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#### FALL 2013

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<tr>
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<tbody>
<tr>
<td>4</td>
<td>Holiday</td>
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<tr>
<td>8</td>
<td>Summer Session II begins</td>
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<tr>
<th>AUGUST</th>
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<tbody>
<tr>
<td>16</td>
<td>Summer Sessions end</td>
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<tr>
<td>19-20</td>
<td>New Faculty Orientation</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Freshman and Transfer Student Orientation</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>New student check-in</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Returning students check-in</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Day, Evening and Graduate classes begin</td>
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<thead>
<tr>
<th>SEPTEMBER</th>
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<tbody>
<tr>
<td>2</td>
<td>Labor Day</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Holiday</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Last day to drop courses</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Spring teaching assignments due</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Family Day/Homecoming Weekend</td>
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<thead>
<tr>
<th>OCTOBER</th>
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<th></th>
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<tbody>
<tr>
<td>13</td>
<td>Open House for high school seniors</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Mid-term grades posted</td>
<td></td>
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<thead>
<tr>
<th>NOVEMBER</th>
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<tbody>
<tr>
<td>1</td>
<td>Last day to drop class with a “W”</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Senior, CE, Graduate registration opens (Spring 2014)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Junior registration opens (Spring 2013)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Open House for high school seniors</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Sophomore registration opens (Spring 2013)</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Follow a Thursday schedule</td>
<td></td>
</tr>
<tr>
<td>27-1</td>
<td>Thanksgiving Recess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(no day, evening or weekend classes)</td>
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<thead>
<tr>
<th>DECEMBER</th>
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<tbody>
<tr>
<td>1</td>
<td>Thanksgiving Recess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(no day, evening or weekend classes)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Last day of day classes</td>
<td></td>
</tr>
<tr>
<td>9-14</td>
<td>Final exams (day and evening classes)</td>
<td></td>
</tr>
<tr>
<td>16-17</td>
<td>Final exam make up days, if needed</td>
<td></td>
</tr>
<tr>
<td>25-1</td>
<td>Winter Break (College Closed)</td>
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#### SPRING 2014

<table>
<thead>
<tr>
<th>JANUARY</th>
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<tbody>
<tr>
<td>1</td>
<td>Winter Break (College Closed)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>New Students Check-in</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Residence hall check-in</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Day, Evening and Graduate classes begin</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Holiday(College closed; no day or evening classes)</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Fall teaching assignments due</td>
<td></td>
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<thead>
<tr>
<th>FEBRUARY</th>
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<tbody>
<tr>
<td>17</td>
<td>Holiday</td>
<td></td>
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<tr>
<td></td>
<td>(College closed; no day or evening classes)</td>
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</tr>
<tr>
<td>20</td>
<td>Follow a Monday schedule</td>
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<thead>
<tr>
<th>MARCH</th>
<th></th>
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<tbody>
<tr>
<td>7</td>
<td>Mid-term grades posted</td>
<td></td>
</tr>
<tr>
<td>10-14</td>
<td>Spring break (no day or evening classes)</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Last day to drop a class with a “W”</td>
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<tr>
<th>APRIL</th>
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<tbody>
<tr>
<td>2</td>
<td>Pride &amp; Polish Day (modified day schedule)</td>
<td></td>
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<tr>
<td>6</td>
<td>Seniors, CE, Graduate registration opens (Fall 2014)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Junior registration opens (Fall 2013)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Open House for High School Seniors</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Sophomore registration opens (Fall 2013)</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Follow a Friday schedule</td>
<td></td>
</tr>
<tr>
<td>25-27</td>
<td>A-Day Weekend (no day classes Friday)</td>
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<tr>
<th>MAY</th>
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<tbody>
<tr>
<td>2</td>
<td>Last day for day classes</td>
<td></td>
</tr>
<tr>
<td>5-10</td>
<td>Final exams (day and evening classes)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Commencement</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Summer Session I begins</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Holiday (College closed; no day or evening classes)</td>
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<tr>
<th>JUNE</th>
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<tbody>
<tr>
<td>3, 5, 8</td>
<td>New Student Orientation</td>
<td></td>
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<tr>
<td>10</td>
<td>Transfer student orientation</td>
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General Information

The College
Founded in 1896, Delaware Valley College is an independent, coeducational four-year college enrolling approximately 1700 undergraduate students and more than 250 students in its graduate programs.

The college is accredited by the Commission of Higher Education of the Middle States Association of Colleges and Schools, its Chemistry program is approved by the American Chemical Society, and its Food Science Specialization in the Food Science and Management Department is approved by the Institute of Food Technologists. Delaware Valley College is a member of the Accreditation Council for Business Schools and Programs; the business programs are in candidacy for ACBSP accreditation.

Delaware Valley College is a member of the American Council on Education, the Pennsylvania Association of Colleges and Universities, the National Association of Colleges and Teachers of Agriculture, the National Collegiate Athletic Association, Eastern Collegiate Athletic Conference, the Middle Atlantic Conference, and the National Intramural Association, as well as numerous professional organizations related to its major programs.

The college offers baccalaureate programs in Agriculture (with designated degree programs in Agribusiness, Agronomy and Environmental Science, Animal Science, Animal Biotechnology and Conservation, Dairy Science, Food Science and Management, Horticulture, and Ornamental Horticulture and Environmental Design), English and Communications, Business Administration, Computer and Business Information Systems, Counseling Psychology, Criminal Justice Administration, Biology, Chemistry, and Secondary Education. The College can prepare students for secondary school certification in eight different areas of specialization. Associate of Science programs in Business Administration, Equine Studies, and Information Technology and Management are also offered. Additionally, in cooperation with Middle Bucks Institute of Technology, the College offers an associate’s degree and certificate in Culinary Arts and Technology.

Delaware Valley College provides a Master of Science degree in Educational Leadership. This graduate program is primarily designed for practicing educators who want to become administrators or supervisors in the K-12 school system.

Delaware Valley College also provides a Master of Science degree in Teaching and Learning to allow teachers to advance their individual knowledge and skills required to design and incorporate instructional teaching and learning modifications into the daily process of instruction essential to meeting the needs of all levels of learners in the classroom.

A Master of Business Administration (MBA) is available with concentrations in Food and Agribusiness, General Business, and Global Leadership. MBA students study in the core areas of an MBA program including accounting, finance, management, marketing, and information systems. Specialty courses focus on topics and issues related to the concentration selected.

In addition to its academic programs the College offers a wide range of extracurricular activities and affairs—including student publications, the Band, the Chorale, a full range of both Division III intercollegiate teams and intramural athletic programs and both major-oriented and interest-focused student clubs. All of these elements of the College’s program are aimed at the
General Information

objective of developing an open-minded, career professional capable of expanding his or her horizons in a future of unlimited possibilities.

History
In 1896, Joseph Krauskopf, D.D., purchased a 100-acre farm, arranged for the construction of a small classroom building, employed a faculty of two, enrolled six students, and so founded The National Farm School. The National Farm School provided a three-year program combining academics and work experience that continued through World War II. Then, in 1945, the school was reorganized to strengthen its academic program, and it became The National Farm School and Junior College. Before its revamped three-year program had completed a full cycle, it was recognized that advances in the pure and applied sciences mandated further expansion of the program. In 1948, the senior college level was approved by the State Council of Education and the institution’s name was changed to National Agricultural College.

The growth of the College and its programs following World War II, undertaken under the leadership of James Work, a 1913 graduate of The National Farm School, included the addition of new programs in Food Industry (1951), Biology and Chemistry (1958) and Business Administration (1965). To reflect these additions to its program the College’s name was changed to Delaware Valley College of Science and Agriculture in 1960. The College continued to expand its program offerings, adding a Bachelor of Arts degree in English, the Bachelor of Science degrees in Criminal Justice Administration and Secondary Education, and added new majors to the Bachelor of Science degree in Business Administration. To reflect its broadened educational program, in 1989 the Board of Trustees approved an abbreviation of the College’s name to Delaware Valley College. In 1998, the College embarked on graduate education with the Master of Science Degree program in Educational Leadership, added the Bachelor of Science degree in Animal Biotechnology and Conservation in 2001, the Associate degree in Culinary Arts in 2002, the Master’s in Business Administration in 2004. Most recently, the college added the Hydroponics major to the Bachelor of Science degree in Horticulture, the Entrepreneurship major to the Bachelor of Science degree in Business Administration, the Bachelor of Arts degree in Counseling Psychology, the Master of Science degree in Teaching and Learning, and the specialization in Sustainable Agriculture Systems for students in the college’s Natural Resources and Biosystems Management department.

Delaware Valley College Mission Statement
We are inspired by the ideals of our founder who, in 1896, emphasized respect for all people and ideas, who honored knowledge with practice, progress and the common good. Our historical commitment to experiential learning integrates theory and practice and prepares undergraduate and graduate students to meet the challenges of a complex global environment and to engage in lifelong learning. We provide students with the requisite skills and a spirit of inquiry that enrich and inform their lives, prepare them to pursue meaningful careers, and fulfill societal, community and family responsibilities.

Delaware Valley College Vision Statement
• Delaware Valley College will be an exemplary small, private, teaching university.
• We will have an uncompromising commitment to the education of our students
• We will provide intellectual leadership and be an ethical example.
• We will be champions of interdisciplinary inquiry and the art and science of personal teaching
• We will imbue all of our educational programs with the practical application of knowledge through experiential learning, fully utilizing our unique campus, including its distinctive facilities and location.
• Our faculty, staff, and administration will be committed to innovation and empowered to distinguish themselves through creative collaboration and excellence.
• We will deploy state-of-the-art technologies and processes to continuously improve and renew ourselves.
• As stewards, we will secure the financial resources that are the investments in our future that will excite and inspire.
• In our design and delivery of compelling educational models, will be uncompromisingly attentive to the disuse of affordability, which reflects our genuine commitment to our students and their families.
• While assiduously attending to the quality of the education provided students, we will be outward-focused and build relationships with alumni, the community, and partners to garner the broadest possible engagement in our mission and to have an impact on the wider world.
Delaware Valley College Core Values

As an Educational Community We:
Respect All People
Our community serves all our stakeholders with care and dignity. We are intensely focused on both the welfare and growth of each of our students, and we support their development as global citizens who achieve meaningful success in their careers and in their lives.

Value the World of Ideas and Differences
Our community recognizes the necessity of cultivating curiosity and honoring diversity. We engage with ideas that challenge us and with people different from ourselves, showing deep respect for diverse points of view and backgrounds.

Pursue Excellence
As an institution dedicated to teaching and learning, we are committed to seeking excellence in all we do in academics, student life, and all support services, which leads to life-changing educational experiences. We live in a learning environment that nurtures scholarship, imagination and creativity and embraces innovation and change, allowing each one of us and our whole community to thrive in a challenging world.

