice of fiction. Class meetings follow a workshop format. Prerequisite: English 1, or Communication Skills 1, 10-801-151, or consent of the Instructor.

20-801-242 Creative Writing/Drama 3 credits
Students write monologue and dialogue, develop characters and build scripted scenes and short dramas for stage, film, video, or other formats. Reading assignments allow students to become familiar with principles of dramatic practice. Class meetings follow a workshop format. Course may be paired with 210-237. Creating Original Theatricals to create a six-credit writer-performer workshop. Prerequisite: English 1, or Communication Skills 1, 10-801-151, or consent of the Instructor.

20-801-243 Creative Writing/Poetry 3 credits
Students develop poetic technique in open and traditional forms as they craft, critique, and revise poems. Reading assignments allow students to become familiar with principles and practice of poetry and poetics. Class meetings follow a workshop format. Prerequisite: English 1, or Communication Skills 1, 10-801-151, or consent of the Instructor.

20-801-244 Creative Writing/Nonfiction 3 credits
Students merge literary techniques with the skills or reportage to develop works of creative non-fiction. Reading assignments allow students to become familiar with principles and practice of literary non-fiction. Class meetings follow a workshop format. Prerequisite: English 1, or Communication Skills 1, 10-801-151, or consent of the Instructor.

20-801-245 Newswriting and Reporting 4 credits
Intensive introductory course in journalism gives a better understanding of the unique role and responsibility of the journalist working in a "free press" democratic society. Covers the problems and techniques of the news reporter and provides practical experience in news gathering, editing, interviewing and copyrighting through lab work and submission to the student newspaper. Prerequisite: 20-801-201, 10-801-151.

20-801-246 Feature Writing 4 credits
Students develop skills of reportage and story development to create feature articles appropriate to journalism, fiction, writing, etc. Reading assignments allow students to become familiar with principles and practice of feature writing. Class meetings follow a newsroom format where deadlines, correspondence, and interview skills are learned and practiced. Prerequisite: English 1, or Communication Skills 1, 10-801-151.

20-801-247 Directed Study/Creative Writing 1-5 credits
Students will work closely with an instructor and/or the Clarion or Yahoo Journal advisor to develop and extend skills in writing and/or editing appropriate to student need. Consent of the instructor.

20-801-248 Writing in the Wild 3 credits
A creative writing course blending nature with writing, and that includes a one-week experiential learning experience in an outdoor setting. This outdoor experience engages the student in activities such as hiking, kayaking and rock climbing. The outcomes of these activities and the students' relationship with nature include works of creative non-fiction, essays, poems, short fiction, monologues and drama, and a writing journal. Prerequisite: English 1, 10-801-201, or Communication Skills 1, 10-801-151.

20-801-249 Writing in Place 3 credits
A journal-based course designed to encourage and practice the meaning of place as it is transformed through written expression. Students spend a prescribed time in a given location (e.g., Paris, Rome) visiting historical and cultural sites, observing and experiencing everyday life in environments different from the ordinary one, and responding in writing to their memories, observations, and experiences in a variety of forms. Prerequisite: English 1, 10-801-201, or Communication Skills 1, 10-801-151, or consent of the Instructor.

20-801-250 Women in Literature 3 credits
Examines women as both subjects and writers of literature. Students read works from a number of genres and eras, studying ways female writers have contributed to, challenged and enlarged the literary tradition. Introduces readers to literary works by and about women and teaches analytical skills, especially feminist literary criticism. The works are selected to represent varied perspectives in race, class and sexual preference. Prerequisite: 20-801-201, 10-801-151, or Communication Skills 1, 10-801-151.

20-801-260 Technical Communications 3 credits
Introduction to technical communication. In this course, students: 1) write technical documents—memo's, reports, instructions, process descriptions, proposals and manuals; 2) prepare oral presentations on technical topics; 3) use visual design principles to communicate technical information and 4) design a research project demonstrating the ability to find credible, current secondary sources and to use sources correctly and ethically in a technical report. Students also complete reviews of peers' written and oral technical communications.
20-801-252 Writing for the Web 3 credits
Writing for the Web will explore the creative potential of writing content for electronic media, which demands concise, clear, well-organized copy and the ability to operate in a nonlinear world. In this course students will develop original content; discuss the techniques, technologies, culture, and problems of publishing in a digital age; evaluate usability and organization when designing content for the web; and research online copyright law, libel law, and information ethics. This three-credit, college-transfer course is primarily for writing, editing and research courses, but will explore audio and graphic communication on the web, too. Students will explore blogging, podcasting, and social software technology. Prerequisite: English 1, 20-801-201 or Comm. Skills 1, 10-801-151 or the instructor's consent.

20-801-263 Editing for Workplace and Professional Publications 3 credits
Overview of techniques used by editors of workplace and professional publications to prepare documents for production. State-of-the-art usability guidelines and editing and typesetting methods are stressed throughout the course. Attention is given to design and visual appeal. Text is considered an inherent part of the editor's responsibility. The course requires the students to complete a series of editing projects. In print and electronic formats. The course assignments reflect the traditional "levels of edit" model, which stresses all aspects of the editing process, including research and fact checking, page design, usability, content editing, stylistic issues, copy editing, and liability and other legal issues. Prerequisite: 20-801-260, Technical Communications.

20-801-265 Writer's Portfolio 3 credits
Designed for writers who have need of a portfolio of their work, this course tailors projects to each student's writing goals. Students work independently in genres varying from creative writing to journalistic non-fiction, and technical writing. The course includes workshops on how to format documents in CD portfolios, and how to dramatize longer works in fiction and nonfiction. Students enrolled in the Technical Communications Certificate Program should take this as the final capstone course. Prerequisites: Two advanced writing courses in Creative Writing and News Writing and Reporting or instructor's consent.

31-801-351 Communications 1 2 credits
Improves reading, writing and reasoning skills through the review and application of language as communication. In secretariat and stenographic sections, emphasis is given to the fundamentals of grammar, spelling, sentence structure and paragraph development.

31-801-356 Communications 1 1 credit
Improves critical thinking, speaking, listening and writing skills. Where possible, the course is tailored to work situations. It differs from 31-801-351. Communications 1 (2 credits), primarily in depth.

31-801-357 Communications 2 1 credit
Improves reading, writing, speaking and reasoning skills through the review and application of language as communication. It differs from 31-801-352. Communications 2 (2 credits), primarily in depth.

802 Foreign Language

10-802-100 Occupational Spanish/Conversation 3 credits
Introduces basic workplace conversation skills. Students learn vocabulary, phrases and grammar that will help them participate in simple workplace conversations on specific topics. Although the focus is on conversation, the course also has writing and grammar components. No previous experience with Spanish is necessary.

10-802-111 Occupational Spanish (Your profession) 1 credit
Addresses the language and cultural needs of people in a given profession. Students memorize essential phrases, questions and responses that allow them to interact with native Spanish speakers in common job-related situations. The course focuses exclusively on understanding and using memorized phrases. Cultural issues specific to the job situation are explored. No previous experience in Spanish is necessary.

20-802-200 Spanish 1 (1st Semester) 3 credits
For beginning students who feel they need more time to complete Spanish 1. This course is the first half of a curriculum that divides Spanish 1 into two semesters. It moves at a slower pace and includes an emphasis on how to learn a foreign language. The course stresses the development of basic communicative skills through practice in listening, speaking, reading, and writing. Vocabulary and grammar are emphasized. A study of values and customs provides an increased awareness of the cultures of the Spanish-speaking world. Course is college transferable as Spanish 1 only upon completion of both semesters.

20-802-201 Spanish 1 (2nd semester) 3 credits
A continuation of Spanish 1, first semester. This slower-paced course continues the development of basic communicative skills through practice in listening, speaking, reading and writing. Vocabulary and grammar are emphasized. A study of values and customs provides an increased awareness of the cultures of the Spanish-speaking world. Upon completion of this course and 20-802-200, students have the equivalent of Spanish 1. Prerequisite: 20-802-200, Spanish 1 (1st Semester) or one year of high school Spanish.

20-802-211 Spanish 1 4 credits
For students beginning the study of Spanish. Emphasizes development of basic communicative skills through practice in listening, speaking, reading and writing. Stressing vocabulary and grammar to enhance students' ability to speak and write in Spanish. Study of customs and values provides an increased awareness of the Spanish-speaking cultures. On completion students are able to participate in uncomplicated conversations on everyday topics.

20-802-211 Spanish 1 (Refresh) 4 credits
For students who have taken course(s) in Spanish in high school or college but do not feel confident with their knowledge of the material covered in Spanish 1. Covers the same curriculum as Spanish 1, but moves more quickly through the initial material and spends more time developing the later topics. Emphasis is on development of basic communication skills through practice in listening, speaking, reading and writing. Stressing vocabulary and grammar to enhance students' ability to speak and write in Spanish. Study of customs and values provides an increased awareness of the Spanish-speaking cultures. Upon completion, students are able to participate in uncomplicated conversations on everyday topics. Not offered every semester. Prerequisite: at least one semester of college Spanish or one year of high school Spanish.

20-802-212 Spanish 2 4 credits
Emphasizes continued development of more complex communicative skills through practice in listening, speaking, reading and writing. Vocabulary and grammar are studied to enhance students' abilities to speak and write in Spanish. Upon completion, students possess the listening, speaking, reading and writing skills necessary to handle simple, everyday survival tasks in Hispanic cultures. Prerequisite: one semester of college Spanish or one year of high school Spanish.

20-802-213 Spanish 3 4 credits
Enhances complex communicative skills developed during previous semesters of study. Emphasis is placed on speaking and writing in extended contexts, focusing on presentational and interpersonal communication. Everyday situations, including eating out, travel and vacations, provide students an opportunity to expand their survival skills in Hispanic cultures. Language and critical thinking skills are expanded and deepened through reading, writing and speaking about health care, the environment, job interviews/resumes and relationships. Readings of cultural and literary significance, as well as a unit on art history, provide vehicles for discussion, presentation and composition. Prerequisites: two semesters of college Spanish or two years of high school Spanish.

20-802-214 Spanish 4 4 credits
Reviews and expands upon key grammatical structures needed to communicate effectively in Spanish. Focuses on expanding vocabulary, increasing grammatical accuracy and achieving paragraph-length discourse. Using the target language, students read and discuss culturally centered texts, review and broaden grammatical knowledge, complete oral and written exercises, write compositions and make formal class presentations. Prerequisite: three semesters of college Spanish or three years of high school Spanish.
20-802-215 Spanish 5
3 credits
Focuses on developing accuracy in written communication skills. Building on their experience in Spanish 4, students study Spanish grammar at greater breadth and depth than was required in previous courses, with the ultimate objective of improving their ability to write accurately in Spanish. Students read and analyze literary excerpts as the basis for active class discussion, presentation, and composition. Prerequisite: four semesters of college Spanish or four years of high school Spanish.

20-802-221 French 1
4 credits
For students beginning the study of French. Emphasizes development of basic communicative skills through practice in listening, speaking, reading and writing. Stresses vocabulary and grammar to enhance students’ ability to speak and write in French. Study of customs and values provide an increased awareness of francophone cultures. On completion students are able to participate in uncomplicated conversations on everyday topics.

20-802-222 French 2
4 credits
Emphasizes continued development of more complex communicative skills through practice in listening, speaking and writing. Upon completion, students possess the listening, speaking, reading and writing skills necessary to handle simple, everyday survival tasks in francophone cultures. Vocabulary and grammar are studied to enhance students’ abilities to speak and write in French. Prerequisite: One semester of college French or one year of high school French.

20-802-223 French 3
4 credits
Designed for the student who has completed two semesters of college French, or two years of high school French. A review of grammar from previous semesters is included and vocabulary is broadened. Emphasis is placed on speaking and writing in French in “paragraphe” as a full participant in a conversation. Everyday situations in francophone cultures, including education, family life, leisure activities and travel, will provide students with the opportunity to expand their survival skills in francophone cultures. Readings of cultural and literary significance will provide vehicles for discussion and composition. Prerequisite: Two semesters of college French, or two years of high school French.

20-802-224 French 4
4 credits
This course is designed for the student who has completed three semesters of college French, or three years of high school French. The review of grammar from 20-802-223, French 3, is completed and vocabulary is broadened. Emphasis is placed on speaking and writing creatively in French on a variety of topics. Everyday situations in francophone cultures, including education, family life, leisure activities and travel, will provide students with the opportunity to expand their survival skills in francophone cultures. Readings of cultural and literary significance will provide vehicles for discussion and composition. Prerequisite: Three semesters of college French, or three years of high school French.

803 History

20-803-204 Making of Modern Europe
3 credits
Introduces the major political, economic, social and cultural trends which characterize European society from the Renaissance through the French Revolution. The primary focus is an examination of the changes and conflicts that mark the transition from medieval society to Modern European society, and the impact that this transition has for individuals, groups, institutions, and the world view of Europeans in the early modern period.

20-803-205 Europe and the Modern World
3 credits
Introductory course in European history concentrating on the 19th- and 20th-century experiences of European societies through examination of major social, economic, political and intellectual development. One emphasis is on the changes that caused the transformation of Europe from a pre-industrial to a modern industrial society. A second emphasis focuses on a specific place and time period in order to understand how this process of transformation affected different European nations at different points in their history.

20-803-211 American History 1607 to 1865
3 credits
The origin and growth of the United States is studied. Surveys American political, economic and social development from the founding of the colonies through the Civil War.

20-803-212 American History 1865 to the Present
3 credits
Introductory survey course covering political, social and cultural trends in the United States between the end of Civil War and the present. In addition to presenting what happened in the United States during this period, the course explores the diverse sources historians use to explain the past.

20-803-213 History of the American West
3 credits
Covers the expansion, settlement and economic development of the American West, especially the region west of the Mississippi River. Much attention is devoted to the Native American people as well as to the theme “West” as American myth. Emphasizes developing institutions, utilization of resources and contributions of ethnic groups (including Native Americans) to this history. Particular attention is given to the settlement of Wisconsin. Completion of 20-803-211, American History 1607 to 1865, or 20-803-212, American History 1865 to Present, is recommended.