Live Each Day with Integrity
As stewards of our institution’s greater good, we are individually accountable for each of our commitments, taking the right path over the expedient one. We stand up for what is right, for ourselves, for others, and for the natural world.

Teach, Learn and Serve with Passion and Commitment
Our community creates an environment in which educating our students and serving our constituencies are responsibilities we embrace with passion and commitment.

Act As One Learning Community with One Purpose
We practice higher education as a team—we are all invested in one another’s success and intend to make a difference in the world!

Programs
The uniqueness of the Delaware Valley College programs extends well beyond the subjects of its majors. First, there is the intensity of focus on the major itself. Professional courses typically encompass more than 40 credits at Delaware Valley College (the professional credit requirement for a major at many institutions is just 24 credits). All of those courses are taught—both lecture and laboratory or practicum—by professional instructors, most of whom are full-time members of the faculty and all of whom are devoted to the teaching profession.

That focus on professional studies is supported, on one hand, by a strong thrust in basic sciences (mathematics, biology, chemistry, etc.), and, on the other hand, by a set of unique courses designed specifically to familiarize the student with the technology utilized by career professionals in his or her major. It is here that Horticulture majors learn to prune fruit trees, Ornamental Horticulture and Environmental Design majors learn the art and the technique of transplanting, Dairy Science majors obtain the experience of full management responsibility for cows on the production line and Business majors learn to do case studies of Fortune 500 companies.

By virtue of a strong Core Curriculum (see page 19), each student also has an opportunity to expand his or her horizons through a carefully constructed set of subjects that focuses both on communicative skills and on the accomplishments of individuals in the arts, humanities, and social sciences.

Finally, each program has built into it sufficient general electives to permit the student to tailor his or her program to meet specific career objectives. Also, a number of optional course tracks are available to enable the student to specialize in a particular direction.

A student may minor in any subject area outside his or her academic major (thus, for example, a student in Horticulture might elect to minor in Biology or in Business). A minor consists of a minimum of 15 elective credits in a discipline outside the student’s major.

Courses in the minor are selected with the advice of the Chairperson or Director of the minor Department or Program. In addition to these disciplinary minors, interdisciplinary minors are offered in Plant Protection Management (see Horticulture) and in Turf and Grounds Management (see Agronomy and Environmental Science Ornamental Horticulture and Environmental Design).

In several of the College’s programs, designated majors and specializations are available. These are elective course tracks within the student’s curriculum that enable the student to acquire additional depth of preparation in a sub-discipline. These specialized programs are available through many of the different academic departments. Please review the individual departmental sections later in this catalog for further information.

The College has long required that all of its graduates demonstrate competence in communications (both written and oral) and computation.
General Information

In recognition of the increasing role of electronic technology in our society, the College has also adopted the requirement that all of its graduates demonstrate computer literacy as well. This may be accomplished by successfully completing the introductory computer courses, IT 1011 Information Technology Concepts and IT 1012 Computer Applications, or by passing a proficiency examination.

Campus

Delaware Valley College is located in central Bucks County, Pennsylvania, about 30 miles north of Philadelphia and 80 miles south of New York City.

Bucks County is rich in historic tradition, having been settled under grants initially made by William Penn. Nearby New Hope and environs remain popular tourist attractions with their unique blend of historic and artistic attractions.

The College lies immediately outside of Doylestown, the county seat. Doylestown, too, is rich in historic attractions and its history-minded people have taken great pains to preserve those values in the community while at the same time successfully accommodating one of the fastest population growth rates in the country.

The campus is served by the SEPTA Lansdale/Doylestown Line (offering excellent commuter connections with Philadelphia, including a stop on campus) as well as bus service in Doylestown. Most of the campus proper lies on the 80 acres situated between the rail line and U.S. Route 202. The campus buildings, featuring an attractive neo-Georgian architectural theme, are arranged around a central green. Administrative offices are housed in the Admissions Center and in Lasker Hall on the east side of the campus. There, too, are the major classroom, laboratory, and faculty office facilities, housed in Allman Building, Mandell Science Building, and Feldman Agricultural Building. On the opposite side of the green are several residence halls (Ulman Hall, Centennial Hall, Cooke Hall, Barness Hall, and Work Hall), Segal Hall (houses the College's Academic Services) and the College's two gymnasiums. Along the south side of the campus are the Feldstein Horticulture Building, the Arthur Poley Greenhouse Complex, the Krauskopf Memorial Library, the Levin Dining Hall, Eisner Hall (the Media Center), and additional residence halls (Goldman Hall, Samuel Hall, South Hall, and Berkowitz Hall). Finally, along the west side of the campus are the James Work Stadium, and the Student Center.

The teaching facilities are modern and well-equipped. All classrooms are equipped with data projectors and there are several computer labs on campus. The Samuel P. Mandell Science Building was constructed in 1966 and enlarged by over one-third in 1997. It houses biology and chemistry laboratories and instrument rooms, a physics laboratory, a food science laboratory and a food processing pilot plant as well as classrooms and faculty offices. The Feldman Agriculture Building, built in 1972, houses the College's Computer Center, plant science and animal science laboratories, freshman biology and chemistry laboratories, and numerous classrooms and faculty offices.

The greenhouse-laboratory complex, initially constructed in 1974, is located behind the Library. The complex includes five individually climatized greenhouses connected by a common headhouse, a floral design laboratory, a landscape design studio, faculty offices and the Poley Greenhouse addition. The horticultural programs of the College are also supported by the Henry Schmieder Arboretum, which is a member of the American Association of Botanical Gardens and Arboreta.

Named after the College's founder, the Joseph Krauskopf Memorial Library is situated at the center of the campus, befitting the central role it plays in the educational mission of the College. Its graceful Georgian exterior and oak paneled interior evoke an earlier age, but the library's e-collections are on the forefront of technology. Students today expect to do their research in an online environment, and Delaware Valley College students have a wide array of full-text electronic resources available to them any time of day or night, both on campus and off. From the College's website, students have access to the library's electronic collections and catalog of the 70,000 volume print collection.

Study space and computer work areas are located throughout the building, and laptops that connect to the library's wireless network can be checked out from the circulation desk. Service is the top priority, and a friendly and knowledgeable library staff member is always available to help students with their research needs. In the classroom librarians work with faculty to teach research skills targeted at specific assignments. The Krauskopf Library is part of a fifty member local College library consortium that shares resources. The library also houses an archives and a small museum dedicated to the College's history.

The Media Center is located in Eisner Hall and provides students and faculty with the necessary resources and equipment to support their classroom needs. Students are assisted in producing their own videos, slides, overhead transparencies and graphic materials for classroom presentations.
Delaware Valley College is surrounded by rich farmland and open space, all available to enrich teaching and learning and to provide students with opportunities to learn through “science with practice.” The nearly 1000 acres of college land has just one purpose: to support the educational growth of students. Through classroom instruction, field trips, research projects and work experience, students can help shape the landscape of DelVal. From wildlife habitats to production agriculture, our land can teach many lessons.

Nearly 500 acres are dedicated to field crops and pasture, grown to support our equine, dairy and livestock. The Dairy Science Center, features the latest milking parlor technology allowing production data to be transmitted real-time to the classroom, for student analysis. The Kenneth and Helen Germill Center for Animal Husbandry offers a complete facility for the management of beef, sheep and swine and the Sidney J. Markovitz horse facility houses a breeding herd of standardbred horses. The Equestrian Center houses horses that are used in the college’s Equine programs and features a large indoor arena. The agricultural and environmental sciences program also include acres of horticultural plantings, including a new high-density apple orchard to teach contemporary fruit production, peaches, greenhouses, a certified organic production area and an apiary, to support the college’s beekeeping courses.

Students have learning opportunities to participate in the management and operation as an integral part of their learning. There are opportunities for students to participate in applied research projects and current sponsored research projects being conducted by faculty members in soil and water conservation, cover crops, water quality studies, evaluation in grassland, management, livestock feed efficiency trials, turf grass management, effectiveness of various plant nutrients and much more.

The college is fortunate to have received several beautiful farms over the years. The latest gift from the Warwick Foundation included 398 acres of the Germill Farm in Warwick Township, which is used to teach soil morphology, conduct Kestrel research and migratory bird surveys and to teach Limnology and Herpetology classes. In addition, the Roth Farm is being transitioned to sustainable agriculture and will provide students with the opportunity to explore the differences in food and crop production.

The Alumni

Since its founding on February 27, 1910, the Alumni Association has been an active and positive force for the school and the college. Its members are located throughout the world and fill prominent positions in industry, education and government. Alumni have played a significant role in supporting annual giving, an endowment fund, and providing scholarships. Throughout the years, alumni have given generously of their income and time to further the advancement of their alma mater. The various alumni funds are sources of financial support that help to ensure a sound future for the college. Additionally, the Alumni Association has made recent strides to improve programming for the current students of DelVal. Through its efforts the Alumni Association is helping to make students aware of the importance of the role each person plays in the future of the College.

There are numerous facilities that stand as examples of the loyalty of DelVal graduates. The alumni have enthusiastically supported the construction of the James Work Memorial Stadium, the Alumni Field, remodeled Alumni House, Feldstein Horticulture Science Center, Agricultural Machinery Building, Arthur Poley Greenhouse Complex, and the Student Center. Many other contributions are of a material nature and indicate the feelings of the graduates.

All Alumni activities and meetings, such as class reunions, class agents, regional chapters, events, and Homecoming are coordinated by the College’s Office of Alumni Relations.

The College publishes Horizons two times a year to keep alumni informed about college developments and events.

During the year, the Executive Committee of the Alumni Association meets to develop and discuss potential programs. All alumni are invited to participate in any standing committee of the Executive Committee. An annual business meeting is held for all alumni during Homecoming Weekend.

If you would like more information on how you can become involved please call the Office of Alumni Relations at 215-489-2917.

Officers of the Alumni Association
President: Peter Duane ’72
First Vice President: Melissa Frank ’96
Second Vice President: Nicole DeFAzio ’04
Recording Secretary: Joanne DaCunha ’86
Representative to the Board of Trustees:
Ray Funkhouser ’72
Treasurer: James Parsons ’82
Executive Secretary: Jackie Gear ’05
Admissions, Expenses, Financial Aid

Undergraduate Admission

Admissions Requirements - General

Candidates for admission to the freshman class must be graduates or anticipating graduation from an approved secondary school or preparatory school or have earned their GED (Graduate Equivalent Diploma). Families involved in home study programs are urged to contact the Director of Admissions for further information. Criteria used when making an admission decision are: the student’s transcript of academic work, rank in class, the SAT or ACT, letters of recommendation, and the admissions essay.

The admissions application should be submitted as early as possible in the senior year, preferably by the end of the first marking period.

It is the policy of Delaware Valley College to offer admission to applicants without regard to race, color, creed, sex, age, religion or national origin.

Advanced Placement or Standing

Applicants for admission who have completed secondary school Advanced Placement Courses are encouraged to take the appropriate examinations administered by the College Entrance Examination Board. Students with an advanced placement score of “3” or better will receive credit for an appropriate introductory course or free elective credit.

Incoming freshmen with college credit should notify the Admissions Office upon enrollment. The College also grants academic credit for satisfactory performance on a number of specific subject examinations that are part of the College Level Examination Program (CLEP) and the Defense Activity for Nontraditional Education Support (DANTES) program, both of which are administered by the Educational Testing Service, Princeton, NJ 08541. The College is officially designated as a CLEP Testing Site for DelVal students. Details on the College’s policy regarding CLEP may be obtained from the Continuing Education Department at 215-489-4848.
Admissions Procedures – Freshmen Applicants
1. Applicants are encouraged to submit an online application, which is free of charge. Completed paper applications should be sent with a $50 check or money order, a non-refundable application fee.
2. Submit official high school transcript, including current grades and senior coursework.
3. Have SAT or ACT scores sent to the Admissions Office, either through the high school transcript or the College Board. Our code numbers are SAT-2510 and ACT-3551.
4. A personal interview is recommended, but not required, for all applicants. Arrangements may be made with the Admissions Office by phone at 215-489-2211, or 800-2-DELVAL.
5. Admissions decisions are made on a rolling basis, continuing until full enrollment is reached. Early applications are encouraged.
6. The Admissions Committee will evaluate applicant credentials and will inform the applicant of its decision.

Admissions Procedures – Transfer Applicants
1. Submit an online application, which is free of charge. Completed paper applications should be sent with a $50 check or money order made payable to Delaware Valley College, a non-refundable fee.
2. Forward official transcripts of all college work and a high school transcript or copy of their GED.
3. Credits will be transferred only for those courses which are appropriate to the selected curriculum. (For more information see index for transfer credit policy).
4. Veterans and Active Military should submit a copy of form DD-214. If presently serving in the military, the applicant must submit a letter of reference from the commanding officer.

Minimum Unit Recommendations
<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>*Science</td>
<td>1</td>
</tr>
<tr>
<td>Biology</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>Algebra I</td>
<td>1</td>
</tr>
<tr>
<td>Algebra II</td>
<td>1</td>
</tr>
<tr>
<td>Social Studies</td>
<td>2</td>
</tr>
<tr>
<td>Additional**</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
</tr>
</tbody>
</table>

*Business Administration, Criminal Justice Administration, or English majors and students applying for the Equine Science program need only one unit of science. They may take any one of the following: Biology, Chemistry, or Physics.
**It is recommended that all students accumulate as many units in advanced science and advanced mathematics as they can. Additional units may also be obtained in social science foreign languages and other subjects.

Admissions Procedures – International Applicants
Students seeking admission from other nations should follow the application procedures pertaining to their respective student type (freshman/transfer). In addition to the steps listed international students should:

1. Submit TOEFL, SAT, or ACT scores as necessary (if applicable).
2. Submit official transcripts accompanied by World Education Services (WES) evaluation (if applicable).
The College uses the Student and Exchange Visitor Information System (SEVIS) to facilitate compliance with regulations set forth by the United States Citizen and Immigration Services (USCIS).

Subjects Required for Admission
The requirements for admission cover 15 units of secondary school work. A unit represents a year’s work in a subject at a secondary school.

The following preparation is required for all applicants. However, additional units in science and mathematics are desirable. Applicants whose preparation differs from the following outline are encouraged to confer with the Director of Admissions.
Financial Aid

Tuition, Fees, & Expenses

The major charges for the 2013-2014 Academic Year are: tuition, fees, room and board as detailed under the Undergraduate Tuition and Fee Schedule. All resident students are required to take advantage of one of the three meal plans offered. There are also meal plans available for commuter students, staff and faculty. Tuition, fees, room and board may be paid by mail or in person with cash, personal check or money order. Payment may also be made by American Express®, Discover®, MasterCard®, PIN-less debit cards with the MasterCard® logo, and electronic checks via the Campus Portal through WebAdvisor at www.delval.edu. Credit card payments for tuition, fees, room and board cannot be made by mail, in person, or over the telephone.

Upon acceptance to the College, new students must pay a non-refundable $200 matriculation fee. New students who will be living on campus must also pay a non-refundable $200 room reservation fee.

Returning Students

Returning commuter students must pay a non-refundable $200 advance registration fee. Returning resident students must also pay a non-refundable $200 advance room reservation fee.

Advance Payment Fee Notices are mailed in February and payment is due within 30 days. No student will be allowed to register unless accounts are clear of all indebtedness to the College, and the advance payment fee is received by the College Bursar. It is the responsibility of each student to pay the charges as listed below. A late fee of $200 is charged after the term due date.

In the event of any financial default, the College shall have the right to employ a collection agency and/or any other legal means to collect sums due. The student is required to pay all collection costs, including legal fees, and interest. Term charges are payable as follows:

Undergraduate Tuition and Fee Schedule*

<table>
<thead>
<tr>
<th>Due on or before:</th>
<th>Fall 2013</th>
<th>Spring 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July 31, 2013</td>
<td>Dec. 15, 2013</td>
</tr>
<tr>
<td>Tuition</td>
<td>$15,420</td>
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<tr>
<td>Student Activity Fee</td>
<td>$100</td>
<td>$100</td>
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<tr>
<td>Technology Fee</td>
<td>$200</td>
<td>$200</td>
</tr>
<tr>
<td>Commuter</td>
<td>$300</td>
<td>$300</td>
</tr>
<tr>
<td>Centennial Hall</td>
<td>$2,918</td>
<td>$2,918</td>
</tr>
<tr>
<td>South Hall Room</td>
<td>$3,053</td>
<td>$3,053</td>
</tr>
<tr>
<td>All other Residence Halls</td>
<td>$2,665</td>
<td>$2,665</td>
</tr>
<tr>
<td><strong>Board</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platinum Meal Plan ($50 Flex), Unlimited Dining Hall, One meal exchange at The Pub per meal zone in place of a Levin Dining Hall meal</td>
<td>$3,197</td>
<td>$3,197</td>
</tr>
<tr>
<td>Gold ($225 Flex) Unlimited Dining Hall</td>
<td>$3,197</td>
<td>$3,197</td>
</tr>
<tr>
<td>Silver ($175 Flex) Unlimited Dining Hall</td>
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<tr>
<td>Commuter 75 Meal Plan ($25 Flex)</td>
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</tr>
<tr>
<td>Commuter 125 Meal Plan ($50 Flex)</td>
<td>$1,294</td>
<td>$1,294</td>
</tr>
<tr>
<td>Equine Fee (Full-time - Equeine Studies Students Only)</td>
<td>$1,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>Equine Fee (Part-time - Equeine Studies Students Only)</td>
<td>$500</td>
<td>$500</td>
</tr>
<tr>
<td>Facilities Improvement Fee</td>
<td>$375</td>
<td>$375</td>
</tr>
<tr>
<td>Experiential Learning Fee</td>
<td>$250</td>
<td>$250</td>
</tr>
<tr>
<td>Contingency Deposit</td>
<td>$150</td>
<td>$150</td>
</tr>
<tr>
<td>New Student Fee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-Time</td>
<td>$150</td>
<td>$150</td>
</tr>
<tr>
<td>Transfer</td>
<td>$75</td>
<td>$75</td>
</tr>
</tbody>
</table>

*Rates are subject to change
Other expenses include a contingency deposit of $150 that is required of all full-time students as a guarantee for final payment of damage to or loss of college property, residence hall damages, unpaid telephone charges, library and parking fines, or similar penalties imposed by the college. As damage or loss occurs it is charged to the student account. Upon graduation or withdrawal from the college, the student will receive a refund of the contingency deposit not used for final charges.

Diplomas and transcripts are not issued until the student has made satisfactory settlement of his or her accounts.

Additional fees are charged for freshmen and transfer students, laboratory work, and for field trips required for certain courses.

Students registering for more than 19 credits in a term are charged $850 per credit over the 19 credit load. Refer to Enrollment Status/Class Status under Academic Regulations for academic approvals that are required to take more than 19 credits in a term.

All full-time undergraduate students are required to carry health insurance. The college offers a health insurance plan for those students who are not otherwise covered. Students who are required to provide proof of insurance and do not comply will automatically be enrolled in this health insurance plan at their own expense.

Books, supplies and equipment may be purchased at the Bookstore operated by the college.

Return of Title IV Funds

The Office of Financial Aid is required by federal statute to recalculate federal financial aid eligibility for students who withdraw, drop out or take a leave of absence prior to completing 60 percent of a payment period or term. The federal Title IV financial aid programs must be recalculated in these situations. The calculation is made for all federal financial aid recipients to determine whether a student who completely withdraws during a term has “earned” the monies disbursed. A student “earns” his/her aid based on the period of time they remain enrolled. During the first 60% of the term a student “earns” student aid funds in direct proportion to the length of time he/she remains enrolled. After the 60% point in the payment period or period of enrollment, a student has earned 100% of the Title IV funds he or she was scheduled to receive during the period. Any aid received in excess of the earned amount is considered unearned. If a student earned less aid than was disbursed, the institution would be required to return a portion of the funds and the student may be required to return a portion of the funds.

This policy also applies to students who receive federal funds and receive all FA grades for ceasing to attend classes and failure to notify the Registrar’s office. The last day of class attendance will be determined by the Registrar’s office. Please refer to the Withdrawal policy of the college under Academic Regulations.

This policy does not apply to those students who cancel their registration prior to the first day of classes nor does this policy apply to students who drop some but not all of their classes. In these particular cases, the financial aid office may have to recalculate your award based on your revised enrollment status. Please contact the financial aid office for more information.

Calculating Earned and Unearned Financial Aid

The amount of earned financial aid is calculated on a daily basis from the first day of classes. The process uses calendar days rather than business days. Earned aid is determined by taking the number of days attended before withdrawing divided by the total number of days in the term (first day of instruction until the last day of finals). Breaks of at least 5 days are excluded.

For example, if you completed 30% of your payment period or period of enrollment, you earn 30% of the assistance you were originally scheduled to receive; therefore, 70% of the assistance would be considered as unearned. Once you have completed more than 60% of the payment period or period of enrollment, you earn all the assistance that you were scheduled to receive for that period.

Calculating the amount of Title IV aid to be returned

Once the earned and unearned aid percentages are determined, the next step is to calculate the dollar amount of unearned aid that must be returned. The Return amount is determined by multiplying the unearned aid percentage by the total of all Title IV aid received.

The responsibility to repay the unearned Title IV aid is shared by Delaware Valley College and the student. For example, the calculation may require Delaware Valley College to return a portion of federal funds to the Federal Title IV programs. In addition, the student may also be required to return funds based on the calculation.