20-803-214 Native American History
3 credits
Survey course focusing on Native American cultures and histories from early times to the present. Particular attention is placed on the variety of lifestyles of native peoples, their early reactions to Euro-Americans, outstanding native leaders, assimilation efforts and relations with the U.S. government. Completion of 20-803-211, American History 1607-1865, or 20-803-212, American History 1865 to Present, is recommended.

20-803-215 American History 1845 to the Present
3 credits
Intermediate-level history course that explores the social, cultural, political and diplomatic history of the United States since the end of World War II. In addition to discussing what occurred in the past, the course concentrates on the sources, historians use when telling their stories. The course requires strong analytical skills and a willingness to think independently. Prerequisite: At least one college-level history course, preferably on some aspect of U.S. History.

20-803-223 History of Western Civilization
3 credits
This course introduces students to the history of western culture using the materials from the humanities, including history, art, architecture, literature, drama, philosophy and religion, and music. Course examines the history of western societies from the earliest civilizations up to the Renaissance (approx. 3000 BC to 1500 AD). Class will discover and explore the cultural legacy created by past societies that we-embodies as part of western culture and to evaluate the style or cultural essence of different peoples who have made important contributions to that culture. Students explore historical materials that reflect the human response to physical and social experiences in order to discover what being human involves over time in different places and situations. We also explore the humanities materials to discover how humans have expressed their humanity.

20-803-224 History of Sub-Saharan Africa
3 credits
An introduction to the civilizations of Africa from early man through the present that focuses on African society before western penetration, the basic nature of African institutions, the colonial experience of Africa and the development of Africa since independence in 1960.

20-803-225 The World in the Twentieth Century
3 credits
Focuses on the emergence of a global society in the twentieth century through a chronological examination of the events and trends, which created a more closely connected world, resulting in a "global society" by the end of the century. The course approaches the history of this century through emphasis on themes of particular significance to the creation of global society. Themes include globalization, the growth of mass culture, technology, ideology/religion, and the varied responses of different cultures to the ideas and events of the century.

20-803-226 East Asian Civilization
3 credits
This course will explore the historical, cultural, social and philosophical roots of East Asia. East Asia or the Pacific Rim includes China (also Taiwan, Hong Kong and Macao), Japan, Korea and Mongolia. This area is expected to be the newest economic and political powerhouse and has led many scholars to already name the 21st century the "Pacific Century." The purpose of this course will be to introduce students to this vast, complex and strategic area by primarily using history and culture. It will stress major themes in East Asian civilization and these themes will connect to form a whole picture.
20-803-229 Vietnam and America: 1945 to the present 3 credits
This course will survey the intersection of Vietnamese and American history from 1945 to the present. It will examine the roots of our involvement in Southeast Asia after World War II through the defeat of the French in the 1950's. It will explore the principal causes and effects of the expanded war in the 1960's both in Vietnam and in the United States—upon Americans and upon Vietnamese. It will conclude with a section discussing the legacy of the war exploring continuing issues like U.S./Vietnamese relations, Southeast Asian refugees in the U.S. and the effect of the war on veterans.

20-803-230 Women in History 3 credits
Introduces students to women's history, specifically the various roles played by and assigned to women in western societies and focusing on the question of how and why women's lives have changed during the past thirty centuries. Students will examine women's experiences and their images in the past by analyzing the lives of selected notable women as well as broad categories of women, e.g. prostitutes, peasant wives, noblwomen, feminists. The traditional historical periods covered include the Ancient (Greece and Rome), the Medieval (Europe) and the Modern (Europe and the U.S. since 1500).

20-803-238 Intro to North American Latino/Chicano Histories 3 credits
Surveys Latino/Chicano(a) histories and cultures in North America from earliest times to the present. Special emphasis is placed on indigenous peoples as well as later immigrants from Mexico, Cuba, Puerto Rico, Central and South America, and other areas within the Caribbean. Students are introduced to the varieties and complexities of Latino/Chicano social, political and economic conditions and achievements in the region of which is now the United States.

20-803-240 African-American History 3 credits
Broad introductory survey of significant experiences that have shaped U.S. race relations, beginning with the west coast of Africa during the Middle Ages and moving through the last 30 years of this century in the United States. Special attention is given to slavery, family, politics, education and civil rights.

20-803-245 Gender, Race and Class 3 credits
This course will examine the historical and sociological interplay between gender, ethnicity, and class in the lives of American women. Prominent themes, eras, and women within women's history of multiple oppression will be analyzed as well as the various ways women engage in and organize change. Enslavement, genocide, immigration, colonization, patterns of migration/settlement, and the role of women in American socio-political movements such as the abolition, suffrage, Civil Rights will be explored. This course will juxtapose experiences from African-American women's history to that of other women of color. Similarities and differences will be noted and the histories of other women of color will be briefly examined.

804 Mathematics

10-804-106 Introduction to College Math 3 credits
This is an entry-level course that reviews fundamental concepts and applications of mathematics. The course emphasizes computational and problem-solving skills with the use of a scientific calculator. Topics include fraction and decimal numbers, percent problems, graphing of data, an introduction to descriptive statistics, basic algebra (signed numbers, simple algebraic manipulations), measurement, applied plane and solid geometry (angle measurements, the Pythagorean Theorem, calculating perimeters, areas and volumes), median measure, right triangle trigonometry, and solving oblique triangles (the law of sines and cosines). Prerequisite: Basic Algebra, 77-854-793 with a grade of C or better, or appropriate placement score.

10-804-114 College Technical Mathematics 1B 2 credits
Topics include measurement systems, computational geometry, right and oblique triangle trigonometry and trigonometric functions on the unit circle. Emphasis will be on the application of skills to technical problems. Prerequisite: College Technical Mathematics 1A, 10-804-113 with a grade of C or better, or appropriate placement score.

10-804-115 College Technical Mathematics 1 5 credits
A review of basic laws of algebra involving fundamental operations, laws of exponents, grouping symbols, variation, functions and graphs. Reviews applications in plans and solid geometry. Linear equations in one unknown are solved, including applications to various technologies. Functional notation and graphs of functions are explored, including logarithmic and exponential functions. Trigonometry is studied from the point of view of numerical solution of right and oblique triangles. Applications to various technologies. Vectors are covered, including definitions and radian measure. Emphasis throughout is on applications to various technologies. Prerequisite: Algebra Concepts, 10-804-140 with a grade of C or better, or appropriate placement score.

10-804-116 College Technical Mathematics 2 4 credits
Topics include: vectors; trigonometric functions and their graphs; identities; exponential and logarithmic functions and equations; radical equations; equations with rational exponents; equations of a circle; velocity; sine and cosine graphs; complex numbers in polar and rectangular form; trigonometric equations; conic sections; and analysis of statistical data. Emphasis will be on the application of skills to technical problems. Prerequisite: satisfactory completion of College Technical Mathematics 1, 10-804-115 with a grade of C or better, or College Technical Mathematics 1B, 10-804-114 with a grade of C or better, or appropriate placement score.

10-804-120 Business Math 3 credits
Increases the student's knowledge and skill in solving practical financial problems of a business or personal nature through the use of arithmetic and logic. Develops a sound base for concurrent or subsequent accounting and other business related courses. Emphasizes solving word (story) problems. Prerequisite: Basic Algebra, 77-854-793 with a grade of C or better, or appropriate placement score.

10-804-122 Math of Finance 3 credits
Emphasizes solving practical word problems through the use of formulas, tables and a financial calculator. Topics include basic mathematics, business applications, mathematics of retailing, mathematics of banking and statistical applications. The material develops a sound base for concurrent or subsequent courses in related business subjects by using an analytical approach to problem solving. Prerequisite: appropriate score on COMPASS Test or 10-804-140 Algebra Concepts.

10-804-123 Math with Business Applications 3 credits
Increases the student's knowledge and skill in solving practical financial problems of a business or personal nature through the use of arithmetic and logic. Develops a sound base for concurrent or subsequent accounting and other business related courses. Emphasizes solving word (story) problems. Prerequisite: Basic Algebra with a grade of C or better, or appropriate placement score.

10-804-140 Algebra Concepts 3 credits
Introductory algebra course provides a thorough coverage of beginning algebra with an emphasis on problem solving for real world applications. Topics covered include operating with real numbers and applying the order of operations to simplify numeric expressions, applying the laws of exponents to perform operations on polynomials, factoring quadratic expressions, simplifying and solving linear and quadratic equations in one variable, solving 2x2 systems of equations, graphing linear equations in two variables, simplifying and solving equations containing a square root and simplifying rational expressions. Prerequisite: Basic Algebra, 77-854-793 with a grade of C or better, or appropriate placement score.

10-804-150 Science-based Statistics 3 credits
This is an introductory course with examples and applications chosen from quantitative x-ray analysis, image analysis, metrology and selected biomedical problems. Covers techniques including the collection, presentation, analysis and interpretation of experimental results and develops procedures to deal with uncertainty in inferences and decisions when data are subject to random error. Topics covered include descriptive statistics; basic probability; the hypergeometric, binomial, normal, Student's t, chi-square and F distributions; sampling distributions; the Central Limit Theorem; one-way analysis of variance and linear regression. Prerequisite: Algebra Concepts, 10-804-140 with a grade of C or better or appropriate placement score.
20-804-200 Principles of Geometry 3 credits
This is an introductory college level course that provides a foundation in geometry necessary for the study of analytic geometry, trigonometry, or calculus. The class covers the facts of geometry, cultivates geometric intuition, and fosters the practice of deductive reasoning. Prerequisite: Algebra Concepts, 10-804-140 with a grade of C or better or appropriate placement score.

20-804-201 Intermediate Algebra 4 credits
Studies the construction and resulting properties of the real number system. Students simplify and factor algebraic expressions using fundamental laws and order of operations, solve first and second degree equations and inequalities in one variable, solve exponential and logarithmic equations, graph first degree and second degree equations and inequalities in two variables, solve 2x2 and 3x3 systems of equations, simplify and solve equations involving rational expressions, and simplify and solve equations involving fractional exponents and radicals. Students are introduced to linear, quadratic, square root, absolute value, exponential, and logarithmic functions. The basic definitions of functions, relations, one-to-one functions, and inverses are discussed along with the algebra and composition of functions. Prerequisite: Algebra Concepts, 10-804-140 with a grade of C or better or appropriate placement score.

20-804-202 Intermediate Algebra 1 3 credits
Understand the structure of the real numbers (their construction, operations and properties); solve first degree (linear) equations and inequalities in one variable; graph first degree equations and inequalities in two variables; be introduced to the concept of the function and the use of functional notation; solve systems of equations in a two-dimensional Cartesian plane; perform algebraic operations on polynomials; factor algebraic expressions; solve polynomial equations by factoring and solve applications problems that relate to all of the above. Prerequisite: Algebra Concepts, 10-804-140 with a grade of C or better, or appropriate placement score. Transferability: By itself this course does not transfer; however, upon successful completion of this course and 20-804-203, Intermediate Algebra 2, four credit hours of Intermediate Algebra are available for transfer.

20-804-203 Intermediate Algebra 2 3 credits
This course is a continuation of Intermediate Algebra 1, 20-804-202. Students expand their understanding of the structure of the real numbers (their construction, operations and properties); perform algebraic operations on rational and radical expressions; solve rational and radical equations; solve inequalities; solve absolute value equations and inequalities; solve systems of three equations in three variables using the methods of substitution, addition (elimination), matrices and determinants; study complex numbers (their construction, operations and properties); solve second degree equations and inequalities in one variable; graph quadratic equations; solve exponential and logarithmic equations; understand and use functional notation and the arithmetic of functions; and solve application problems relative to the above topics. Prerequisite: Intermediate Algebra 1; 20-804-202, with a grade of C or better. Transferability: Upon successful completion of this course and 20-804-202, Intermediate Algebra 1, four credit hours of Intermediate Algebra are available for transfer.

20-804-208 Introduction to Computer Use 4 credits
This college transfer course is an introduction to computers and how to use them. It is a lecture/lab course designed to provide you with computer skills to help a student in his/her academic career. The major categories of microcomputer software are introduced, including word processor, spreadsheet, database managers, telecommunications (Internet and email), graphics packages and/or presentation software, and programming tools. This course addresses the history and social impact of computers and the computer's role in mathematics and science.

20-804-207 Intro to Computer Programming 2 credits
This course introduces students to programming using the Visual Basic.NET programming language. (Nods: 207 and 208 do not use the same programming language.) It is intended for students with a little or no prior programming experience. Topics include the basics of structured programming such as data types, looping and decision statements, functions, arrays, strings, and files. The course also covers the construction and use of classes and other principles of object-oriented programming. Prerequisite: Advanced high school mathematics. Recommendations: Some familiarity with the use of computers. Students transferring to other institutions may not receive full credit for both 804-207 and 804-208.

20-804-206 Computer Science 3 credits
This course uses the object-oriented programming language Java in a project-based learning format where students will be given increasingly challenging projects. Projects will be brought through the five stages of development: program design, definition and design of library classes, coding, testing, and documenting. Project elements begin with input, output, storage, and operations, and continue through control structures (loops, branching, and methods), data structures (arrays and classes), and techniques for searching and sorting. Students will implement standard Java grammar elements including inheritance and interfaces and will use the compiler and debugger to debug programs. Students will practice analytical skills through elimination of run-time and logical errors and will exercise writing skills in documenting code to a prescribed industry standard. The course requires eight to ten hours per week outside of class. Prerequisite: completion or concurrent enrollment in College Algebra or consent of instructor. Some prior programming experience is helpful.

20-804-211 Quantitative Reasoning 3 credits
This course is intended to develop analytic reasoning and the ability to solve quantitative problems. Topics to be covered may include: construction & interpretation of graphs; descriptive statistics; geometry & spatial visualizations; math of finance; functions and modeling; probability; and logic. Appropriate use of units and dimensions, scaling, mathematical notation, and available technology will be emphasized throughout the course. Prerequisite: Intermediate Algebra with a grade of C or better or Intermediate Algebra Parts 1 and 2 with a grade of C or better in both parts or appropriate placement score. Note: this course satisfies Part A of the Quantitative Reasoning requirement for the University of Wisconsin system and is intended for students who do not plan to take any further mathematics.