Calculating the amount of Title IV aid due by the School

The amount of unearned aid that must be returned by DVC is a percentage of the institutional charges for the term. The school must return the lesser of

- Amount of title funds that the student did not earn or,
Financial Aid

- The amount of Institutional charges incurred for the payment period multiplied by the percentage of funds that was not earned.

Aid will be returned in the following order, up to the total amount disbursed from each source:
1. Federal Direct Unsubsidized Loans
2. Federal Direct Subsidized Loans
3. Federal Perkins Loans
4. Federal Direct Parent (PLUS) Loans
5. Federal Pell Grants
6. Federal Supplemental Opportunity Grant (SEOG)
7. TEACH Grant
8. Iraq Afghanistan Service Grant

Once the institution's portion of the return of funds has been calculated, the financial aid office will reduce the student's original financial aid award and return the funds within 45 days to the appropriate program(s). If this creates a balance owed to DVC, the student will be responsible for repaying the amount to the Bursar's Office. The student will not be allowed to register and/or receive an official transcript until the balance has been paid in full.

Calculating the amount of Title IV aid due by the Student

After the school returns the correct amount of aid, any amount of the total unearned aid that remains becomes the student's portion of the return. The student portion of the return is calculated by subtracting the amount that the school had to return from the total unearned aid. Depending on the remaining sources of aid after the school return, the student portion of the return is distributed back to the aid program from which it was awarded. Please be aware that if you (the student) are required to return either your entire Direct Loan or a portion thereof, the loan proceeds will be returned based on the terms and conditions of your Master Promissory Note (MPN). You will not be billed for these funds upon withdrawal. Any amount of unearned grant funds that you (the student) must return is called an overpayment. The grant funds returned by the student are applied in order as indicated below, up to the amount disbursed from that grant program minus any grant funds the school is responsible for returning to that program.

a. Federal Pell Grants
b. Federal Supplemental Opportunity Grant
c. TEACH Grant
d. Iraq Afghanistan Service Grant

*Note: the student is not responsible for returning funds to any program to which the student owes $50.00 or less.

Keep in mind that when Title IV funds are returned, the student borrower may owe a debit balance to the institution. If a student earned more aid than was disbursed to him/her, the institution will offer the student a post-withdrawal disbursement via a letter, which, if accepted, must be paid within 180 days of the student's withdrawal. The student must accept or decline the post-withdrawal disbursement within the time frame indicated in the letter.

If you (the student) did not receive all of the funds that you earned, you may be due a Post-withdrawal disbursement. If your Post-withdrawal disbursement includes loan funds, your school must get your permission before it can disburse them. You may choose to decline some or all of the loan funds so that you don't incur additional debt. Delaware Valley College will automatically use all or a portion of your Post-withdrawal disbursement grant funds for tuition, fees, and room and board charges (as contracted with the school). In order to use the Post-withdrawal grant disbursement for all other school charges, DVC will need your permission. If you do not give your permission, you will be offered the funds. Please keep in mind that it may be in your best interest to allow DVC to keep the funds to reduce your debt incurred.

*PLEASE NOTE* There are some Title IV funds that you were scheduled to receive that cannot be disbursed to you once you withdraw because of other eligibility requirements. For example, if you are a first-time, first-year undergraduate student and you have not completed the first 30 days of your program before you withdraw, you will not receive any Direct Loan funds that you would have received had you remained enrolled past the 30th day.

The requirements for Title IV program funds when you withdraw are separate from any refund policy that Delaware Valley College has. Therefore, it is possible that you (the student) may still owe funds to Delaware Valley College to cover unpaid institutional charges. As mentioned previously, DVC may also charge you for any Title IV program funds that the school was required to return. For additional information regarding Return of Title IV or DVC's Refund policy, please contact: The Bursar's Office 215-489-2376

There are other refund policies that students must adhere to which include, but are not limited to such as Tuition and Fees, Housing and Meals.
Financial Aid

Refund Policy for Full-Time Undergraduate Students

1. FEES are not refundable.
2. TUITION, ROOM and BOARD are fully or partially refundable ONLY when a student officially withdraws from the college. Refunds for withdrawal are prorated based on the number of days the student was in attendance at the college.
3. Students who withdraw prior to the end of the 9th week of classes in the current term receive a pro-rata refund of tuition, room and board, and are charged a $350 withdrawal fee. NO REFUNDS are processed for withdrawal once 60% of the term has been completed.
4. The term “pro-rata refund” is defined as a refund of not less than the portion of tuition, room and board charged to the student that is equal to the portion of the term that remains, as of the student’s last recorded day of attendance.
5. If a student who is on financial aid is entitled to a refund, the student’s financial aid monies will be repaid to the programs in the following order:
   1) Federal Direct Unsubsidized Loan
   2) Federal Direct Subsidized Loan
   3) Federal Perkins Loan
   4) Federal Direct Parent PLUS Loans
   5) Federal Pell Grant
   6) Federal SEOG
   7) T.E.A.C.H.
   8) Iraq and Afganistan Service Grant

Tuition refunds are processed by the Bursar’s and Financial Aid Offices. A withdrawing student is charged a $350 Administrative Withdrawal Fee. A resident student who breaks his/her Housing Contract after the beginning of the academic year by moving off campus with or without approval is charged a $600 Housing Contract Cancellation fee.

Continuing Education

Tuition is $508 per credit for students taking courses in the Evening College. Part-time students wishing to take day courses may do so at a rate of $850 per credit. Students enrolled through the Evening College who enroll in 12 or more credits in a term will be charged $850 per credit for all credits taken regardless of time frame (day or evening).

The Lab/Computer Fee for lab courses and certain computer courses (marked an “*” on the schedule) is $80 per lab. Online courses have a distance education fee of $102 per course. All other

Refund Policy for Continuing Education

If a Continuing Education student withdraws from a course, refunds are calculated from the date the student notifies the Registrar’s Office. Ceasing to attend a class is not an official withdrawal. Tuition and fees paid for cancelled courses are refunded in full. All other refunds, minus a $50 processing fee per course, will be made according to the following schedule:

• Dropping courses before the official start date of the term: 100% tuition refund.
• Dropping courses during the first week of the term: 100% tuition refund, less a $50 processing fee per course.
• Dropping courses during the second week of the term: 50% tuition refund, less $50 processing fee per course.
• No refund if withdrawing from courses after the second week of the term.
• Fees are not refundable.

Note: All Title IV Financial Aid recipients should refer to the College Catalog for the Financial Aid Refund Policy. Questions regarding a tuition refund should be directed to the Bursar’s Office at 215-489-2376. No Technology fees or lab fees for noncredit courses.
Financial Aid
Student Financial Aid
Delaware Valley College provides and administers need based and merit-based assistance to enable students to finance the costs of higher education. Each student situation is evaluated individually. The Financial Aid office is available to help identify sources of financial support, and to discuss funding resources and opportunities. The amount of financial aid available to any student is based on academic performance, need and the availability of funds. Students must be accepted, matriculated, (or enrolled in a program determined eligible for financial aid), remain in good standing and meet the individual requirements to qualify for federal state and institutionally funded financial aid.

All students are encouraged to meet with The Financial Aid Office upon entering the college and throughout their enrollment at the college. It is a student’s responsibility to notify The Financial Aid Office of any change in degree program, semester enrollment or other circumstances which may change their eligibility for financial aid programs.

To apply for financial aid, students should submit the Free Application for Federal Student Aid (FAFSA) electronically at www.fafsa.ed.gov . Priority deadline is April 15 and Delaware Valley College’s school code is 003252. Applicants are considered for all types of aid for which they might qualify. Entering students must be accepted for admission before their requests for aid can be considered. Late applicants will be considered as long as funds continue to be available.

Awards are made for one academic year. Students must reapply each year to qualify for financial assistance. Renewal awards are based on academic performance and continuing financial need. Aid can be withdrawn if a student fails to make satisfactory academic progress, fails to report financial aid from sources outside the institution, owes a refund on a federal or state grant or is in default on a federal student loan.

The college participates with the federal government in the Federal Pell Grant Program, Federal Supplemental Educational Opportunity Grant Program, Federal Perkins Loan Program, Federal Work Study Program, and the Teacher Education Assistance for College and Higher Education Grant Program (TEACH).

Pell Grants are awarded to students with demonstrated financial need. Pell grants may range up to $5,645 per academic year.

The Supplemental Educational Opportunity Grant (FSEOG) is awarded to students who qualify for Federal Pell Grants and would be unable to enter or remain in an institution of higher education without such assistance. Renewal is available if the applicant can demonstrate continued financial need in succeeding years and availability of funds.

The Perkins Loan Program is aggregate in nature and allows a student to borrow up to $20,000 for an undergraduate program of no more than five years’ duration. The act provides that a borrower shall repay the loan at 5% per annum simple interest on the unpaid balance over a period beginning nine months after the date on which he or she ceases to pursue at least a half-time course at an institution of higher education and ending ten years after such date.

Federal Work-Study Program
The Federal Work-Study Program is designed to stimulate and promote the part-time employment of college students who have demonstrated financial need and who require the wages from the employment to pursue their studies. Students in the Federal Work-Study Program are employed by the college. Students are paid biweekly for the hours worked during the preceding pay period. Federal Work-Study is not deducted from the student’s bill unless the student so chooses. Employment under the Federal Work-Study Program is awarded as part of the financial aid package and students must show a demonstrated financial need to qualify for this program.

The Financial Aid Office assists in matching students with a job based on completion of a job application and other forms as required.

Students who do not qualify for Federal Work-Study may apply for a Campus Employment job on campus by filling out an application through the Financial Aid Office. Students are placed upon availability of employment and availability of funds. Student financial need may be a consideration for placement.

TEACH Grant
The Teacher Education Assistance for College and Higher Education (TEACH) Grant Program was established under the College Cost Reduction and Access Act (CCRAA), to benefit current and prospective teachers. This is a federal grant designed to assist students who plan on becoming a teacher and meet specific requirements.

Delaware Valley College Scholarships and Grants
Each year, Delaware Valley College awards a number of different scholarships that are based on high school academic performance. They are renewable each year provided the recipient maintains high academic and citizenship standards.

Delaware Valley College is committed to working with you and your family to make private higher education as affordable as possible. Most students enrolling at Delaware Valley College receive financial aid. This assistance may be from a variety of sources including scholarships, grants, work study programs, loans, or personal savings. Delaware Valley College also offers a range of campus-based employment opportunities, which may be a source of income for students. For more information on financial aid, please contact the Office of Financial Aid.
Financial Aid

assistance.

Below are examples of available awards Delaware Valley College offers to academically qualified students.

- Presidential Scholarship: up to $18,000
- Faculty Scholarship: up to $17,000
- Board of Trustees Scholarship: up to $16,000
- Challenge Grant: up to $13,000
- Heritage Award: up to $8,000
- Achievement Award: Amount varies

Grants awarded by the college are based on demonstrated need and the prospect of the student meeting the standards of academic performance of the college and contributing positively to the college community. Renewals are contingent upon continued financial need and the maintenance of satisfactory academic and citizenship standards.
**Additional Sources of Financial Aid**

There are also other major sources of financial assistance which are administered outside the Student Financial Aid Office of the College and are awarded under procedures established by each program or agency. Since each has its own procedures of application, the student should contact each agency directly. The major sources available to Delaware Valley College students are Pennsylvania Higher Education Assistance Agency (PHEAA) grants: PHEAA is a state grant program for undergraduate Pennsylvania residents enrolled at least half time (6 credit hours) in an eligible program.

**Other State Grant Programs**

Other state grant programs may offer state grant awards to students who are residents of those states. Students should contact the appropriate state grant agency for more information.

**Privately Sponsored Scholarships**

Most libraries have books and brochures that list scholarships available to students. Many of these awards are given to students meeting special conditions such as academic major. Contact the Financial Aid Office for more information on obtaining outside scholarship assistance. The Financial Aid Office website lists scholarships available to eligible students at the college.

**Federal Direct Subsidized and Unsubsidized Student Loan Programs**

Federal loans available to students.

**Federal Direct PLUS Loans**

Parents of dependent undergraduate students may borrow up to the students full cost of attendance minus estimated financial aid.

Information on Federal Direct student and parent loans can be found on the Delaware Valley College website under financial aid or at www.studentloans.gov.

**Private Education Loans**

These are privately funded loans through banks and/or credit unions designed to help students pay for educational expenses. Students should always borrow the maximum allowed under the Federal Direct Student loan program before using private loan assistance. Information about private education loans can be found on the Financial Aid Office website under financing options.

Contact the Financial Aid Office for additional information on the sources listed above and for information on other sources of financial assistance not described here.

Students who are eligible to collect Education Benefits through the Veterans Administration (veterans, dependents of veterans, or active military) should contact the Certifying Official for Veterans Affairs at 215-489-2475.

Monthly payment plans are available. Details are available from the Accounts Receivable Office at 215-489-2376.

**Financial Aid Policies**

**Financial Aid Satisfactory Academic Progress Policy**

Colleges and universities are required to establish minimum standards of Satisfactory Academic Progress (SAP) for students receiving federally funded (Title IV) financial aid, as well as all Delaware Valley College grants and scholarships. In order to maintain eligibility for Federal Title IV financial aid that falls under the United States Department of Education a student must continue to make both satisfactory qualitative (grade point average) and quantitative (pace) academic progress. Title IV aid programs governed by the United States Department of Education include:

- Federal grant
- Federal college work-study program
- Federal Supplemental Educational Opportunity Grants
- Perkins Loans
- Federal Direct Subsidized and Unsubsidized Loans
- Federal Parent PLUS Loans
- Federal Grant

The Financial Aid Office will monitor student progress towards their degree annually and cumulatively at the end of each academic year (after conclusion of spring semester).

Undergraduate students receiving financial aid must maintain a minimum cumulative grade point average (qualitative) and make steady progress toward the completion of their degree (pace) as described in the sections below.

**Qualitative Standard:** A student must earn a GPA of 2.0 or better to earn his/her degree at Delaware Valley College. In order to remain in good academic standing and retain federal and institutional financial aid eligibility, the student must reach the following GPA levels as he/she attempts credits toward the desired degree. This is the same academic standard published in the college catalogue under Academic Regulations. However, please note that Satisfactory Academic Progress for continued financial aid monitors attempted credits – in addition to credits earned as outlined under the Academic Regulations. Failure to meet the standard will result in the loss of Title IV aid. Please note that Satisfactory Academic Progress for financial aid eligibility should not be confused with the College’s academic progress policy. These are two distinct and completely separate policies of which Students must be aware. It is possible to fail to meet minimum standards of one policy and pass the minimum standards of the other.
Students must completed 67% of attempted credits.

Students enrolled in certificate programs one year or less in duration are monitored per semester. Students must have a 2.0 after term completion to meet Satisfactory Academic Progress.

Quantitative Standard: A student must make steady progress towards their degree. This includes the total time to earn a degree and the rate of completion or credits towards the degree. Remedial credits may count towards the quantitative standard (pace) requirements.

Financial aid cannot exceed more than 150 percent of the normal time it takes for a student to achieve a degree. For example, if the student curriculum is structured to allow a student to earn a bachelor’s degree in four years, students who take longer than four years can keep their financial aid eligibility for up to six years. A student must complete 67% of their total attempted credits in order to meet the quantitative (pace) requirement.

Examples of Credit Completion Requirement:

- A student who has attempted 24 credits must have successfully completed at least 16 credits.* (24 x .67 = 16.08).
- A student who has attempted a total of 59 credits must have successfully completed at least 40 credits.* (59 x .67 = 39.53)
- A student has 30 transfer credits and 50 DVC credits for a total of 80 attempted the student must have successfully completed 54 credits.* (30 TR + 50 DVC) x .67 = 33.6

*Calculations not resulting in whole numbers are rounded to the nearest whole credit

Students who have failed to meet both the qualitative (GPA) and/or quantitative (pace) standards will receive notification from the financial aid office in writing – by mail and/or by email. Students who fail to make satisfactory progress after the warning period will lose their aid eligibility for the following term unless they successfully appeal and are placed on probation or the student attends summer school and successfully meets the stated requirements.

Attempted Credits: Transfer credits brought in to the college are counted towards attempted credits and are also counted as earned credits and are applied to pace. Withdraws (W), incompletes (I), and course failure (F, FA) are counted towards attempted credits. Remedial course are counted as attempted credits. Remedial courses may count towards the pace requirement for first year students. Repeat courses will not count towards attempted credits if the repeat course is taken to achieve qualitative (GPA) Satisfactory Academic Progress. As defined by the Department of Education, Delaware Valley College will only allow a student to retake previously passed coursework one time and count the coursework in the student’s enrollment status. For example, the student is retaking the coursework in an attempt to meet an academic standard such as better grade for financial aid consideration.

Incomplete grades: The student must contact the financial aid office when a grade of Incomplete is received. If an Incomplete grade is not completed by the timeline indicated in the Academic Regulation policies the grade could revert to an F and will then count towards the qualitative (GPA) progression requirement. Students who change majors will have their coursework for their original major count as attempted credits.

Reinstatement of Financial Aid after SAP failure: As stated above, students who fail to successfully complete the minimum credit completion rate, fail to complete their program in the maximum time frame, or fail to meet the cumulative GPA requirement will have their financial aid suspended for the following term. Reinstatement of financial aid can be achieved by taking at least one of the following actions:

- The student submits a letter of appeal (see Appeals Process)
- The student attends summer school to eliminate deficiency (consult academic support)
- The student attends DVC during the suspension semester, pays for tuition and fees without the help of student aid and does well enough to satisfy SAP standards.
- Students are to notify the financial aid office regarding their plans to satisfy SAP policy.

Appeals Process: Any student may appeal the discontinuation of financial aid if failure to meet the standard was the result of undue hardship or special circumstances that prevented academic progress. All appeals must be submitted in writing to the Director of Financial Aid. The appeal must explain and specify the extenuating circumstances which prevented the student from achieving academic progress. Also the student should explain what has changed in his situation that will allow him/her to make satisfactory progress at the next evaluation. In addition, the appeal must include any supporting documentation of the mitigating circumstances.

For example, the following types of mitigating circumstances...
Financial Aid

may be considered when a student files an appeal: injury or extended illness of student; death in the family, or change in educational objectives. Students will be notified in writing of the decision. If an appeal is denied, financial aid will be reinstated only after the student achieves the minimum standards as listed above.

If an appeal is granted the student will have Federal funding reinstated for one semester and the student will be placed on “probationary status” for Title IV aid. The “probationary status” is for one payment period only. Students will be required to have an academic plan in place prior to beginning the term. The academic plan should be made in conjunction with the student’s academic advisor and student support services. The academic plan must be submitted to the Financial Aid Office. Progress will be monitored after the probationary term. If progress is achieved, Federal funding will continue until the next SAP review period.

Students who fail to achieve satisfactory progress after the probationary term will be notified in writing. The student may appeal this determination. If the student appeals he/she must continue to have an academic plan in place in order to continue Federal funding. The new academic plan must be submitted in writing to the financial aid office at the time he/she submits the appeal. If this appeal is granted, federal aid will continue during that semester. Should the student fail to make progress federal funding will cease until the student has met the qualitative GPA) and quantitative (pace) standards as listed above.

State grant financial aid requirements

State grants may have a different standard of academic progress then the Federal standards. Students from out of state who have other state grant funds should check with their state of residence for academic eligibility requirements. Pennsylvania state grant (PHEAA) recipients are required to complete 24 credits per academic year to retain Pennsylvania State Grant assistance. The Financial Aid Office will notify students in writing if they have failed to make this requirement.

Students’ decisions to withdraw from courses after the term begins may affect their ability to complete the academic standards for state or federal assistance. It is the students’ responsibility to contact the Financial Aid Office to verify the effect that any course withdrawal may have on financial aid eligibility.
Academic Regulations

Graduate & Professional Studies

Delaware Valley College offers graduate degree programs and certificates in business administration and education. The graduate curriculum is designed with working adults in mind, allowing them to earn degrees while maintaining their commitments to their professional endeavors and family lives. Courses blend theory with practical, real-world, application.

Programs can be completed on a full-time or part-time basis with opportunities to take classes on-site or online. A full list of courses and the application procedures can be found at http://www.delval.edu/graduate.

Academic Degrees

Master’s Degrees

Master of Business Administration in Accounting*
Master of Business Administration in Entrepreneurship*
Master of Business Administration in Food & Agribusiness*
Master of Business Administration in Finance*
Master of Business Administration in General Business*
Master of Business Administration in Global Leadership (Online)*
Master of Business Administration in Human Resource Management*
Master of Business Administration in Supply Chain Management*
Master of Science in Educational Leadership
Master of Science in Teaching and Learning

Undergraduate Studies

Bachelor of Arts Degrees

Department of English
- Media & Communication
- English Literature
Department of Liberal Arts
- Counseling Psychology

Bachelor of Science Degrees

Department of Agribusiness
- Agribusiness
Department of Animal Biotechnology & Conservation
- Conservation & Wildlife Management
- Small Animal Science
- Zoo Science
Department of Animal Science
- Animal Science
- Equine Science and Management*
- Livestock Science and Management*
- Science*
Department of Biology
- Botany*
- Ecology/Environmental Biology*
- Microbiology/Biotechnology*
- Pre-Professional*
- Zoology*
Department of Business Administration
- Business Administration
- Accounting*
- Entrepreneurship*
- Financial Services*
- General Business Administration*
- Management*
- Marketing*
- Sports Management*
Department of Chemistry
- Chemistry
Department of Criminal Justice
- Criminal Justice Administration
Department of Dairy Science
- Dairy Science
Academic Regulations

Academic Standing
In order to earn one of the degrees offered by the college, the student must:
(a) Satisfactorily complete all the course requirements prescribed by the College Catalog (see specific program requirements by major), including the Experiential Learning Program,
(b) Earn at least a “C” average (defined as a grade point average of at least 2.00) over all coursework completed.