20-804-212 College Algebra 3 credits
Includes fundamental topics covered in Intermediate Algebra with a more careful look at the mathematical details and a greater emphasis on the concept of function. Covers quadratic, polynomial, rational, exponential and logarithmic functions, equations and inequalities; the use of matrices and determinants in solving linear systems of equations, solving non-linear systems; sequences and series. Prerequisite: Intermediate Algebra, 20-804-201 with a grade of C or better or Intermediate Algebra Parts 1, 20-804-202 and 2, 20-804-203 with a grade of C or better in both parts, or appropriate placement score.

20-804-213 Trigonometry 3 credits
Includes study of the six trigonometric functions and their inverse functions; solve right and oblique triangles; know and apply basic identities and simplify trigonometric expressions using identities; solve trigonometric equations; graphing trigonometric functions; understand and apply De Moivre's theorem and the nth root theorem; understand and use complex numbers and polar coordinates to solve application problems that rely on trigonometry. Prerequisite: Intermediate Algebra, 20-804-201 with a grade of C or better or Intermediate Algebra Parts 1, 20-804-202 and 2, 20-804-203 with a grade of C or better in both parts or appropriate placement score.

20-804-220 Finite Mathematics 3 credits
Finite mathematics provides the necessary mathematical preparation for the understanding of various quantitative methods in modern management theory and the social sciences. The topics included are: sets, relations, linear functions, matrix theory, the solutions of linear systems by graphical, algebraic, Gaussian-Jordan, and inverse matrix methods, linear programming by graphical and simplex methods, the mathematics of finance, counting and probability, game theory, decision theory, and other related topics. Prerequisite: Intermediate Algebra, 20-804-201 with a grade of C or better or Intermediate Algebra Parts 1, 20-804-202 and 2, 20-804-203 with a grade of C or better in both parts or appropriate placement score.

20-804-222 Mathematical Analysis 5 credits
An integrated treatment of topics from college algebra and trigonometry lays a sound foundation for higher courses in mathematics. Includes linear and quadratic functions, other polynomial functions, rational functions, radical functions, exponential and logarithmic functions, the trigonometric functions, and some analytic geometry in the plane. Prerequisite: Intermediate Algebra, 20-804-201 (with a grade of AB or better) or Intermediate Algebra Parts 1, 20-804-202 and 2, 20-804-203 (with a grade of AB or better in both parts), or appropriate placement score.
20-804-231 Calculus and Analytic Geometry 1 5 credits
Designed for students of mathematics, science, and engineering. An introduction to the basic properties of limits, rate of change of functions, continuity, derivatives of algebraic and elementary transcendental functions, their products, quotients and compositions, curve sketching, finding maxima and minima, and indefinite and definite integrals with applications. Prerequisites: Both College Algebra, 20-804-212 and Trigonometry, 20-804-213 with a grade of C or Better in both, or Mathematical Analysis, 20-804-208 with a grade of C or better, or Electronics Math 2, 10-605-172 with a grade of C or better or, at appropriate placement score.

20-804-232 Calculus and Analytic Geometry 2 5 credits
Designed for students of mathematics, science, and engineering. Topics covered include the techniques of integration, numerical approximation of definite integrals, applications of integration and an introduction to first order differential equations, analysis of infinite sequences and series, parametric equations and derivatives of parametric curves, polar coordinates in the plane and integrals using polar coordinates, the analytic geometry of the conic sections, an introduction to vectors in two and three dimensions, scalar and vector cross products, graphs of quadric surfaces. Prerequisite: Calculus and Analytic Geometry 1, 20-804-231 with a grade of C or better or equivalent.

20-804-233 Calculus 3 5 credits
Designed for students of mathematics, science, and engineering. Topics covered include differentiation of vectors, space curves and curvature, functions of more than one variable, level curves and level surfaces, limits and continuity, partial derivatives, total differential, tangent planes, the gradient operator, the directional derivative, multivariable forms of the chain rule, locating maxima, minima, and saddle points, the method of Lagrange multipliers, multiple integrals in rectangular, polar, cylindrical and spherical coordinates, transformations of multiple integrals and the Jacobian, surface area, applications of multiple integrals to geometry and mechanics, line integrals in two and three dimensions, vector fields, circulation and flux in two dimensions, Green's Theorem, the curl and divergence operators, surfaces and surface area defined parametrically, Gauss' and Stokes' Theorems, applications of vector calculus to geometry, mechanical work, fluid mechanics and electromagnetic fields, an introduction to the theory and solution of first and second order ordinary differential equations. Prerequisite: Calculus and Analytic Geometry 2 with a grade of C or better or equivalent.

20-804-240 Basic Statistics 4 credits
Appropriate statistical techniques are studied for the systematic collection, presentation, analysis and interpretation of experimental results, including surveys and quality control. The focus is on understanding the techniques of statistical inference (confidence intervals and hypothesis testing) and interpreting results as found in articles and reports. Emphasizes the inherent uncertainty when decisions are made on the basis of sample data. Includes descriptive statistics, basic probability theory, sampling distributions and the Central Limit Theorem; the binomial, normal, Student $t$, chi-square, and $F$; distributions; and techniques of 1- and 2-sample tests, linear regression, correlation, an introduction to analysis of variance and selected nonparametric procedures. Prerequisite: Intermediate Algebra, 20-804-201 with a grade of C or better, or Intermediate Algebra Parts 1, 20-804-202 and 2, 20-804-203 with a grade of C or Better in both parts, or appropriate placement score.

31-804-379 Vocational Mathematics 1 1 credit
A review of basic mathematics that consists of an introduction to using a scientific calculator, order of operations, fractions, decimals, use of percentage, units of measurement including the metric system, the reading of analog instruments for length measurement, and practical plane geometry. Prerequisites: Basic Algebra, 77-854-793 or appropriate placement score.

31-804-381 Machine Tool Mathematics 1 2 credits
Open only for Machine Tool and Industrial Maintenance students. Includes the study of machine tool problems involving calculations with fractions, decimals, and percentage. Includes work with the metric system, measurement conversion, geometry, trigonometry of right triangles, and use of a scientific calculator. Formulas with application to the trade are also studied. Prerequisites: Basic Algebra, 77-854-793 or appropriate placement score.

31-804-382 Machine Tool Mathematics 2 1 credit
This is a continuation of Machine Tool Math 1. Consists of advanced machine tool problems whose solutions involve right and oblique triangles. Compound angles and numerical control calculations are also studied. Prerequisite: Machine Tool Math 1, 31-804-381 with a grade of C or better or its equivalent.

805 Music

20-805-204 Music Ensemble 1 credit
Students can earn performance credit by playing in one of the MATC performance groups: the Madison Municipal Band, the Community Orchestra, Community Show Choir or the MATC Jazz Ensemble. Audition is required for the Jazz Ensemble.

20-805-205 Class Voice 1: Strategies for Enhancing Your Singing 1 credit
A fundamental course in singing. Includes principles of voice production, correct breathing, tone placement, resonance, articulation and song interpretation. Open to all college students. Prerequisite: concurrent enrollment in MATC Chorale.

20-805-206 Class Voice 2 1 credit
Continuation course in fundamentals of singing. Includes principles of voice production, correct breathing, tone placement, resonance, articulation and song interpretation. Open to all college students. No auditions. Prerequisite: concurrent enrollment in MATC Chorale.

20-805-207 Introduction to World Music 3 credits
Acquaints students with music from Native American groups, Japan, India and other non-European cultural regions. Besides a strong emphasis on listening skills, course study will include performance participation, readings, film, lecture, discussion, and field trips. No music background is required.

20-805-209 Vocal Jazz Ensemble 1 credit
A small performing vocal ensemble that includes both pop chorall music and music for a vocal jazz ensemble. Some musical selections are choreographed, but formal dance ability is not required. Prerequisite: concurrent enrollment in MATC Chorale and consent of the instructor.

20-805-227 Music Appreciation 3 credits
A survey course in music for those interested in learning through listening to recorded music performances. The course emphasizes learning how to listen to music more fully.

20-805-228 Music in Film 2 credits
A survey course covering the history of music in film. It will consist of lecture and discussion of the numerous styles and aspects of music as it relates to film.

20-805-260 Basic Music Theory 3 credits
Develops basic music concepts in notation, intervals, scales, chords and rhythm through elementary dictation. No previous musical knowledge is required.

20-805-261 Music Theory 1 3 credits
Develops an understanding of common musical structures from both classical and popular idioms. Emphasizes literacy in standard musical notation, understanding of keys and scales, chord structure and progression, harmonic writing and arranging, form and composition. Students should have a strong music background including ability to read music or have taken 20-805-260, Basic Music Theory.

20-805-262 Music Theory 2 3 credits

20-805-263 Jazz History 2 credits
Classroom lecture course to introduce students to the recordings, history, major figures, musical forms and social importance of this original American art form. Includes live demonstrations, video and filmstrips, guided-listening experiences and group discussions. Out-of-class responsibilities primarily include reading and listening. Historical periods and jazz-related styles to be covered include ragtime, blues, traditional New Orleans jazz, big band swing, boogie-woogie, bebop, cool progression, rhythm and blues, jazzrock and contemporary fusion and funk styles. No prerequisites.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-805-264</td>
<td>Great Composers in Music</td>
<td>3</td>
<td>Covers outstanding composers in Western culture. A study of the history, music, accomplishments and lives of composers such as J.S. Bach, Ludwig Van Beethoven, Wolfgang Amadeus Mozart and Richard Wagner. No prerequisites.</td>
</tr>
<tr>
<td>20-805-265</td>
<td>Music History 1600-1900</td>
<td>3</td>
<td>Survey of western musical styles, 1600-1900, through extensive record listening and biographical studies of composers during the Baroque, Classic and Romantic periods.</td>
</tr>
<tr>
<td>20-805-267</td>
<td>Ear Training, Keyboard and Listening Skills</td>
<td>1</td>
<td>Course is designed to provide musicians and music theory students with skills related to problem solving and critical thinking in animal biology. Focuses on the basic chemical principles that have application to higher level examples are taken from scientific and health-related fields. The laborystory component emphasizes safety, introduces basic laboratory skills and reinforces chemistry courses. These include a strong emphasis on problem solving and an emphasis on the periodic table, chemical equations and solution chemistry. Examples are taken from scientific and health-related fields. The laboratory component emphasizes safety, introduces basic laboratory skills and reinforces lecture topics. This course can be used as a stand alone, associate degree level course or as a prerequisite for a first college transfer level chemistry course.</td>
</tr>
<tr>
<td>20-805-268</td>
<td>Ear Training, Keyboard and Listening Skills 2</td>
<td>1</td>
<td>Continued development of aural, keyboard and listening skills for students enrolled in Music Theory 2. Students expand their ability to recognize and notate scales, melodic and harmonic intervals, melodic phrases, chords and chord progressions, and common rhythm patterns. Corequisite: 20-805-261.</td>
</tr>
<tr>
<td>20-805-270</td>
<td>MATC Chorale</td>
<td>1</td>
<td>A chorus of mixed voices open to those who enjoy singing—all college students, staff, faculty and general public. Focuses on music of diverse cultures and times. Provides an opportunity to participate in learning and performing choral music. Meets two hours per week.</td>
</tr>
<tr>
<td>20-805-271</td>
<td>MATC Chorale 2</td>
<td>1</td>
<td>Continuation of choral group for mixed voices open to those who enjoy singing—all college students, staff, faculty and general public. Focuses on music of diverse cultures and times. Provides an opportunity to participate in learning and performing choral music. No auditions.</td>
</tr>
<tr>
<td>20-805-272</td>
<td>Madrigal Choir</td>
<td>1</td>
<td>A small vocal ensemble that sings and performs choral repertoire from madrigals and other choral literature. Corequisite: enrollment in MATC Chorale.</td>
</tr>
<tr>
<td>20-805-273</td>
<td>Broadway Musical Theater</td>
<td>2</td>
<td>Covers the history of the Broadway musical. Consists of lecture, video tapes and discussion of the numerous styles and aspects of musical performance, as well as the various techniques of production. Students learn the stories behind many of the most famous shows from Broadway and London stages. Provides the opportunity to see local musical productions.</td>
</tr>
<tr>
<td>20-805-278</td>
<td>History of Pop and Rock Music</td>
<td>2</td>
<td>Covers the history of popular and rock genres from ca. 1920 to present. Emphasizes music literature, form and style analysis, social and cultural criticism.</td>
</tr>
<tr>
<td>20-806-105</td>
<td>Principles of Animal Biology</td>
<td>4</td>
<td>Introductory biology course focusing on general biological principles, cell structure and function, genetics, comparative anatomy and physiology, evolution, and ecosystems. Includes dissection of various fresh and preserved materials. Prerequisite: One year of biology, chemistry, and algebra at the high school level or above, with a grade of C or better.</td>
</tr>
<tr>
<td>20-806-106</td>
<td>Introduction to Anatomy and Physiology</td>
<td>4</td>
<td>Features lectures and laboratory dealing with the human body as an integrated structural and functional unit, including the circulatory, respiratory, digestive, excretory, reproductive, nervous, endocrine, muscular and skeletal systems, in addition to cell structure and physiology. Includes dissection of fresh and preserved material as well as examination of a human cadaver. Introductory college-level biology course recommended. This course is not acceptable in programs requiring two semesters of Anatomy and Physiology. Prerequisite: One year of high school chemistry.</td>
</tr>
<tr>
<td>20-806-110</td>
<td>Technical Chemistry</td>
<td>4</td>
<td>Appropriate for students enrolled in the veterinary technician and laboratory animal technician programs. Topics covered include problem-solving in the area of solution and acid/base chemistry, with an introduction to organic and biological chemistry. Basic laboratory techniques are emphasized. Prerequisite: One year, each, of high school algebra and chemistry (or 10-806-102, Nature of Chemistry, or 20-806-201, Liberal Arts Chemistry).</td>
</tr>
<tr>
<td>20-806-111</td>
<td>Chemistry 1</td>
<td>4</td>
<td>Fundamental concepts of inorganic chemistry. Emphasizes learning the basic principles and quantitative measurements used in chemistry. Consists of three hours of lecture and one, two-hour laboratory period per week. Prerequisite: One year of biology, chemistry, and algebra at the high school level or above, with a grade of C or better.</td>
</tr>
<tr>
<td>20-806-112</td>
<td>Chemistry 2</td>
<td>4</td>
<td>Further study of basic chemical principles (e.g., atomic and molecular structure, reactions, stoichiometry, thermochemistry, and acid/base chemistry) and the application of these principles, including chemical equilibria and kinetics. Introduces properties, structures, and reactions of organic compounds. Elementary aspects of biochemistry are considered. Prerequisite: One year of biology, chemistry, and algebra at the high school level or above, with a grade of C or better.</td>
</tr>
<tr>
<td>20-806-113</td>
<td>Measurement and the Scientific Method</td>
<td>1</td>
<td>A five-week module introducing the scientific method and fundamentals of measurement. Concepts/skills that will be addressed include: the scientific method, direct measurements, derived measurements, significant figures, dimensional analysis, equations (and their manipulation), graphing and graphical analysis, scientific notation and percent.</td>
</tr>
<tr>
<td>20-806-119</td>
<td>Dimensional Analysis</td>
<td>1</td>
<td>Develops a conceptual foundation of a few basic laws and principles of physics. Provides practical lab experience involving the basic laws and principles of physics. Topics covered include motion, light, color, lenses and basic properties of the human eye.</td>
</tr>
<tr>
<td>20-806-121</td>
<td>Everyday Chemistry</td>
<td>1</td>
<td>Meets for two, one-hour lectures and one two-hour laboratory per week for five consecutive weeks. Inquiry-based laboratories investigate chemical phenomenon observed in everyday life, i.e., phases of matter, solutions, combustion, acids and bases, and production of carbon dioxide from yeast and soda. Group activities and lectures explain these phenomenon and challenge students to apply concepts to other events. Prerequisite: 10-806-113.</td>
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<tr>
<td>20-806-141</td>
<td>Technical Science 1-S</td>
<td>3</td>
<td>Concentrates on the basic concepts of chemistry and physics. Students are introduced to unit systems, elements, compounds, atomic structure, chemical equations, the periodic table of the elements and qualitative chemical relationships. Chemistry topics also include chemical bonding, nuclearity and electric battery chemistry. Physics topics include temperature, thermal properties of matter, methods of heat transfer and the study of elasticity and fluids. Emphasizes qualitative phenomena with a de-emphasis on mathematical abilities. Broadly correlated with 10-804-141, Industrial Mathematics. Prerequisite: One year of high school science.</td>
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</table>
This course for associate degree technical program students emphasizes the problems encountered in modern technology. Prerequisites: 10-804-113.

10-808-179 Advanced Anatomy and Physiology 4 credits Covers a broad range of topics suitable for many allied-health fields. Topics covered during the general chemistry portion of the course include measurement, problem solving, periodic table, chemical reactions, radioactivity, gases, solutions and acid-base behaviors. The organic chemistry portion introduces the structure and chemical behavior of major types of organic molecules. Also introduces the chromosome. This course is not acceptable in many programs, this course will generally not substitute for College Chemistry 1 if a program specifically requires that course or its equivalent. Prerequisites: One year of high school algebra and one year of high school chemistry, or 10-806-102, Nature of Chemistry, or 20-806-206, Liberal Arts Chemistry.

20-806-208 Anatomy and Physiology 1 4 credits Features lectures and laboratory dealing with the human body as an integrated structural and functional unit, including the circulatory, respiratory, digestive, excretory, reproductive, nervous, endocrine, muscular and skeletal systems, in addition to cell structure and physiology. Includes dissection of fresh and preserved material as well as examination of a human cadaver. Introductory college-level biology course recommended. Prerequisite: One year of high school chemistry. General Anatomy and Physiology is a one semester course. Students in programs that require two semesters of anatomy and physiology should take Anatomy and Physiology 1, 20-806-207 and Anatomy and Physiology 2, 20-806-208.

20-806-209 General Anatomy and Physiology 2 4 credits Features lectures and laboratory dealing with the human body as an integrated structural and functional unit, including basic anatomical and directional terminology, fundamental concepts and principles of cell biology, histology, immunology, skeletal, muscular, endocrine and nervous systems, and the special senses. Includes dissection of various fresh and preserved materials as well as examination of a human cadaver. This course is the second semester of a two-semester sequence. College-level chemistry is recommended. Introductory college-level biology course recommended. Prerequisite: One year of high school chemistry or one semester of college-level chemistry.

20-806-206 Anatomy and Physiology 1 4 credits Features lectures and laboratory dealing with the human body as an integrated structural and functional unit including the cardiovascular system, lymphatic system and immunity, respiratory system, digestive system and metabolism, urinary system, fluid/electrolyte balance and acid/base balance, and reproductive system. Includes dissection of a cat as well as examination of a human cadaver. Note: this is the second semester course of a two-semester sequence and is not acceptable where a one-semester Anatomy and Physiology course is required. Prerequisite: 20-806-207, Anatomy and Physiology 1, or consent of instructor.
20-808-209 College Chemistry I  5 credits
The first semester of a two-semester sequence in general college chemistry that includes the topics of measurement, chemical nomenclature, chemical reactions and stoichiometry, atomic structure, gas laws, thermodynamics, organic chemistry, and biochemistry. This course is for students who need one or two semesters of general college chemistry. Laboratory work assists in understanding chemical concepts and developing problem-solving skills. Students may complete the year of college chemistry with 20-808-212. Prerequisites: Intermediate Algebra, 20-804-201, including exponential and logarithmic functions, and one year of high school chemistry or 10-806-102, or 20-806-200.

20-806-212 College Chemistry II  5 credits
A continuation of 20-808-209. This course includes applications of principles to specific chemical processes used to control the environment. Examines human infectious disease including general biology, bioenergetics, hormones, metabolism, nutrition, the synthesis of nucleic acids, and the regulation of gene expression and protein synthesis. Prerequisite: 20-806-209 and Intermediate Algebra, 20-804-201, including exponential and logarithmic functions or its equivalent.

20-808-213 Organic Chemistry I  5 credits
The first semester of a two-semester organic chemistry sequence. Includes the electronic structure and bonding of atoms and molecules; stereochemistry; acids and bases; oxidation and reduction; the nomenclature, reactions, and properties of the following classes of compounds - alkanes, alkenes, alkynes, hydrocarbons, aldehydes, ketones, enols, esters, ethers, amines, and halides. Includes a three hour per week laboratory component as well as four hours per week lecture/discussion. Prerequisites: Both semesters of a college level sequence of chemistry courses, the equivalent, or the consent of the instructor.

20-806-214 Organic Chemistry II  5 credits
Continuation of Organic Chemistry I. Includes the theory and interpretation of NMR and UV-VIS spectrophotometry; the nomenclature, mechanisms, reactions and properties of the following classes of compounds - alkanes, alkenes, alkynes, hydrocarbons, aldehydes, ketones, esters, ethers, amines, and halides. Includes a three hour per week laboratory component as well as four hours per week lecture/discussion. Prerequisite: Organic Chemistry I; 20-808-213, or equivalent.

20-808-215 Botany  5 credits
Plant science deals with a wide variety of organisms that are of great interest and are basic to our survival. These organisms are viewed from various perspectives—taxonomic, physiological, ecological, etc.—in hopes of developing an overall understanding and appreciation of their value and beauty. Emphasizes taxonomy and evolution, physiology, anatomy and ecology. A survey of plants and plant-like organisms is presented.

20-806-221 College Physics I  5 credits
First semester of a one-year introductory course. Develops a conceptual understanding of the basics of physics and provides practical hands-on lab experience, which helps to broaden the understanding of physics. Covers the basic properties of motion, force, energy, momentum, rotation, fluids, heat and relative. Stresses developing good problem-solving strategies. Prerequisites: Two years of high school algebra and one year of high school geometry; or equivalent. Trigonometry or high school physics or 10-806-157, Survey of Physics, are helpful if the student's algebra and problem-solving skills are weak.

20-808-222 College Physics II  5 credits
Studies thermodynamics, electricity, magnetism, sound, geometric and physical optics through lecture, demonstrations and laboratory work. Prerequisite: 20-808-221, General College Physics I, or equivalent.

20-806-223 College Physics 1-Calculus Based  5 credits
Intended for students of science or engineering, this course covers mechanics and heat. Five one-hour lectures and one three-hour laboratory per week. Equivalent to Physics 211 at the University of Wisconsin. Prerequisite: grade of C or better in 20-804-221, Calculus and Analytical Geometry 1, or equivalent.

20-806-224 College Physics 2-Calculus Based  5 credits
Intended for students of science or engineering, this course is a continuation of 20-806-223. Covers electricity, magnetism, light and sound. Equivalent to Physics 222 at the University of Wisconsin. Prerequisite: grade of C or better in 20-806-223 or equivalent. Student must take 20-804-232, Calculus and Analytical Geometry 2, or equivalent, prior to or concurrently with this course.

20-806-226 Introduction to Human Biology  5 credits
This is an introductory course designed for students who want a laboratory science, but are not majoring in biology. It emphasizes the structure of the human body and the functional interrelationships of the body's systems. Consideration is also given to human genetics, human evolution, ecology, and the role that humans play in the environment. This course includes three hours of lecture per week, two hours of laboratory and a one-hour discussion session. Note: this course does NOT meet the requirements for 20-806-207 or 208, Anatomy and Physiology. Prerequisite: completion of high school biology is recommended.

20-806-227 Genetics and Biotechnology  5 credits
Follows a historical approach to the science of heredity and its modern offspring, biotechnology. Discusses Mendelian genetics, the cellular basis of inheritance, the history of DNA, microbial genetics, molecular biology and recombinant DNA science. Integrates moral, ethical and social implications of genetics.

20-806-231 Biology of Human Aging  4 credits
Focuses on biological phenomena associated with aging, including theories and characteristics of aging, the irreversibility and inreversibility of bodily functions, and behavioral alterations as they are affected by neurobiological, immunological, endocrinological, myological, skeletal and circulatory changes.

20-806-241 Earth Science  3 credits
Introduces the physical nature of the earth. Covers topics in geology, geography, meteorology, oceanography and astronomy. Physical processes and an understanding of their causes and effects are investigated.

20-806-243 Survey of Astronomy  4 credits
Introductory course covering the observations, theories and principles of astronomy, including the history of astronomy, telescopes, the earth and solar system, stars and their evolution, galaxies and the evolution of the universe. Consists of lecture-discussion sessions with some evening meetings for star viewing with the school's 8-inch telescope. Recommendation: completion of high school algebra.

20-806-244 General Geology  4 credits
This course introduces the student to the composition and structure of the earth, its surface features and the processes that have shaped and produced these features. The course consists of three one-hour lectures per week and a two-hour weekly lab session. The laboratory is meant to reinforce topics and concepts covered in lecture, and provide hands-on examination of geologic maps, rocks and minerals.

20-806-245 Weather and Climate  3 credits
Discusses nature and variability of temperature, precipitation, clouds and wind. Includes storm systems, fronts, thunderstorms, tornadoes, hurricanes and their prediction, climate, climatic change, seasonal changes, air composition, global winds and special problems related to meteorology.

20-806-265 Survey of Biochemistry  4 credits
A one-semester survey of basic biochemistry, especially appropriate for nursing students. Discusses the structures and functions of amino acids, proteins, carbohydrates, lipids and nucleic acids. Other topics include acid-base properties, buffers, enzyme function, membrane structure and transport, bioenergetics, hormones, metabolism, nutrition, the synthesis of nucleic acids, the regulation of gene expression and protein synthesis. Prerequisite: At least one semester of college-level chemistry that included some basic organic chemistry; or consent of instructor.

20-806-273 Microbiology  4 credits
Addresses pathogenic microbes (bacteria, fungi, parasites, and viruses), their structures, metabolism, genetics, growth and their relationship to humans and the environment. Examines human infectious disease including general diagnosis and treatment, transmission, host defense mechanisms, and processes used to control the growth and spread of infectious agents.
20-808-274 General Microbiology 5 credits
Broad overview of the structure, function, ecology, nutrition, physiology, and genetics of microorganisms and a discussion of medical, industrial, agricultural, and food microbiology. Also includes an introduction to standard techniques and procedures used in the microbiology laboratory.

20-808-275 Parasitology and Mycology 2 credits
Discusses the protozoan parasites, roundworms and flatworms that cause diseases as well as the common fungal infections of body systems. General topics and disease transmission are covered in lecture and identification techniques are covered in lab.

20-808-280 Environmental Issues 4 credits
An introductory (non-laboratory) survey course entirely appropriate for first-year students. Environmental Issues explores diverse problems of human impact on natural systems. Though fundamentally grounded on the basic principles of biology and ecology, this course is designed to encourage interdisciplinary thinking about critical environmental problems. Students explore chemical, biological, political and ethical interactions of environmental systems on scales that range from local to international. The course prepares students for Principles of Ecology and other more advanced courses in Environmental Studies. This course transfers to UW-Madison at the elementary level. Offered during the spring semester.

20-808-281 Ecology and Conservation Biology 3 credits
An intermediate-level (non-laboratory) course, most appropriate for second-year students. A basic knowledge of ecosystem structure and function is used as a springboard to grasping the impact of human activities on natural populations. Emphasis is on computer modeling of endangered species, dwindling populations of endemics, species under threat of over-harvesting, and other groups at risk. This course requires the background knowledge of an introductory environmental science course. Prerequisite: Environmental Issues, 20-808-280 or Environmental Science, 20-808-285 or instructor's consent. This course transfers to UW Madison at the intermediate level as Ecology/Wildlife Ecology 350. Offered during the fall semester.

20-808-282 Principles of Ecology 4 credits
An Intermediate-level laboratory course most appropriate for second-year students. Emphasis is on the structure and function of natural communities and on collection and analysis of ecological data. Lectures and laboratories, including field work, explore plant and animal diversity and adaptations to various aquatic and terrestrial habitats. The course includes consideration of nutrient cycling, population growth and regulation, predator-prey interactions, exotic species, habitat loss, and patterns of extinction. Field work requires extensive walking. Prerequisite: Environmental Issues, 20-808-280 or Environmental Science, 20-808-285 or instructor's consent. This course transfers to UW-Madison at the Intermediate level as Zoology/Wildlife Ecology 360. Offered during the fall semester.