The grading system employed by the college is:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Numerical Range</th>
<th>Quality Pts for Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>80-82</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>70-72</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
<td>1.3</td>
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<tr>
<td>D</td>
<td>63-66</td>
<td>1.0</td>
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<tr>
<td>D-</td>
<td>60-62</td>
<td>0.7</td>
</tr>
<tr>
<td>F</td>
<td>Failure, below 60</td>
<td>0.0</td>
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<tr>
<td>FA</td>
<td>Failure due to excessive</td>
<td>0.0</td>
</tr>
<tr>
<td>I</td>
<td>*Incomplete</td>
<td>0.0</td>
</tr>
<tr>
<td>IP</td>
<td>**In Progress</td>
<td>0.0</td>
</tr>
<tr>
<td>NG</td>
<td>***No Grade</td>
<td>0.0</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
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</tr>
<tr>
<td>P/F</td>
<td>Pass/Fail</td>
<td>0.0</td>
</tr>
<tr>
<td>NP</td>
<td>No pass</td>
<td>0.0</td>
</tr>
<tr>
<td>AU</td>
<td>Audit</td>
<td>0.0</td>
</tr>
<tr>
<td>PC</td>
<td>Pass Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>CC</td>
<td>Course Challenge</td>
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</tr>
<tr>
<td>TR</td>
<td>Transfer</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*The Incomplete grade may be assigned by the instructor if work in a course has been of passing quality, but is incomplete for reasons beyond the student’s control. The “I” grade indicates that a substantial portion of the coursework has been satisfactory but not entirely completed as of the end of the semester. The “I” grade is applied only in cases where the student is unable to complete the course during the term of enrollment due to serious illness or other extreme factors beyond the student’s control. An Incomplete Contract specifying the work to be completed and the due date for a final grade is required and must be signed by the instructor and the student. The grade of “I” is recorded on the transcript and is not calculated in the cumulative grade point average. Students who receive the “I” grade will not be placed on the Dean’s List for that semester.

The grade of “I” must be resolved by the end of the add/drop period of the next semester (an Incomplete in the fall semester must be resolved by the end of the add/drop period in the following spring semester; an Incomplete for the spring or summer must be resolved by the end of the add/drop period in the following fall semester). An extension...
Academic Regulations

beyond this timeline may be requested by the faculty member and must be approved by the Registrar.

When the course is completed, the final grade will be entered for that course and used to calculate the cumulative average. Unresolved “I” grades are converted to “F” grades.

**The IP (In Progress) and NG (No Grade) grades are used at the discretion of the faculty member for such things as research, independent study, etc. and are not included in the calculation of the academic average.**

Calculating the GPA

The measure employed to gauge the student’s total progress is the cumulative grade point average (GPA) which is calculated as follows:

a. For each course the number of credits is multiplied by the quality points earned per credit (for example, a 3-credit course in which the student earns a “C” grade yields 3 x 2 = 6 quality points).

b. These quality point totals are summed for all courses attempted (courses completed as well as courses in which the grade of record is “F” or “FA”) to obtain a grand total of quality points earned. Pass/Fail courses are not used in the computation of the GPA.

c. Total earned quality points are divided by the number of attempts to yield the cumulative academic average.

d. Courses may be repeated an unlimited number of times. Although the course will appear with a grade each time it is taken, only the highest grade is calculated in the GPA, and credit is received only one time.

e. The grade for a course repeated after graduation is replaced, however the original grade remains in the graduation GPA.

Academic Honors

Dean’s List

Day students that have a declared major and have excellent academic records will be included on the Dean’s List if they meet the following criteria:

a. Completion of 12 or more credits in the respective semester

b. A semester academic average of 3.3 for Freshmen, Sophomores, and Juniors and a 3.5 for Seniors

c. Satisfactory behavior

Evening students who are degree candidates and who complete six credits and earn a GPA of 3.5 or higher in a semester or term will be placed on the Dean’s List at the conclusion of the fall and spring semesters. The six credits must be taken in the Evening College.

The Vice President for Academic Affairs is pleased to acknowledge those who have earned a place on the Dean’s List at the close of each semester. Appropriate media coverage is released by the Office of Communications and Public Relations as well.

Academic Integrity

Any substantiated dishonesty, including cheating and plagiarism, in examinations, reports, themes, class or laboratory work will result in the following actions:

First Offense: The instructor will either (1) fail (zero) the student in the assignment/exam or (2) fail the student for the course. The decision is at the discretion of the instructor based on the policy stated in the instructor’s syllabus.

Second Offense: Automatic failure in the course and subject to suspension from the College upon recommendation by the instructor or Vice President for Academic Affairs.

Third Offense: Automatic suspension from the College for one or more years as determined by the Vice President for Academic Affairs.

The office of the Vice President for Academic Affairs will monitor each incident to determine if incidents of academic dishonesty have occurred with the student in other classes. A student who has been assigned a grade “F” due to academic dishonesty will not be permitted to withdraw from the course and receive a grade of “W.”

Academic Grade Changes

Once a final grade is recorded in the Registrar’s Office, it cannot be changed except to correct a documented error made by the Instructor or Registrar. A student who believes a final grade is incorrect has one year from the time the final grade was issued to challenge the grade. The instructor must document the error in writing and the grade change must be approved by the Vice President for Academic Affairs.

Academic Grievance

Students have the right to present a grievance free from interference, coercion, discrimination or reprisal. The following steps must be followed in the event of an academic grievance:

a. Student confers with the instructor in an effort to resolve the disputed issue.

b. If the issue cannot be resolved at this level, the matter may be brought to the attention of the Department Chairperson/Program Director of the department in which the issue is being raised. If the instructor involved is the Chairperson/Director, the matter may be directed to the appropriate Dean of Academic Administration. The grievance or dispute must be thoroughly documented in writing when being brought to the instructor’s supervisor.

c. If the Chairperson/Director or Dean is unable to resolve the matter, a written complaint may be presented to the Academic Standards Committee. The chairperson of the Academic Standards Committee will appoint a panel of three Committee members to investigate the grievance and make a recommendation within thirty days.

d. The recommendation will be reviewed by the
Academic Standards Committee as a whole and then forwarded to the Vice President for Academic Affairs. The Vice President for Academic Affairs may accept the Academic Standards Committee’s recommendation or pursue the matter further with the parties involved. The decision of the Vice President for Academic Affairs is final.

<table>
<thead>
<tr>
<th>Course End Date</th>
<th>Grievance Filing Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 1-January 31</td>
<td>February 28</td>
</tr>
<tr>
<td>February 1-August 31</td>
<td>September 30</td>
</tr>
</tbody>
</table>

**Academic Year**
The academic year consists of 30 weeks of instructional time, during which the student is expected to complete a minimum of 24 semester hours.

**Academic Progress Policy**
**Academic Probation / Dismissal**
The academic records of all students are reviewed at the end of each semester. The following credit / Cumulative Grade Point Average (GPA) scale is used to determine whether a student is in good academic standing and maintaining Satisfactory Academic Progress, is placed on probation, or is subject to academic dismissal. This progression scale is aligned with federal financial aid regulations regarding Satisfactory Academic Progress:

- **After 1-32 credits completed**
  In order to maintain Satisfactory Academic Progress, a student who has completed a maximum of 32 credits* at Delaware Valley College is required to earn a GPA of 1.75 or above.
  If the GPA is between 1.00 and 1.74, the student is placed on academic probation. If the GPA is below 1.00, the student is subject to academic dismissal.
  For those students who have been placed on academic probation, academic course loads for the subsequent semester are limited to 13 credits, and the student will be required to meet with Academic Support Services.
  *After 33-64 Credits Completed
  In order to maintain Satisfactory Academic Progress, a student who has completed a minimum of 33 credits*, but no more than 64 credits, at Delaware Valley College is required to earn a GPA of 1.85 or above.
  If the GPA is between 1.5 and 1.84, the student is either placed on or continues on academic probation. If the GPA is below 1.5, the student is subject to academic dismissal.
  *After 65 Credits Completed
  In order to maintain Satisfactory Academic Progress, a student who has completed a minimum of 65* credits at Delaware Valley College is required to earn a GPA of 2.00 or above.

If the GPA is below 2.00, the student is either placed on or continues to be on probation, or is subject to academic dismissal.
* Only includes credits that are graded on A to F scale; and excludes Pass/Fail courses and those institutional credits that are not part of a student’s degree requirements

**Appeal Process**
A student who has been placed on academic probation, non-degree status, or academically dismissed may appeal the decision to the Academic Affairs Committee consisting of: the Vice President for Academic Affairs, the student’s major area dean, and the Registrar.

**Academic Renewal**
Students who have been readmitted to the College after two years of absence may opt to have all coursework with a grade less than “C” not calculated in the cumulative GPA or counted for graduation. All applicable course work accepted by the Department Chair/Director and the Registrar with a grade of “C” or better will count toward the cumulative GPA and graduation. All course grades will show on the academic record and the record will be noted as Academic Renewal at that time. A student may apply for and receive Academic Renewal only once. Students who have been granted Academic Renewal are not eligible for graduation honors.

Academic Renewal will be considered when:
1) the student has not been actively enrolled at Delaware Valley College for two or more years; and
2) the student has completed at least 12 credits of course work at any accredited higher education institution; and
3) earned a cumulative GPA of at least 2.5.

**Adding/Dropping Courses**
Students are permitted to add courses for the first seven calendar days of the semester and/or drop courses for the first 14 days of the semester. Students may add and drop through WebAdvisor without an advisor’s signature or in person at the Registrar’s Office with the appropriate form and advisor’s signature. Courses dropped during this period are not recorded on the student’s transcript, and courses cannot be added to the student’s schedule beyond this period. Students may not change full-time/part-time enrollment status after the add and drop period.
Academic Regulations

Withdrawning from Courses
From the third through the tenth week of classes in a semester, students who want to withdraw from a course must submit a “Withdrawal from Course” form to the Registrar’s Office. (Withdrawal from a course may not be done through WebAdvisor.) Students who stop attending classes but do not complete the official withdrawal process specified above will receive a grade of “FA” (failure due to excessive absence). After the tenth week of classes, students will receive a letter grade for the course.