20-808-283 Insects and Human Culture 3 credits
Acquaint students with insects and develop appreciation for insect diversity, anatomy, and ecology. Explore the ways in which insects interact with humans and influence our society.

20-808-284 Field Ecology Workshop 3 credits
This is a capstone course in ecology, most appropriate for upper-level students with a keen interest and background in the discipline. Held entirely in the field, this course offers excellent writing and comparing different ecological communities through qualitative and quantitative analysis. Prerequisite: a college level laboratory course in Ecology or Environmental Science, 20-808-265 or instructor's consent. Offered during the inter-term session.

20-808-285 Bringing Sciences to the Twenty-first Century 3 credits
This capstone course links emergent issues in basic research sciences (chemistry and biology), applied sciences (veterinary and human health) with legal issues (business law). Evaluates students' ability to use Internet technology to communicate and gather information for use in the course. Teaches techniques for identifying issues that constitute the heart of an argument, and teaches methods for preparing written presentation of competing arguments. Augments students' skills in preparing and delivering formal debates and act as a culmination of study of interrelated disciplines. This course is for advanced students in various disciplines who have already completed most of their curricular requirements for their associate degree, and for graduates who wish to continue the life-long learning process.

20-808-286 Environmental Science 4 credits
An introductory survey course appropriate for first-year students. This course includes a laboratory component and field trips designed to engage students in exploring environmental systems in the modern world. It emphasizes the interpretation of environmental data presented in graphs and figures and will sharpen student analytical skills through exercises based on both quantitative reasoning and reading comprehension. This course transfers to UW-Madison at the elementary level as IES 126. Offered during the spring semester.

31-808-363 Science 1 2 credits
Covers basic principles of physics that have frequent and common practical applications for students pursuing vocations in trade and industry. Relates applications to student vocational fields. Includes measurement, mechanics, machines, properties of matter, fluid principles, heat and electricity. Features lecture, discussion and laboratory.

807 Physical Education

10-807-150 Physical Education for Public Safety 1 credit
Involves conditioning techniques, strength training and assessment of physical fitness. Covers various police fitness test requirements.

10-807-151 Fire Science Technician Physical Education 1 credit
This course is designed for Fire Technician candidates to pass the CPAT (Candidate Physical Ability Test). The emphasis is on assessment of current level of individual fitness and the development of a plan to pass the CPAT. Students will learn about various training methods in developing muscular strength, muscular endurance and cardiovascular fitness. In addition, flexibility and body composition will be stressed in the course.

10-807-160 Body Structure and Function 3 credits
Designed to provide easy to understand information about the structure and function of the human body. The focus is to develop a basic knowledge that can have practical applications in the areas of fitness, recreation and related fields.

10-807-183 Aerobic Exercises 1 credit
Focuses on cardio-respiratory fitness using a variety of aerobic activities. Highlights walking, jogging, bicycle conditioning, water aerobics, interval and circuit training. Also covers exercise concepts and basic nutrition.

10-807-184 Group Fitness Instructor Training 3 credits
Prepares individuals to teach group fitness and take the American Council on Exercise National Exam. A comprehensive training program that covers topics such as exercise physiology, anatomy, body mechanics, and safety, choreography development, and teach methodologies. Students have the option to earn MATC Instructor Certification. Recommend taking 10-807-160 or equivalent.

20-807-205 Distance Running for Fitness 1 credit
Designed for the student who prefers running as a form of exercise. Discussion areas include biomechanics, distance running training principles and programs, and the impact of nutrition on running performance. Prerequisites: Students need to be able to run three miles continuously.

20-807-207 Beginning Triathlon 1 credit
Develops an understanding of the principles of conditioning and exercise with specific application to triathlon training. Works on endurance and perfecting skills needed for triathlon performance. Prerequisite: Provide own bicycle and必须 able to perform front crawl.

20-807-209 Baseball Conditioning 1 credit
Covers basic baseball skills, rules, strategy and play. Fitness methods and concepts are applied to the activity of baseball.

20-807-210 Conditioning/Weight Training 1 credit
Techniques and methods for body development, conditioning, nutrition and safety. It is a personal program tailored to individual objectives.

20-807-212 Advanced Weight Training 1 credit
Increases knowledge of current weight-training practices and trends. Offers a review of beginning practices and terminology followed by an intensive program of physical development utilizing various techniques and equipment. Previous free-weight work is suggested.
20-807-221 Basketball Conditioning 1 credit
This eight-week course is designed to prepare individuals for the game of basketball. Various training techniques consist of cardiovascular endurance activities, weight strength training, footwork and shooting drills.

20-807-223 Beginning Volleyball 1 credit
Introductory course in power volleyball. Includes skills basic to the power game as well as rules and strategy for the beginner player. Fitness activities specific to volleyball will be included.

20-807-224 Intermediate Volleyball 1 credit
Covers advanced skills and team strategies for the serious power volleyball player. Includes conditioning appropriate to advanced techniques.

20-807-228 Water Safety Instructor 2 credits
This Red Cross course trains instructor candidates to teach the Infant and Preschool Aquatics Program, the Learn to Swim Program and Community Water Safety. Prerequisite: 20-807-231 or ability to swim 50 yards of the following strokes in good form: front crawl, back crawl, breaststroke, sidestroke and elementary backstroke.

20-807-229 Swimming for Fitness 1 credit
Designed to help the student achieve and maintain a good fitness level and perfect swimming strokes. Prerequisites: completion of 20-807-231 or the ability to swim 500 yards continuously and ability to perform front crawl, back crawl and breast stroke in good form.

20-807-230 Beginning Swimming 1 credit
Introduces basic aquatic skills including front crawl, back crawl, breast stroke, and sidestroke. Also emphasizes the knowledge and skills necessary in treading water, diving and self rescue.

20-807-231 Intermediate Swimming 1 credit
Participants should have completed Beginning Swimming or be able to swim 50 yards of front crawl, back crawl, breast stroke and sidestroke. The course will include perfection of basic strokes, fitness training, and safety and rescue skills.

20-807-232 Water Aerobics 1 credit
A refreshing alternative to traditional land-based programs. This form of exercise provides fitness, fun and safety for people of all ages and abilities.

20-807-233 Lifeguard Training 2 credits
Teaches current Red Cross lifeguarding principles and techniques, including CPR Pro and First Aid. Prerequisite: Ability to swim 500 yards continuously, dive to 12 feet and retrieve a ten pound brick, and tread water for two minutes without hands.

20-807-234 Scuba Diving 1 credit
Includes classroom, pool and actual open-water diving that may lead to lifetime PADI certification. Equipment and other materials are not covered in course fees. Payment is due the first day of class.

20-807-235 Beginning Tennis 1 credit
Focuses on basic stroke development. Rules and strategy of singles and doubles games are included.

20-807-236 Beginning Racquetball 1 credit
Fundamentals of racquetball emphasizing skills and strategy for the beginner and intermediate player.

20-807-237 Intermediate Racquetball 1 credit
Continuation of skills and techniques for advanced racquetball players. Emphasis is on strategy in competition.

20-807-240 Beginning Golf 1 credit
Introductory course that develops the proper grip, golf swing, putting, chipping, rules, etiquette, and playing strategies. Class is held at Cherokee Country Club and includes actual play on the course.

20-807-241 Intermediate Golf 1 credit
For intermediate and advanced golfers wanting to improve their game. Emphasizes practice routines, actual play, and strategies for special shot-making techniques. Class is held at Cherokee Country Club and includes actual play on the course.

20-807-245 Social Dance 1 credit
Introductory class in contemporary ballroom dance styles including the waltz, foxtrot, swing, tango and the cha-cha.

20-807-246 Modern Dance 1 credit
Introductory course in modern dance techniques using the Cunningham Method. Emphasizes development of axial and locomotor dance movement, short compositions and improvisation.

20-807-247 Jazz 1 1 credit
Introductory course in contemporary jazz dance technique. Emphasizes the development of warm-up sequences, isolations, contractions, jazz walks, progressions, turns, combinations and improvisation.

20-807-248 Ballet 1 credit
Introduces classical ballet technique. Emphasizes the acquisition of proper ballet technique, posture alignment and increased flexibility.

20-807-249 Tap Dance 1 credit
Introduces tap dance technique. Emphasizes the development of tap technique including warm-up sequences, compound steps, progressions, turns and combinations using march, soft shoe and Waltz clog rhythms.

20-807-250 Badminton 1 credit
Introductory course in competitive badminton. Develops basic skills, strategy and knowledge of the rules of the game.

20-807-251 Jazz 2 1 credit
This is a continuing course in Contemporary Jazz Dance technique. Emphasis will be placed on technique, skills, development of progressions and combinations. Prerequisites: 20-807-247. Jazz 1; or semester-length Introductory Jazz Dance experience; or consent of instructor.

20-807-253 Archery 1 credit
Stresses shooting techniques, equipment and safety, and competitions and their rules. For all ability levels.

20-807-254 Yoga 1 credit
Introduces the practice of yoga. Explores the philosophy that underlies yoga as a means of stress management, fitness and conditioning. Designed for beginners, the course teaches gentle movements, yoga poses, breathing techniques and meditations that relax both the mind and the body.

20-807-256 Prevention and Care of Athletic Injuries 2 credits
Designed to give an introduction to the care and prevention of athletic injuries, including emergency care, taping techniques and treatment/rehabilitation of injuries. Also useful for students interested in the fields of athletic training, teaching or coaching.

20-807-260 Wellness Today 2 credits
Contemporary approach to the total wellness concept. Covers fitness and exercise, nutrition and stress management, culminating with personal planning toward lifetime wellness.

20-807-271 Bicycle Conditioning 1 credit
A unique combination of aerobic and anaerobic conditioning using a variety of training drifts on a stationary bicycle with music as a motivator. The focus is to enhance cardio-respiratory conditioning and knowledge of exercise and health concepts.

20-807-282 Step Aerobics 1 credit
This eft-level class uses the popular step platform to improve cardiovascular fitness, muscular strength and endurance. Students step on and off the platform in a variety of fun and easy to learn patterns. Hand-weights and resistance bands are used in the conditioning segment of the class. Course also includes information about nutrition and exercise principles.

20-807-283 Aerobic Dance 1 credit
Focuses on an aerobic approach to fitness utilizing activities such as aerobic dance, step aerobics, interval training and body sculpting.
20-807-289 Aerobics and Weight Training 1 credit
Unites aerobics and weight training. Focus is on enhancing cardio-respiratory
endurance with activities such as jogging, bicycle conditioning, cardio-
kickboxing, step aerobics and improving muscular fitness with circuit and
strength training. Also covers exercise principles and basic nutrition.

808 Reading

10-808-101 College Reading Strategies 3 credits
This course focuses on enhancing college reading and study techniques and
offers students extended practice in applying these strategies to a variety of
college level materials. Emphasis will be given to developing the critical thinking
and reading skills necessary to be successful college readers. Topics covered
will include identifying main ideas and supporting details, highlighting and
annotating text, summary writing and making inferences. Prerequisites: Reading
Placement test score or Introduction to College Reading 3A/3B: 858-791/792,
non-credit.

809 Social Science

10-809-122 Introduction to American Government 3 credits
Focuses on the structure and functioning of state and local governments within
the context of federalism. Emphasizes decision making, structure, theory,
behavioral characteristics and citizen participation.

10-809-127 Human Development 3 credits
Focuses on human physical, motor and social development across the
life span. Emphasizes recognition of and adjustment to normal development
stages and typical life problems. The roles of parents, peers and environmental
factors on development and behavior are highlighted.

10-809-143 Family in America 3 credits
Covers problems facing the family in contemporary American society, including
marital conflict and adjustment, parent-child relationships and societal
pressures.

10-809-173 Aging and Social Problems 3 credits
Aging is a dynamic process that includes physical, social and psychological
changes. Through current theory this course addresses both the problems and
the challenges of aging and individual responses to them.

10-809-188 Developmental Psychology 3 credits
Contact Liberal Arts Transfer Department for description.

10-809-195 Economics 3 credits
This course introduces basic economic principles to help you better understand
the world in which you live. In addition to learning how the U.S. economy works
and how it sometimes fails, you will develop a deeper understanding of issues
such as why college-tuition costs are rising; how wages for workers in your
chosen field are determined; whether the minimum wage should be increased;
why some people argue for, and others against, an expansion of international
trade; how to maximize profits if you someday start your own business; and how
federal government and banking system policies affect your life and the overall
economy.

10-809-196 Intro to Sociology 3 credits
Contact Liberal Arts Transfer Department for description.

10-809-197 Contemporary American Society 3 credits
Interdisciplinary course covering issues that illustrate how our cultural
institutions (such as family, education, media, the workplace, the economy and
government) are being changed by global political, demographic, multicultural
and technological trends. By exploring contemporary issues, students expand
their use of critical-thinking skills.

10-809-198 Intro to Psychology 3 credits
Contact Liberal Arts Transfer Department for description.

10-809-199 Psychology of Human Relations 3 credits
Explores the relationship between general psychological principles and our
everyday lives. Students are given the opportunity to achieve a deeper sense
of awareness of themselves and others. This understanding is applied to human
relations at home and on the job.

20-809-201 Human Sexuality 3 credits
Covers how intimate relationships develop, how to maintain warmth and
closeness in relationships and how sexuality is expressed throughout the life
cycle. Also covers practical information regarding sexually transmitted diseases,
contraception and pregnancy.

20-809-202 Social Problems 3 credits
Examines the major issues confronting society: economic and political change,
nationalism, racial and ethnic relations, sexism, socioeconomic class, crime and
justice, health and education, and family life. Discusses causes, effects, possible
solutions and future trends. This course requires student participation in reading,
writing and discussion.

20-809-203 Introduction to Sociology 3 credits
Defines and examines the concepts and realities of social structure, culture,
socialization, complex organizations, class, inequality, social groups and social
change. Special emphasis is given to institutions such as the family, religion,
education, politics, economics and the media.

20-809-204 Marriage and the Family 3 credits
Assists students in obtaining an understanding of dating, love, mate selection,
sexuality, marital adjustment and parenting in American society; gaining
personal insight into how to grow and develop as individuals, partners and
parents within the institution of the family; and achieving a meaningful and
satisfying marriage and family life.