Address Change
It is important that a student keep the College informed about address changes. Notify the Registrar’s Office either in writing or by submitting the Change of Address form.

Animal Use Policy (Academic)
As a student at Delaware Valley College, you may be required to use living or deceased animals in class. Procedures which involve the use of animals have been reviewed and approved according to state and federal regulations and by the Institutional Animal Care and Use Committee (IACUC), where applicable. Procedures that involve the use of animals are designed to allow students to acquire skills they will need in their chosen career fields after graduation.

A list of activities will be given to students as part of each course syllabus. Any student who has a moral or ethical objection to performing a procedure should carefully consider whether this course of study is right for him/her. If a student objects to performing a specific procedure, the instructor may designate a required alternative to the procedure. If the instructor does not provide an alternative, it is the responsibility of the student to find and provide an acceptable alternative. All alternative procedures must be reviewed and approved by the instructor of the course and the department chair at least one week prior to performing the original procedure. If no alternative is found, or an alternative is not approved by the instructor and department chair, the student is responsible for performing the originally scheduled procedure. Refusal to perform required procedures will result in a failing grade for that class assignment and all future assignments requiring that procedure.

Attendance Policy
Regular attendance is expected of all students at Delaware Valley College. With Experiential Learning being one of the hallmarks of our curriculum, DelVal faculty plan instruction with an emphasis on participation and student involvement. You should attend every class and consider an absence a rarity.

Faculty members will outline their attendance policies in their course syllabus, as well as any effect on course grades due to poor attendance. They will also make reasonable allowances for extenuating circumstances, such as serious illness or death in the immediate family. It is your responsibility as the student to work with the faculty member in case of a rare absence, understanding that some exams or other coursework cannot be made up.

Students who are frequently absent, or who are absent for long periods (several days), should expect their grades to suffer. As a general rule, missing the equivalent of more than two weeks of classes (more than 4 classes in a two-day-a-week course) for any reason will put you in jeopardy of failing the course.

Students on an athletic team or who participate in an extra- or co-curricular activity that requires them to miss class occasionally should speak with the professor the first week or classes or as soon as they know of the conflicts. They should provide the faculty member with the known dates of the school-sanctioned absences. Students who know that their activities will cause them to miss a significant number of classes should refrain from registering for certain courses or timeslots if at all possible. Should a game or activity be scheduled after the beginning of the semester, the athletic office or sponsor will send the affected faculty members a list of students participating; however, students should also talk with faculty members directly about the expected conflicts.

Students who are not doing well in a class may be prevented from attending an optional activity. If you do experience an extenuating circumstance that requires you to miss significant class time, you should immediately contact your faculty members as well as your dean’s office. If your absences will be frequent or prolonged (more than one week) and occur during the withdrawal period, it may become necessary to withdraw from the course. If a situation arises after the withdrawal deadline, you should discuss the issue with your dean.

As a student, it is your responsibility to attend class or to take responsibility for any work missed due to an absence, provided the faculty member’s policies allow it to be made up.
Auditing Courses

Students must register to audit a course and may not change the audit status once registered. Students may change from taking a course for credit to audit up until midterm (the last date that midterm grades are due according to the published academic calendar), but once registered as audit may not change to credit. The cost to audit is half the regular tuition charged. After the add/drop period, no refund is given for the change of status to audit. No college credits will be awarded for auditing a course and students are accepted on a space available basis. The course will appear on the student’s transcript with the final grade of AU.

College Reading

Entering students who earned a score of less than 400 on the SAT-Verbal section will be required to enroll in ED 0015 College Reading to elevate their reading level. Reading is important in any discipline to comprehend the material that supplements classroom lectures. Statistics show that students who have successfully completed the course have eliminated their deficiencies and the reading level has been elevated by as much as two years. Students who do not pass College Reading must repeat and pass the course or take and pass ED 0016 Learning Strategies prior to moving to sophomore status.

Core Curriculum

General Education Requirements

The students at Delaware Valley College through a variety of experiences will develop knowledge and skills in academic disciplines outside of their major. These experiences include the following:

I. Scientific Literacy

Goal: To develop an understanding of the basic concepts of science. To increase the students’ appreciation for the principles and limitations of the scientific method as a tool for seeking truth and to help them form opinions and make sound decisions in their daily lives.

Students will be able to:
1. Demonstrate an understanding of the relationships between humans and their environment, both on this planet and in the larger cosmos.
2. Demonstrate an ability to make measurements, analyze, interpret and draw conclusions from data and an appreciation for the essence of scientific inquiry and the scientific enterprise.

Minimum 6 credits, depending on major:
BY 1113 Biology I 4 credits
BY 1214 Biology II 4 credits
BY 1115 Natural Science I 3 credits
BY 1216 Natural Science II 3 credits
BY 1116 Biological Sciences I 3 credits
BY 1217 Biological Sciences II 3 credits
CH 1001 Chemistry Fundamental 4 credits
CH 1103 General Chemistry I 4 credits
CH 1203 General Chemistry II 4 credits
MP 2119 Physics I 4 credits
MP 2123 Physics Ic 4 credits
MP 2219 Physics II 4 credits
MP 2224 Physics Iic 4 credits

Note: students may not take Biology I and Biological Sciences I

All prerequisites must be satisfied

II. Aesthetics/Cultural Literacy

Goal: To provide a background in the liberal arts, which will foster an appreciation of our cultural heritage. To develop aesthetic appreciation through the study of the work of major artists.

II.A: Fine Arts

Goal: To develop a life-long interest and respect for the arts based on a critical understanding of the visual arts and music and an appreciation of their role within society.

Students will be able to:
1. Identify the region’s most important cultural institutions (i.e. concert halls, museums)
2. Demonstrate an awareness of great achievements in the arts and an understanding of their historical and social context
3. Appreciate the breadth and variety of works in the arts
4. Articulate a critical response to works of art and music based on a knowledge of important genres, styles, techniques
5. Perform in a musical ensemble, create works of art, or engage in the process of interpreting works of art

3 credits:
LA 1058 *Community Concert Band 1 credit
LA 1059 *Chorale 1 credit
LA 1060 Introduction to the Fine Arts 3 credits

* Students may take Band or Chorale for 2 consecutive semesters to satisfy music portion of II.A. Fine Arts requirement

II.B: Literature

Goal: To develop an appreciation of our cultural heritage and aesthetic values as expressed in our literature.
Academic Regulations

Students will be able to:

1. Understand a broad spectrum of literary works in their historical and social contexts
2. Appreciate literature as an expression of diverse human values
3. Develop the skills necessary to respond critically and personally to selected literary works
4. Use the English language appropriately in professional and academic settings
5. Understand and implement the guidelines for documenting sources, compiling annotated bibliographies, summarizing source material, and incorporating sources in writing assignments
6. Write expository, argumentative, and analytical essays and research papers

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>EN 2028 Introduction to Literature</td>
</tr>
<tr>
<td></td>
<td>*EN 2134 Literary Interpretation</td>
</tr>
</tbody>
</table>

*English Literature and English Education majors only

III. Oral Communication

Goal: To develop skills necessary to communicate effectively in a variety of professional and academic settings. To gain experience that will allow the student to be confident in his/her ability to communicate orally.

Students will be able to:

1. Successfully present manuscripts, and memorized, impromptu, and extemporaneous speeches
2. Effectively organize a speech incorporating an introduction, body, conclusion, and transitional materials within a specified time frame
3. Construct logical and coherent arguments, gaining and synthesizing research to support opinions
4. Employ accurate grammar, syntax, and word usage demonstrating a fluency in the English language which is appropriate to professional and academic settings
5. Listen critically and formulate reasoned responses to speeches by others
6. Exhibit an audience awareness that allows the speaker to connect in a manner that conveys urgency and personal enthusiasm for the subject

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>LA 2005 Speech</td>
</tr>
</tbody>
</table>

IV. Written Communication

Goal: To communicate effectively in written language and to think critically.

Students will be able to:

1. Engage in critical thinking, reading, and writing
2. Generate essay ideas, create outlines, and organize writing
3. Prepare rough copies, final drafts, and revisions of writing assignments
4. Research sources in the library, computer databases, and the Internet
5. Clearly communicate their solutions to others

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>EN 1101 English I</td>
</tr>
<tr>
<td></td>
<td>EN 1111 Advanced English I</td>
</tr>
<tr>
<td></td>
<td>EN 1201 English II</td>
</tr>
<tr>
<td></td>
<td>EN 1211 Advanced English II</td>
</tr>
</tbody>
</table>

*Students may not take English I and Advanced English I
All prerequisites must be satisfied

V. Mathematical Literacy

Goal: To increase students’ knowledge of mathematical modes of thinking; to develop students’ skills in applying these mathematical modes of thinking to real world problems; to increase students’ appreciation for the breadth of mathematical application, and to help students apply mathematics and/or statistics to help them to make decisions in their careers and their lives.

Students will be able to:

1. Translate real world problems into mathematical models
2. Use basic mathematical skills (algebraic, logical, estimation and/or graphical) to solve these problems
3. Interpret these solutions in real world terms
4. Recognize the validity or invalidity of their conclusions in real world contexts
5. Clearly communicate their solutions to others

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
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<tbody>
<tr>
<td>6</td>
<td>MP 1102 College Algebra</td>
</tr>
<tr>
<td></td>
<td>MP 1205 Finite Mathematics</td>
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<td></td>
<td>MP 1203 Elementary Functions</td>
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<tr>
<td></td>
<td>MP 1204 Calculus I</td>
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<td></td>
<td>MP 1206 Geometry</td>
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<td></td>
<td>MP 2114 Business Statistics I</td>
</tr>
<tr>
<td></td>
<td>MP 2214 Business Statistics II</td>
</tr>
<tr>
<td></td>
<td>*MP 4132 Symbolic Logic</td>
</tr>
</tbody>
</table>

*CBIS Students only

VI. Computer Literacy

Goal: To familiarize students with the fundamentals of basic computer hardware and software and the hands-on use of career-oriented application packages.
Students will be able to:
1. Understand the features of computers and their role in information technology
2. Demonstrate a working knowledge of basic computer applications
3. Create, access, organize, and communicate information using computer technology
4. Understand how to make informed choices in the use of computer technology
5. Use computer technology ethically and responsibly

3 credits
IT 1011 Information Technology
Concepts 1.5 credits
IT 1012 Computer Applications 1.5 credits
(It is strongly recommended that IT 1011 and IT 1012 are taken during the same semester)
IT 1031* Intermediate Computer Applications 3 credits
*For CBS majors only pending successful performance on departmental diagnostic exam

VII. Social Science
Goal: To gain an understanding of theories, interpretations, and content related to social relations, human thought, social organization, and response and change.

VII.A: Social Awareness
Goal: To assess and explore the implications of communal and social differences and their interconnections with action and living an informed life.