20-809-205 Contemporary Society 3 credits
Examines the role of paid and unpaid work in the lives of women. Using an
occupational pursuit, earned income and business ventures. Gives special
attention to problems in education, family structure, political behavior and the
diversity of lifestyles.

20-809-206 Women in Society: Social Institutions and Social Change 3 credits
Analyzes the major issues confronting society: economic and political change,
nationalism, racial and ethnic relations, sexism, socioeconomic class, crime and
justice, health and education, and family life. Discusses causes, effects, possible
solutions and future trends. This course requires student participation in reading,
writing and discussion. Allows students to evaluate compelling moral and political
claims about our social life and its future direction.

20-809-207 Criminology 3 credits
This course is an introduction to understanding crime in American society. The emphasis is
on why people become delinquent and criminal and especially about why the
U.S. has so much violence and crime. The course also examines how we currently deal with delinquency and crime: what's working, what isn't and the current debates and emerging trends on crime policies.

20-809-208 Contemporary African-American Society 3 credits
Examines the role of paid and unpaid work in the lives of women. Using an
occupational pursuit, earned income and business ventures. Gives special
attention to problems in education, family structure, political behavior and the
diversity of lifestyles.

20-809-209 Women's Work/Women's Lives 3 credits
Examines the role of paid and unpaid work in the lives of women. Using an
interdisciplinary approach, specific occupational areas are analyzed from an
historical, economic and sociological perspective. Current issues that impact on
the women's labor force and work performed by women—traditional and
nontraditional—are presented and discussed.

20-809-210 Men: Social and Psychological Perspectives 3 credits
Examines and analyzes ways biology, culture and society shape identity and life
experiences of the African American male. Included in the course are historical views,
socialization, masculinity, competitiveness and sports, violence and war, work
and success, sexuality, health, relations with other men, women and children,
and alternatives for men.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>20-809-211</td>
<td>Macroeconomics</td>
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<td>20-809-211</td>
<td>Microeconomics</td>
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<td>20-809-212</td>
<td>Introduction to International Economics</td>
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<td>20-809-213</td>
<td>Political Theory and Methodology</td>
<td>3</td>
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<td>20-809-214</td>
<td>American National Government</td>
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<td>20-809-215</td>
<td>Social Psychology</td>
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<td>20-809-216</td>
<td>Environment Economics</td>
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<td>Race, Class, Gender</td>
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<td>20-809-218</td>
<td>Law and Sociality</td>
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<td>20-809-220</td>
<td>American Foreign Policy</td>
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<td>20-809-221</td>
<td>American National Government</td>
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<td>State and Local Government</td>
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<td>20-809-223</td>
<td>International Relations</td>
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<td>20-809-224</td>
<td>Government Practicum</td>
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<td>20-809-225</td>
<td>Social Psychology</td>
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<td>20-809-228</td>
<td>Environmental Economics</td>
<td>3</td>
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<td>20-809-233</td>
<td>Developmental Psychology</td>
<td>2</td>
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<td>20-809-235</td>
<td>Psychology of Personal Adjustment</td>
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<td>20-809-238</td>
<td>Applied Psychology</td>
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This course provides an introduction to basic economic principles with applications to current economic problems affecting individuals and businesses. The course begins with analysis of role of markets and prices in an economy. Topics include the causes and consequences of unemployment, inflation, and economic growth; the role of money and banking in the economy; the role of government taxing and spending policies to correct market failure and stabilize the economy; the implications of budget deficits and the national debt; and the implications of an increasingly global economy. This course is designed to meet the need for college transfer credit.

This course provides an introduction to basic economic principles with applications to current economic problems affecting individuals and businesses. The course begins with an in-depth analysis of the role of markets and prices in an economy, with emphasis on when markets work well and when and why they fail to yield the best outcome for society. Topics include how individuals choose to best use their limited resources; the causes and consequences of poverty and the distribution of income and wealth; the behavior of businesses in selling prices and production levels; problems of monopoly power; wage determination in labor markets; and the economics of environmental challenges. This course is designed to meet the need for college transfer credit.

This course is an interdisciplinary examination of education in the United States with an emphasis on the impact of race, class and gender on the social institution of education. Other topics will include the work of teachers, educational reform, and power and control over public education.

This introductory course examines ethnic, racial, religious and cultural origins of Americans. The course focuses on social interactions that contribute to the understanding of different groups in diverse settings.

Law and Society deals with the nature of law and legal processes as instruments of social control. Students are introduced to legal structures and processes, and examine the philosophy of law within political, social and economic frameworks.

Addresses conduct of the U.S. as an International actor. Covers problems, challenges and persistent patterns in American policy since the close of World War II. How foreign policy is made is included and attention is given to the interactions of individuals, groups, roles and organizations.

Utilizes a systems approach to emphasize the relationships between structure and behavior. Stresses political theory and methodology. Students are encouraged to improve research and analytical skills. Includes the U.S. Constitution, elections, Interest groups, parties, mass media, congress, judiciary, the presidency and bureaucracy.

Addresses the functioning of state and local governments and relates them and their activities to the federal government. Stresses behavioral characteristics of state and local governments in the total decision-making process. Covers the importance and functioning of political parties, special interest groups, elections, legislatures, courts and executives.

Covers methods employed by nations-states in interacting with each other and the forces influencing the nature of interaction. Includes institutions that have been erected in nation-states' quest for power, peace and security. Emphasizes nationalism, ideology, regional integration and trade.

May be taken by people who have received credit for 20-809-222, State and Local Government, or 10-809-125, Government Process and Practice, or those currently taking either course. Students are assigned approximately 10 hours a week to work for a state or local government official as a volunteer. The nature of the work depends on the office the student is assigned to work for. Work experiences may include constituent requests, policy research, writing reports, office work and attending meetings. Students may be able to apply skills acquired in their program of study to some area of state and local government. Emphasizes career observation, public administration, articulation, research, writing and human relations skills.

Study of the individual in the social setting. Includes interpersonal attraction, aggression, sex roles, attribution, altruism, obedience, conformity, attitude change and others. Prerequisite: 20-809-231, Introduction to Psychology, or 20-809-203, Introduction to Sociology.

This course prepares the student to analyze the interaction between economic activity and the earth's physical environment. Emphasis is placed on the impacts surrounding natural resource markets, including energy and minerals, agriculture, forests, fisheries and tourism. Economic concepts include social welfare analysis, externality costs, market failure, the time value of money, economic valuation of non-market goods, definitions of economic efficiency, risk analysis, and definitions of "growth". Environmental impacts may include toxicity to ecosystems, species extinction, soil erosion, freshwater quality and availability, degradation of the marine environment, air pollution, ozone depletion and global warming. Political issues include, but are not limited to the trading of pollution credits, the debate over nuclear power, genetic engineering issues, land use planning, environmental racism, international dynamics and inter-generational equity.

Study of individual and social behavior including its psychological and physiological bases, development, motivation, emotion, perception, learning and behavior disorders. This course is a prerequisite for several college transfer courses in psychology.

Covers the principles of human growth and behavioral development, from conception to death. Includes methods of studying human behavior, theoretical approaches, individual differences, patterns and sequences of development, and relationships with peers and others. Prerequisite: 20-809-231, Introduction to Psychology.

Focuses on the theoretical and practical aspects of becoming a well-adjusted human being. Emphasis is on managing one's emotions and thoughts, dealing effectively with stress, improving social skills, establishing and maintaining healthy relationships. Students are provided with a wide array of strategies to assist them in actualizing meaningful change in these areas.

Based on a broad spectrum of content in general psychology with emphasis on applying established principles to the common problems of normal adjustment, i.e., learning, modification of behavior, creative problem solving, decision making and social relationships. Emphasizes ways people can learn to adjust to an almost constantly changing physical, social and economic environment. Prerequisite: 20-809-231, Introduction to Psychology.
Abnormal Psychology (3 credits)
Covers definition of abnormal behavior, assessment techniques, and
concepts of psychological disorders. Examines theoretical perspectives
(biological, psychological, sociocultural) and approaches to treating these
disorders. Prerequisites: 20-809-231 Introduction to Psychology.

Introduction to Health Psychology (3 credits)
The purpose of this course is to introduce the student to the field of health
psychology. Throughout the course, the student will be asked to apply
knowledge of the scientific method to critique health research studies and
popular health advertising claims. We will examine the changing landscape of
health and illness in the United States, factors that influence decisions regarding
health promoting or compromising behaviors, and the rise of chronic illness in
the United States. Throughout the course, we will employ a biopsychosocial
perspective.

Human Development in Infancy and Childhood (3 credits)
This course covers the biological, cognitive and psychosocial aspects of
development from conception through childhood. Prerequisite: 20-809-231.

Introduction to Latin America (3 credits)
Provides an interdisciplinary introduction to Latin America. Focuses on history,
politics, economics, society and culture. Provides a broad multi-faceted
exposure to several themes in particular: historical legacies that shape Latin
American life, the experience of revolution and counter-revolution, various
economic development strategies, contemporary social change and cultural
expression. All of these themes include specific case studies as well as a
general overview.

Introduction to Philosophy (3 credits)
Introduces various fields of philosophy, philosophical methodology and the
history of philosophy. Examines some philosophical issues in depth and
develops the ability to think, speak and write critically about these problems that
have concerned human beings for centuries.

Logic and Critical Thinking (3 credits)
Provides an interdisciplinary introduction to Latin America. Focuses on history,
politics, economics, society and culture. Provides a broad multi-faceted
exposure to several themes in particular: historical legacies that shape Latin
American life, the experience of revolution and counter-revolution, various
economic development strategies, contemporary social change and cultural
expression. All of these themes include specific case studies as well as a
general overview.

Ethics: Theory and Application (3 credits)
Examines value systems, both traditional and current as theories and as they
affect decisions regarding pornography, abortion, euthanasia, capital
punishment and social and economic justice.

EastWest Worldviews (3 credits)
Examines worldviews and their underlying assumptions. Worldviews are
sometimes rooted in philosophy, religion and myth, each characterized by its
rituals and symbols. The course focuses on the religions originating in India
(Hinduism and Buddhism); in East Asia (Confucianism, Taoism, Shintoism, Zen
Buddhism); and in the Middle East (Judaism, Christianity, Islam). Also includes
Westem rationalism and the scientific view of the cosmos. Studies the ways in
which philosophy and/or religion affects the concepts of nature, self, society and
ultimate reality.

Reason In Communication (3 credits)
This is a logic course with emphasis on practical benefits rather than
emphasizing abstract and theoretical learning like the traditional logic course.
Logic and Critical Thinking (20-809-281). Like the traditional course, Reason In
Communication shares the goals of providing effective methods for
rational thinking from bad reasoning, covering both formal and informal logic.
In addition, it applies these abilities to develop practical skills of reading and
writing argumentative passages and essays. Both courses help us to assess
how well our premises support our conclusions, to see what we are committed
to accepting when we take a point of view, to find precise arguments where we
gathered and conclude that we otherwise simply see a set of loosely related statements, to discover
assumptions we did not know we were making; to formulate the minimum claims
we must establish if we are to prove or support our point of view. This results in
more precise habits of thinking, a firm conviction that not all opinions are equally
justified and that reasons must be found and expressed in the form of
arguments to support a point of view. These skills will improve a student's ability
to achieve in philosophy courses and other courses requiring independent
thinking and expression.

Ethics in Medicine (3 credits)
Examines the arguments and legal principles behind public policy making in
the healthcare system, whether as a patient or as a healthcare worker, presents challenges that differ from the typical consumer environment or
the typical workplace. This course explores these differences and presents
and discusses ethical issues particular to medicine. Highlights awareness and
examines ways to conduct one's self within this healthcare environment.

Leadership as an Art (3 credits)
This course has as its central focus the development of leadership and group
dynamics and assists the student in developing a personal philosophy of
leadership, an awareness of moral and ethical responsibilities of leadership and
an awareness of one's own ability and style of leadership. Provides the
opportunity to develop essential leadership skills through study and observation of
the application of these skills. The course encourages participants to develop
their leadership behavior.

Social Ethics (3 credits)
Examines value systems, both traditional and current as theories and as they
affect decisions regarding pornography, abortion, euthanasia, capital
punishment and social and economic justice.

Leadership Ethics (3 credits)
Examines the arguments and legal principles behind public policy making in
the healthcare system, whether as a patient or as a healthcare worker, presents challenges that differ from the typical consumer environment or
the typical workplace. This course explores these differences and presents
and discusses ethical issues particular to medicine. Highlights awareness and
examines ways to conduct one's self within this healthcare environment.

Leadership Ethics (3 credits)
Examines value systems, both traditional and current as theories and as they
affect decisions regarding pornography, abortion, euthanasia, capital
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20-809-281 Archaeology and the Prehistoric World 3 credits

Designed for students interested in the human past, the period of prehistory where few written records exist and most knowledge of the period comes via archaeological investigations. Organized in a historical and topical fashion, the course traces the evolution of human culture through time, focusing on the best known archaeological sites in Africa, Asia, Europe, North America and Mesoamerica. Emphasis on major changes in human and cultural evolution, such as hunting, abstract thought, domestication of plants and animals, social stratification, the development of writing, the rise of states and urbanization.

20-809-283 Cultural Anthropology and Human Diversity 3 credits

Focuses on exploring the range of modern human cultural diversity across the world. The class will examine the cultural practices and historical ties that constitute commonalities across cultures. Particular attention will be paid to the cultural complexity of modern urbanized societies such as that of the United States.

20-809-284 The Anthropology of Race, Ethnicity and Nationhood 3 credits

Concerns and conflicts arising from how human beings think about, talk about and act upon ideas about race, ethnicity, nationhood and how these ideas are discussed in class. Conflicts such as wars, crimes, and injustices perpetrated in the name of some racial, ethnic, or national entity are discussed. Prerequisite: any college-level social science course.

20-809-285 The Anthropology of Myth, Magic and Religion 3 credits

An anthropological course designed to explore and examine the place of magic and religion in human culture. Students will look closely and critically at "world religions" (Buddhism, Islam, Christianity, etc.) with analytical exploration of smaller-scale religious and magical practices (shamanism, Wicca, new age, cargo cults, etc.). The forms that magic and religion have taken in human cultures, both past and present, will be covered. Prerequisite: any college-level social science course.

20-809-286 Anthropology and Cultural Awareness 3 credits

Designed to introduce ESL and bilingual educators and other interested people to the use of cultural anthropology in understanding the increasingly culturally diverse classroom and workplace. An anthropological perspective will be brought to the examination of such issues as learning and interaction styles, class immigration and ethnic conflict and accommodation.

31-809-358 Human Relations Survey 1 credit

Practical human relations problems with emphasis on classroom interaction. Discusses exercises in terms of basic psychological principles.

810 Speech

20-810-201 Fundamentals of Speech Composition 3 credits

Includes theoretical examination of the process of communication, the role of speech in self-development, the nature of meaning and the art of persuasion. Provides practice in selecting speech topics, analyzing audiences, organizing speech content, improving speech delivery and critiquing speeches via presentation of informative and persuasive speeches. Several graded and non-graded small group discussions sharpen additional communicative skills. Prerequisite: English 1, 20-801-201, or Communication Skills 1, 10-801-151.

20-810-205 Interpersonal and Small Group Communication 3 credits

Explores verbal and nonverbal concepts, theories, and practical skills necessary to become competent in interpersonal and small group settings. Students explore dependent, independent and interdependent relationships with others in personal and work-related settings.

20-810-211 Fundamentals of Oral Interpretation 3 credits

Explores the possibilities afforded by the full range of the human voice. Students will be challenged to create theatre in the minds of audience members through interpretation techniques. Concepts covered include selected projects in children's literature, prose, poetry, drama, and radio theatre.

20-810-230 Introduction to Drama 3 credits

A beginning study of drama and theater especially as it relates to the twentieth century. Students learn the nature and philosophy of the theater, what and why it is, and how it works. Discusses the work of playwrights, actors, directors, scenic and lighting artists, and critics. stresses modern movements in theater and types of drama. Scripts of plays from Madison-area productions are analyzed, and students attend and critique at least two productions. Emphasis is placed on the performing aspects of theater. Each student prepares to perform in at least one production through exercise, sensitivity training, and role playing.

20-810-231 Theater Production 3 credits

Continues the examination of the theatre, focusing on production and technical roles, started in 20-810-230, Introduction to Drama. Emphasizes the director, set, sound, and lighting design. Students learn through practical participation in a staged production. Prerequisite: Introduction to Drama, 20-810-230.

20-810-233 Literature of the Theatre 3 credits

Provides the student an opportunity to consider human values and ethics as presented in representative plays. The course follows a historical overview that will enable the student to analyze and interpret the different types of theatre. Prerequisite: English 1, 20-801-201 or Communication Skills 1, 10-801-151.

20-810-235 Stagecraft 1 3 credits

An overview of the backstage elements involved in theatrical production. Provides basic knowledge of scenery, lighting, rigging, sound, props, costumes and stage management. Students have the opportunity to mix classroom with practical experience.

20-810-236 Stagecraft 2 3 credits

Develops the skills introduced in Technical Theater 1 and explores the design aspects of scenery, lighting, sound and costumes for the stage. Students are encouraged to develop interest in theory, design execution and portfolio preparation. Prerequisite: 20-810-235, Technical Theater 1.

20-810-237 Creating Original Theater 3 credits

Creating Original Theater is a paired course with Creative Writing where students will learn the practice of creating characters and staging theater pieces. The focus of the course is on creating and performing drama written by the students in the course. Students will complete practice in taking oral histories, writing monologues and scenes, staging and performing.

20-810-250 Introduction to Film 3 credits

Examines techniques of film production and explores the relationship between film form and film meaning. Students view films that represent significant movements in the evolution of the medium and learn how to research and write analytical essays about these films.

20-810-252 Survey of Radio, TV and Film 3 credits

Examines how technology, government regulation, social and economic conditions have affected the evolution of radio, television and film as mass media. In addition, this course addresses the impact that these media have had on American society. Prerequisite: English 1, 20-801-201.

20-810-254 The History of World Cinema 3 credits

Examines the history of the film medium, primarily as an art form but also as a form of communication. In the United States and internationally from its origin in the 1890s to the present, highlighting significant movements in its development. Students view domestic and foreign films as a basis for study.

20-810-258 Forensic Practicum 1 credit

Contact Liberal Arts Transfer Program for description.

20-810-259 Forensic Practicum 2 1 credit

Contact Liberal Arts Transfer Program for description.

20-810-260 Drama Practicum 1-2 credits

This practicum stresses self-development in techniques necessary to become sensitive to all aspects of the theatrical production. There is a minimum of 20 hours required in community theatrical production during practicum. No prior acting or production experience is necessary.

20-810-262 Acting 1 3 credits

Explores the actor's work in preparing for a role. Covers basic acting principles, including action, objective, obstacles, conflict, beats and being in the moment. Incorporates fundamentals of movement, voice and improvisation essential to the art of acting. Students will examine scripts, do character analysis, maintain actors' journals and perform five graded exercises.
20-815-263 Acting 2 3 credits
Continues the actor's preparation and execution of believable roles as a member of an ensemble. Particular attention is addressed to script analysis, character development, ensemble performance in relation to theatrical genre. Prerequisite: Acting 1, 20-810-262.

20-810-268 Forensic Practicum 3 1 credit
Contact Liberal Arts Transfer Program for description.

20-810-269 Forensic Practicum 4 1 credit
Contact Liberal Arts Transfer Program for description.

815 Art

20-815-200 Introduction to Art History 3 credits
Beginning with Romanesque and Gothic art, this course surveys the development of European art, highlighting the Renaissance era to the start of Impressionism. Emphasizes aesthetic and technical innovations due to changing religious, social, economic and political traditions in various countries and cultures.

20-815-201 Design Fundamentals 3 credits
Introduces students to the elements of art (line, texture, color, shape and value). Students will investigate how these elements can be manipulated using various principles of design to achieve different effects. Basic color theory will be covered.

20-815-202 Color and Design 3 credits
Provides involvement with practical and theoretical color problems while building knowledge of advanced design concepts. Prerequisite: 20-815-201, Design Fundamentals.

20-815-203 Three-Dimensional Design 3 credits
Students explore different ways of manipulating form and space. Projects will introduce students to basic techniques such as modeling, construction and carving.

20-815-205 Drawing Fundamentals 3 credits
An introductory drawing class emphasizing sound craftsmanship and the study of basic freehand drawing from direct observation. Class topics include the study of perspective, proportion, composition, and properties of light and shade. Students will explore a variety of drawing media and techniques.

20-815-208 Introduction to Studio Painting 2 credits
Students work in small groups on selected studio art projects. The instructor will guide students toward completing projects through individual instruction and group critiques. Some experience with a chosen media is necessary for students to successfully pursue projects.

20-815-210 Art History: The Modern Era 3 credits
Surveys the development of European and American art and architecture from the time of impressionism in the 1870s to the contemporary period.

20-815-211 Women in the Arts 1 credit
This course will present a broad survey of selected outstanding women artists from the 12th to the 20th century. Focus is on painting, sculpture and mixed media from the Medieval Era to the Modern Era, considering a variety of individual European and American artists and their works.

20-815-213 Drawing 3 credits
Explores a variety of drawing media and techniques through projects that encourage students to consider subject/content relationships. Students will develop conceptualization skills that will prepare them for working on independent projects. Prerequisite: Drawing Fundamentals, 20-815-205.

20-815-219 Life Drawing 3 credits
Introduces students to drawing the figure in a variety of situations. Students will use different drawing media and techniques as they explore both descriptive and expressive ways of depicting the human figure. Includes study of human anatomy. Prerequisites: Drawing Fundamentals 20-815-205.

20-815-220 Advanced Life Drawing 3 credits
Continuation of life drawing with emphasis placed on expression, articulation, dramatic effect and refinement of technique. Prerequisite: 20-815-216, Life Drawing.

20-815-234 Photography 2 credits
Basic course in 35mm black-and-white photography featuring instruction in camera operation, film developing, printing and mounting techniques. Students provide their own cameras and films.

20-815-235 Creative Photography 3 credits
Basic 35mm camera and darkroom techniques are reviewed. Personal expression of photography as a fine art is encouraged through a series of projects involving personal vision and mastery of the photographic medium. Prerequisite: 20-815-234.

20-815-236 Advanced Creative Photography 3 credits
Continues the exploration of photography as a fine art as presented in 20-815-235, Creative Photography. Further exploration of camera and darkroom techniques intended to foster the understanding of photography as a means of artistic expression. Prerequisite: 20-815-235, Creative Photography.

20-815-241 Painting 1 2 credits
Introduces students to the basic techniques of oil painting, emphasizing composition and color. Students will paint from classroom still life arrangements for the first part of the course. Later in the semester, students are encouraged to develop paintings that explore personal themes. Prerequisites: Drawing Fundamentals, 20-815-205 & Design Fundamentals 20-815-201.

20-815-242 Painting 2 3 credits
An intermediate level painting course emphasizing the development of conceptualization and technical skills. Painting projects encourage students to respond to general themes, subjects, or concepts, or develop unique and personal images. Students can respond to assignments by working in various media (oil, acrylic, watercolor, or collage). Prerequisite: Painting 1 20-815-241.

20-815-253 Jewelry 1-Art Metal 3 credits
Introduces students to the design and construction of basic jewelry making techniques through technical demonstration and individual projects covering simple forming, fabricating, lost wax casting, cold forging and finishing techniques.

20-815-254 Jewelry 2-Art Metal 3 credits
Introduction to silver smithing, chasing, repoussé and advanced stone setting. Prerequisite: 20-815-253, Jewelry 1-Art Metal.

20-815-256 Serigraphy 3 credits
Introduces students to the art of making prints through technical demonstration and individual projects covering serigraphy. Prerequisite: 20-815-256.

20-815-288 Serigraphy 3 credits
Introduction to silver smithing, chasing, repoussé and advanced stone setting. Prerequisite: 20-815-253, Jewelry 1-Art Metal.

20-815-291 Ceramics 1 3 credits
Introduces clay as an art medium through demonstration and experiment with basic hand-building techniques. Encourages individual involvement with the media. Emphasizes personal expression and exploration of texture, form and surface decoration. Covers electric and raku firing, relevant vocabulary and some of the technical aspects of clay.

20-815-292 Watercolor 1 3 credits
An introductory course in watercolor painting. Students will learn about the media and investigate various applications. There will be emphasis placed on composition and color as students develop paintings from both classroom still life arrangements and personal sources. Prerequisites: Drawing Fundamentals, 20-815-205, & Design Fundamentals 20-815-201.
20-815-294 Sculpture 1 3 credits
Focuses on developing the ability to make by hand, ceramic sculpture through creative projects. Forming techniques, glazing and kiln stacking are an integral part of the class and are learned through hands-on activities. Students make creative and innovative sculpture in this laboratory class as well as research and critique works of art.

20-815-295 Sculpture 2 3 credits
This course is a continuation of Sculpture 1. Prerequisite: 20-815-294.

851 Alternative Learning: Communication

73-851-717 Basic Writing 1
Covers basic English grammar, punctuation, capitalization and basic spelling rules. Emphasis is placed on sentence structure and composition of descriptive, narrative and expository paragraphs and letters. Prerequisite: competency in Basic Reading 2.

74-851-741 Phonics/Spelling
This semester-long course is for students who want to improve spelling and pronunciation. Students employ multi-sensory learning techniques in the context of the history of the English language to improve phonemic awareness and to learn and apply patterns in spelling; six common syllable types; syllabification patterns; four stress (accent) patterns; sets of prefixes and suffixes; the sounds of single vowels, single consonants, and vowel and consonant combinations. Prerequisite: Basic Reading competencies.

74-851-746 GED/HSED Writing Skills
This is an eight-week preparation course for the GED/HSED Writing Skills Test. The course covers sentence structure, grammar usage, mechanics and organization. Students use the writing process (gathering ideas, organizing, writing, and revising) to compose 5-paragraph, 200-word essays. They also are expected to apply conventional rules of English to a number of proofreading, exercises. Prerequisite: minimum of 6.0 language skills, acceptable ASSET/Compass score, or consent of instructor.

74-851-747 Basic Writing 2
Reviews English grammar, sentence structure, capitalization, punctuation and spelling. Students complete exercises demonstrating rules of mechanics and grammar. The course also focuses on the writing process and the following written documents: paragraphs, business letters, narratives, 200-word essays, and the resume. Students proofread and edit written documents. Prerequisite: competency in Basic Writing 1.

75-851-785/851-797 Basic Writing 3
Covers concepts of agreement, parts of speech and standard English grammar. Students apply capitalization, punctuation and spelling rules to produce documents that are mechanically sound. In addition, students demonstrate the ability to use the steps of the writing process and upper level critical thinking skills in a research paper and the following essays: advanced exposition, narration, persuasion/argumentation and comparison/contrast. Prerequisite: competency in Basic Writing 2.

854 Alternative Learning: Mathematics

74-854-746 GED/HSED Math Skills
Covers a brief review of whole numbers including the order of operations; fractions; decimals; percents; ratio, proportion and probability; measures of central tendency (mean, mode, median and range); measurement conversions; data interpretation; and basic algebra and geometry concepts. Emphasis is placed on graphic and verbal problem solving. Students also have the option to use a calculator for some calculations. Prerequisite: proficiency in whole numbers or consent of instructor.

74-854-747 Math Concepts
Designed for students who need a thorough review of basic mathematics concepts and skills. Students enhance speed and proficiency in basic arithmetic facts and operations; fractions, decimals, percents; integers, exponents, square roots; using formulas; appropriate and efficient usage of calculators; scientific notation; measurement and conversion of units. Problem solving involves simple interest, ratio and proportion, elementary geometry and basic statistics. Emphasis is placed on assisting students to improve organizational skills, study skills and mental math skills. Students who successfully complete the course will be well prepared to enter Basic Algebra 77-854-793 or Algebra Concepts. Prerequisite: competency in Basic Math 1.

77-854-793 Basic Algebra
Introduces fundamental algebra topics as preparation for a program course. This course is for students whose algebra skills have deteriorated or who have never taken an algebra course. Basic Algebra briefly reviews arithmetic prior to solving simple linear equations using integers, decimals and fractions. Students acquire the language of algebra while developing a variety of problem-solving skills; learn to graph lines using tables and develop the concept of slope. Basic Algebra prepares the student to take Algebra Concepts but does NOT replace Algebra Concepts. Prerequisites: strong skills in arithmetic or completion of Math Concepts 74-854-747.

856 Alternative Learning: Science

76-856-703 Pre-college Chemistry
Designed for students who have not had high school chemistry or wish to have a refresher course. Students analyze and manipulate data, as well as develop processes and problem-solving skills pertinent to the study of chemistry. Students begin to develop an understanding of how chemistry, technology, and society are interrelated. In addition, students develop an awareness of the nature of chemistry, scientific inquiry, systematic study and systematic change. Prerequisite: Math and Reading level of 9.0+ or consent of instructor.

76-856-708 Health 3
Covers basic concepts in health. Topics include, but are not limited to stress; mental and emotional health; environmental problems; positive health practices; basic first aid practices; successful marriage, parenting and family units; and planned and unplanned pregnancies. Students are expected to demonstrate conceptual proficiency through a variety of methods. Prerequisite: competency in Basic Reading 2.

858 Alternative Learning: Reading

73-858-717 Reading 1: Strengthening Reading Basics
Strengthens phonemic awareness, word analysis skills, vocabulary development and reading comprehension skills for learners who are advanced beginning readers. Reading comprehension and critical reading skills are developed through non-fiction and fiction reading selections drawn from textbook materials and authentic sources. Prerequisite: Basic Reading competencies.

74-858-746 GED/HSED Reading Skills
This eight-week preparation course for the GED/HSED Language Arts Reading, Social Studies, and Science tests is taught in three modules: reading strategies for understanding literature; U.S. history timeline and interpreting maps, graphs, and political cartoons; and basic science vocabulary and conducting simple experiments. Test-taking skills are emphasized throughout. Prerequisite: 6.0 reading skills, acceptable ASSET/Compass score, or consent of instructor.

74-858-747 Reading 2: Strategies for Independent Reading
Develops students' strategies to improve vocabulary development, reading comprehension, and critical thinking skills. Non-fiction and fiction reading selections are drawn from textbooks, essays, short stories and newspaper articles. Students learn the effective use of the dictionary and thesaurus. Prerequisite: competency in Basic Reading 1.
75-859-705/797 Reading 3: Introduction to College Reading
Assists students who are reading at the high school level to broaden their vocabulary and strengthen their reading skills so that they can better tackle college textbook material. Emphasis is placed on applying reading comprehension strategies to excerpts from college textbooks from a variety of disciplines. Study skills and test-taking strategies further enhance students' self-confidence as learners. Prerequisite: competency in Basic Reading 2.

869 Alternative Learning: Social Studies

75-859-706 Civic Literacy 3
Designed to help students explore the nature of governmental structures at the nation, state, and local levels and citizenship. Topics include political documents, branches of U.S. government, features of U.S. constitutional government, Wisconsin state government, political parties, basic rights guaranteed by the U.S. Constitution, rights denied and participation in the political process. Students effectively use the newspaper and computer-based materials to better understand concepts in the course. Prerequisite: competency in Basic Reading 2.

860 Alternative Learning: Computer Basics

75-859-747/796 Computer Basics
Assists students in learning to use computers for computer-assisted Instruction (CAI) and to learn keyboarding, word-processing, simple spreadsheets and presentation software. It also develops students' skills in using the Internet to send and receive email, to seek information and to do research. Prerequisite: sixth-grade reading and minimal keyboarding skills.

861 Alternative Learning: English as a Second Language

These are semester-long courses. Enrollmen in ESL courses requires division approval.

75-861-701/702/703 ESL 1 Oral/Reading/Writing; ESL 1 Preliminary Reading (702) / Writing (703)

ESL 1 Oral/Reading/Writing
Encourages student participation in basic listening, reading, writing and oral activities. Students who successfully complete the course will be able to comprehend short utterances, simple courtesy expressions and main themes. In addition, the learners will be able to copy, list and label concrete terms and to fill in simple autobiographical information on forms. Prerequisite: ESL 1 level-appropriate placement scores.

ESL 1 Preliminary Reading/Writing
These are sections ESL 1 Reading (702) and Writing (703) for learners who need to acquire basic literacy. Course competencies include writing the letters of the English alphabet, recognizing and identifying sound-letter correspondences, reading and writing simple words, producing numbers from 1-100, and ability to read clock time. Learners will be able to read, write, and develop listening comprehension for simple biographical information and very basic vocabulary items. Prerequisite: Demonstrated inability to comprehend/complete placement assessment instruments, or self-declared preliteracy in English and/or learner's first language, or level-appropriate placement score.

75-861-721/722/723 ESL 2 Oral/Reading/Writing
Emphasis of this course is on student participation in more complex listening, reading, writing and oral activities. Students who successfully complete the course will be able to decipher the main idea of dialogues, read short passages with greater comprehension and produce simple and written sentences using familiar materials. Prerequisite: ESL 2 level-appropriate placement scores.

75-861-741/742/743 ESL 3 Oral/Reading/Writing
Builds on content from ESL 2. Participation in listening, reading, writing and oral activities provide the focus for this course. Students who successfully complete the course will be able to understand questions and answers and hold face-to-face conversations. In addition, the students will be able to read for information, identify supporting details and write short letters and paragraphs using simple grammatical structures. Prerequisite: ESL 3 level-appropriate placement scores.

75-861-761/762/763 ESL 4 Oral/Reading/Writing
The focus for this course is to develop the listening, reading, writing and oral skills needed in order to converse with native speakers. Learners will learn to become selective in listening and to be able to identify the mood and attitude of the speaker. Additionally, learners will be able to use context clues, pronunciation and scanning to take notes in class and to write short essays that are comprehensible to a native speaker. Prerequisite: ESL 4 level-appropriate placement scores.

75-861-761 ESL 5 Oral
Builds on content from ESL 4. Listening and oral skills are emphasized. Learners who successfully complete the course will be able to comprehend abstract oral discussions. Learners practice using idiomatic and formal/informal language varieties in personal, work, and academic discourse communities. Prerequisite: ESL 5 level-appropriate placement scores.

75-861-762/763 ESL 5 Reading/Writing
Reading competencies include ability to read a variety of texts to identify main ideas and supporting details in paragraphs, and development of strategies such as skimming and scanning to improve reading rate, comprehension, and acquisition of new vocabulary. Writing competencies include application of a writing process to develop texts, specifically paragraph-level writing with a focus on form, content, and fluency in selected rhetorical patterns (narrative, description, and sequence (chronology and order of importance) and genres (short reports, letters, and brochures). Reading and writing acquisition are linked in both traditional (paper) and electronic text development with an emphasis on multimodality and multiple learning styles. Learners are encouraged to acquire multiliteracies for personal growth and interests, identity development, and academic tasks. Prerequisite: ESL 5 level-appropriate placement scores.

75-861-791 ESL 6 Oral
Builds on content of ESL 5. Emphasizes listening and oral skills. Students who successfully complete the course will be able to understand and participate in face-to-face conversations spoken at normal speed in personal, work, social, and academic situations. Learners will be able to use increased control of language and meaning-making strategies to gain meaning of unfamiliar spoken texts. Prerequisite: ESL 6 level-appropriate placement scores.

75-861-792/793 ESL 6 Reading/Writing
This is a continuation of ESL 5 Reading and Writing with a focus on academic texts and content. Reading: learners practice critical reading and analysis, and adjusting reading strategies for different reading purposes (e.g., explanatory reading, reading for information, study reading). Writing: learners practice application of a writing process to develop multi-paragraph texts for selected rhetorical patterns (process, comparison/contrast, cause and effect, summary) and academic genres (short research report, critical essay, literature review), and include their use for personal interests and identity construction. Emphasis on coherence and transition between and across paragraphs, and, the integration of audience, topic, and purpose in text development. Reading and writing acquisition are linked in both traditional (paper) and electronic text development with an emphasis on multimodality and multiple learning styles. Learners are encouraged to acquire multiliteracies for personal growth and interests, identity development, and academic tasks. Prerequisite: ESL 6 level-appropriate placement scores.

75-861-785/787 ESL/CNA 7 Reading/Writing
This is content support course for learners with high intermediate English language proficiency. It begins 6 weeks prior to the Certified Nursing Assistant course. Learners practice skills in reading, writing, note-taking (for listening, reading, and studying), test-taking, intercultural communication, technology, research, and presentation which are required for completion of the CNA course. Prerequisite: ESL 6 level-appropriate placement scores.

75-861-785/787 ESL/LPN 7 Reading/Writing
This is content support course for learners with high intermediate English language proficiency. It begins 6 weeks prior to the Licensed Practical Nurse course and continues while learners attend that course. Focus is on academic and learning strategies to help learners successfully negotiate the content and tasks of the LPN course. Learners practice skills in reading, writing, note-taking (for listening, reading, and studying), test-taking, intercultural communication, technology, research, and presentation which are required for completion of the LPN course. Prerequisite: ESL 6 level-appropriate placement scores.
Transition course for advanced ESL students who are preparing to enter academic programs. Emphasis is on developing and applying comprehension and critical reading strategies to a range of academic texts. Other course topics include study skills, vocabulary development and college readiness. Prerequisite: ESL 7 level-appropriate placement scores.

 ESL 7 Reading; ESL 7/CPN Reading; ESL 7/LPN Reading

Transition composition course for advanced ESL students preparing to enter academic courses. Students should already be familiar with the writing process and be able to write a 3-to-5 paragraph essay. Writing focus is on argumentation and research with additional work in literary analysis, essay examination and timed writings. Prerequisite: ESL 8 level-appropriate placement scores, including a direct writing sample.

100 Alternative Learning: Writing

ESL 7 Writing; ESL 7/CPN Writing; ESL 7 LPN Writing

Transition composition course for advanced ESL students preparing to enter academic programs. Emphasis is on mastering the writing process to complete a 3-5 paragraph essay for each of the following patterns of organization: narration, description, comparison/contrast, cause/effect, and summary. Students deepen their understanding of standard American writing conventions and grammar while employing appropriate study skills. Prerequisite: ESL 7 level-appropriate placement score.

ESL 7 Certified Nursing Assistant (CPN) course Writing

This is a writing support course with targeted curricula and content for learners in the Certified Practical Nurse program/course(s). Learners need advanced English language proficiency. Focus is on academic and learning strategies to help learners successfully negotiate the content and tasks of the Certified Nursing Assistant course. Learners practice skills in writing, note-taking (for listening, reading, and studying), test-taking, intercultural communication, technology, research, and presentation which are required for completion of the CPN course. Prerequisites: ESL 7 level-appropriate placement scores, and concurrent enrollment in the ESL 7/CPN 75-861-797 course, and enrollment in the Certified Nursing Assistant course.

ESL 7 LPN course Reading

Reading support course with targeted curricula and content for learners in the Certified Practical Nurse program/course(s). Learners need high-intermediate through advanced English language proficiency. The course begins 10 weeks prior to the Certified Nursing Course and continues while and after learners complete the lecture portion of the CNA course. Focus is on academic and learning strategies to help learners successfully negotiate the content and tasks of the Certified Nursing Assistant course. Learners practice skills in reading, note-taking (for listening, reading, and studying), test-taking, intercultural communication, technology, research, and presentation which are required for completion of the CNA course. Prerequisites: ESL 7 level-appropriate placement scores, and concurrent enrollment in the ESL 7/CPN 75-861-797 course, and enrollment in the Certified Nursing Assistant course.

ESL 7 Writing; ESL 7/CPN Writing; ESL 7 LPN Writing

Transition composition course for advanced ESL students preparing to enter academic programs. Emphasis is on mastering the writing process to complete a 3-5 paragraph essay for each of the following patterns of organization: narration, description, comparison/contrast, cause/effect, and summary. Students deepen their understanding of standard American writing conventions and grammar while employing appropriate study skills. Prerequisite: ESL 7 level-appropriate placement score.

ESL 7 Certified Nursing Assistant (CPN) course Writing

This is a writing support course with targeted curricula and content for learners in the Certified Practical Nurse program/course(s). Learners need advanced English language proficiency. Focus is on academic and learning strategies to help learners successfully negotiate the content and tasks of the Certified Nursing Assistant course. Learners practice skills in writing, note-taking (for listening, reading, and studying), test-taking, intercultural communication, technology, research, and presentation which are required for completion of the CPN course. Prerequisites: ESL 7 level-appropriate placement scores, with a direct writing sample, and concurrent enrollment in ESL 7/CPN 75-861-791 and 797, and enrollment in the Certified Practical Nursing Associate course.

ESL 7 Licensed Practical Nursing (LPN) course Writing

This is a writing support course with targeted curricula and content for learners in the Licensed Practical Nurse program/course(s). Learners need advanced English language proficiency. Focus is on academic and learning strategies to help learners successfully negotiate the content and tasks of the LPN course. Learners practice skills in writing, note-taking (for listening, reading, and studying), test-taking, intercultural communication, technology, research, and presentation which are required for completion of the LPN course. Prerequisites: ESL 7 level-appropriate scores, with a direct writing sample, and concurrent enrollment in ESL 7/CPN 75-861-791 and LPN program/course(s).

ESL 7 Reading

Transition composition course for advanced ESL students preparing to enter academic courses. Building on the skills and knowledge developed in ESL 7 Reading, students focus on comprehension and critical reading of challenging literary and academic text. Emphasis is on analysis of argumentation, literary criticism and research while furthering skills in note-taking, test-taking, and effective classroom discussion. Prerequisite: ESL 7 level-appropriate placement scores.
MATC VISION
LEADER IN LEARNING

MATC MISSION
Madison Area Technical College provides accessible, high quality learning experiences that serve the community.

MATC VALUES
EXCELLENCE • RESPECT • INTEGRITY

MATC'S COMMITMENT TO DIVERSITY
MATC's response to the changing nature of diversity, which goes beyond categories such as gender, race, and disability, requires a commitment by each member of the MATC community to create and sustain a learning environment built on respect for the unique experiences and potential of all. This ensures that MATC is preparing students personally and professionally to become active and successful participants in a complex, diverse world.

The course information in this booklet is current at the time of publication. For more information, visit the MATC Website at matcmadison.edu.