Students will be able to:
1. Appreciate individual and group differences, emphasizing the dynamics of race, gender, culture, sexual orientation, age, class, and/or disabilities
2. Analyze and evaluate attitudes, behaviors, concepts, and beliefs regarding diversity and prejudice
3. Use, critique, and communicate alternative explanations or solutions for contemporary social issues and problems

3 credits
LA 4037 Non-Western Societies 3 credits

VII.B: Social Science
Goal: To appreciate and evaluate how social scientists describe and explain the behavior and interactions among individuals, groups, institutions, events, and ideas.

Students will be able to:
1. Employ the methods and data that scholars use to investigate the human condition
2. Examine social institutions and processes across a range of times and cultures
3. Respond critically to social and behavioral theories
4. Understand key fundamental concepts, like justice and liberty, and be able to apply them to specific issues

6 credits
*BA 2008 Macroeconomics 3 credits
LA 2012 Introduction to Sociology 3 credits
LA 2036 Introduction to Psychology 3 credits
LA 4203 Social Psychology and Human Interaction 3 credits

* required for all students

VIII. Humanities
Goal: To engage in critical analysis to develop perspectives on the past and a meaningful understanding of the present. Students will develop an appreciation of these disciplines as fundamental to the health and survival of this increasingly global society.

Students will be able to:
1. Develop awareness for globalization and an ability to apply a comparative perspective to cross-cultural social, economic, and political experiences
2. Recognize the diversity of global political motivations and interests
3. Using primary and secondary sources, analyze, describe, and evaluate economic, social, religious, and cultural factors that influence international relations
4. Understand the roles and responsibilities associated with being a “world citizen”
5. Gain exposure to varied schools of thought to facilitate greater understanding of historical issues
6. Enhance communication and writing skills through group discussion, argumentative essays, oral reports, and research papers

6 credits
LA 2040 Modern History of Western Societies 3 credits
LA 2042 Introduction Philosophy 3 credits
LA 2138 History of Western Civilization I 3 credits
LA 3032 American History and Government Since 1933 3 credits
LA 4127 United States Foreign Policy 3 credits
Academic Regulations

IX. Health and Well-Being
Goal: To expand students’ knowledge of the human condition including how their bodies work, are cared for, and fueled, in order to lead a healthy life.

Students will be able to:
1. Engage in an activity which is designed to develop a level of fitness which will enable them to function at peak efficiency
2. Understand the importance of physical fitness and its carry-over values in life
3. Critically discern and analyze individual dimensions of health
4. Interact with others in a specific physical activity
   2 credits
   PE 1109 Physical Education I  1 credit
   PE 1209 Physical Education II 1 credit

X. Information Literacy
Goal: To access all forms of print and electronic information effectively and efficiently and use these resources across all curriculums

Students will be able to:
1. Critically evaluate information for its appropriateness and reliability
2. Understand the ethical issues surrounding the use of information
3. Be familiar with the specialized resources for the respective majors

XI. Critical Thinking
Goals: To develop students’ critical thinking, communication and problem-solving skills; to increase students’ ability to apply these skills to problems in various academic disciplines and in their personal lives, and to empower students to benefit fully from interrelationships between the disciplines.

Students will be able to:
1. Gather and organize information of various kinds, employing formal or informal tools to represent information in useful ways
2. Organize their thoughts
3. Weigh evidence for and against hypotheses
4. Recognize, construct and evaluate arguments to support points of view
5. Make informed decisions based on the merits of their choices

6. Apply appropriate critical and evaluative principles to texts, documents or works (their own and others’) in various mediums
   1 credit
   LA 1020 Skills for College Success
   (or LA 1225 Critical Thinking for transfer students with 28 or more credits)

Course Challenge
Students in good academic standing (2.0 GPA or higher) who believe they have at least an average (“C” or better) competence in a course’s subject matter may petition the Registrar’s Office to challenge the course. Not all courses may be challenged. All prerequisites must be satisfied prior to challenging a course. The student may not have been previously registered for the course. Unsuccessful challengers are not permitted to challenge the same course again. The fee for a course challenge is not included in regular tuition charges. The student will consult with the Chairperson of the course’s department to request an appropriate instructor to administer the challenge. The instructor will determine the basis upon which the challenge will be assessed and will confer with the student in preparing a portfolio of evidence in support of the student’s contention of competency. A successful course challenge is graded with a grade of “CC” which does not affect the GPA. Students may petition to challenge a course at any time during the semester, but the challenge must be completed within the semester in which it was approved.

Credit Hour Policy
(1) Delaware Valley College defines a traditional semester hour of credit as follows: 50 minutes per week in class; at least two hours of study outside of class; 15 weeks of instruction (including exam week). A minimum full-time load is 12 credit hours per semester. Coursework that is offered in an alternative or non-traditional format must include an appropriate amount of in-class instruction and study outside of class in a manner that will ensure the student is able to achieve the course outcomes as outlined in the course syllabus; or
(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by Delaware Valley College including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.
Diagnostic Testing Requirements

Diagnostic Testing is required for all new students at Delaware Valley College as a measure of support for students in preparing them for a successful college experience by placing them into courses and programs that match their skill level. The diagnostic tests are described below along with the requirements for each of the subject areas. Skill in English, Mathematics, and Reading is necessary in every program of study. Therefore, Delaware Valley College tests incoming students in English and Mathematics in much the same way as every other college or university.

It is strongly recommended that students who are required to take two or more of the developmental courses (English Essentials, Basic Mathematics, College Reading) enroll in one or more of these courses prior to coming to Delaware Valley College. These courses may be taken at Delaware Valley College during the summer or at any other post-secondary institution.

English Diagnostic Testing

All incoming students are required to complete the SAT Essay prior to registering for their first English course. Exceptions are as follows:

• Students who have received transfer credits in English Composition
• Students who have received a score of 3 or better on the AP English exam

The SAT and ACT essays are designed to assess the student’s preparedness for college-level courses offered by the English department. Based on the results of these exams, the English department will recommend which course is most appropriate for the student. Because the goal of the diagnostic testing process is to maximize the opportunity for success, the student may not register for a course at a level higher than the English Department’s recommendation.

Mathematics Diagnostic Testing

All students who are new to the College are required to take one or more mathematics diagnostic tests prior to registering for their first mathematics course. Some exceptions are as follows:

• Students who have received AP credit for MP 1204
• Students who have received transfer credit taken at another institution and approved by the Mathematics and Physics Department as equivalent to MP0010, MP1102, MP 1203, MP 1204, or MP 1205
• Students who have not completed Algebra in High School (such students must enroll in MP 0009, High School Algebra II)

The diagnostic tests, which are administered during orientation programs at the College, are designed to assess the student’s preparedness for college-level mathematics courses offered by the Mathematics and Physics Department. The number of tests required depends on the mathematics course in which the student hopes to begin his/her study. Based on the results of the tests taken, the Mathematics and Physics Department recommends a course for the student. The student may, for the purpose of review, choose to begin in a course at a subject level lower than that recommended by the Mathematics and Physics Department (for example, a student who is recommended for MP 1204 Calculus I may choose to enroll in MP 1203 Elementary Functions, which is a prerequisite course for MP 1204 Calculus I); however, because the goal of the diagnostic testing process is to maximize the opportunity for success, the student may not register for a course at a subject level higher than the Mathematics and Physics Department’s recommendation.

Disruptive Behavior

Disruptive behavior in the classroom is defined as any behavior that interferes with the process of teaching and learning. The disruptive behavior in the classroom policy is not limited to time spent in a traditional classroom, but extends to all academically related activities. Disruptive behavior, which may inhibit or interfere with normal classroom operation, includes but is not limited to:

• Refusal to comply with faculty direction
• Vulgar or Offensive Behavior
• Inappropriate, disrespectful, or uncivilized responses to the comments or opinions of others immediately before, during, or after class.
• Threats / Challenges to do physical harm.
• Excessive Chattering
• Arriving late / leaving early without a reasonable excuse.
• Use of personal electronic devices, such as cell phones, without permission.
• Harassment, ridicule, or intimidation of other members of the class or the instructor.

If the immediate situation warrants, the faculty member may require the student to leave the classroom or instructional site for the remainder of the class and, if necessary, summon Security to remove the student.
Experiential Learning Program

What is Experiential Learning?
Experiential learning refers to a philosophy and methodology focusing on the application of instruction in and out of the classroom. There are objectives and outcomes planned and articulated prior to the learning experience and measured after the experience. Delaware Valley College recognizes the importance of integrating applied classroom learning with real-world experiences and requires all students to participate in the Experiential Learning Program conforming to the standards of the National Society for Experiential Education (NSEE). Our goal is to inspire students to be actively engaged learners contributing to the greater society.

What is Experiential Learning at Delaware Valley College?
Delaware Valley College’s Experiential Learning Program (ExLP) provides active, hands-on experiences tied to specific academic objectives and outcomes as a requirement for graduation. The program is administered by the Center for Student Professional Development. The program is designed to supplement academic theory and offers students the opportunity to participate in carefully monitored classroom and field-based learning experiences in agency, business, education, and government settings.

Students are given the opportunity to participate in real-world activities as a basis for learning and to develop specific career goals and aspirations. The experience allows students to apply their education and prepare for fulfilling careers. It also satisfies the Experiential Learning Requirement to complete a minimum of two (2) activities prior to graduation. The ExLP requirement can be met through internships, student teaching, career exploration, study abroad, undergraduate research, service-learning, leadership, community service, civic engagement, or other courses with the ExLP designation.

All students will apply and demonstrate what they have learned in their respective field of study, by:
- Being Actively Involved in the Experience
- Reflecting on the Knowledge Gained from the Experience
- Using Analytical Skills to Conceptualize the Experience
- Demonstrating Decision-Making and Problem-solving skills gained from the experience.

Why?
The Experiential Learning Program is designed to prepare students for lives of meaningful work and service. By engaging students in opportunities that integrate knowledge and experience, the ExLP fosters an understanding and life-long appreciation for learning. Students engage in a process that includes preparation, action, and reflection to develop the habits required to learn effectively from experience and the commitment to put knowledge into action as socially responsible global citizens.

Eligibility Requirements
- Credits and Activities needed to participate vary by major
- Credits vary by activity
- Completion of Departmental Pre-requisites
- Approval of the Advisor and Departmental Chairs

Activity Descriptions
Internships- combine career-related work experience with a structured academic learning experience. Work is substantive and supports students’ academic and career goals under faculty supervision to promote critical thinking, observation, and reflection.

Student Teaching- allows students to gain field and professional experience with structured faculty support and supervision of a cooperating teacher. This experience must be a full-time apprenticeship.

Career Exploration Experience- allows students to investigate career options and gain initial experience in related work settings to enhance student skill sets, under professional supervision of Experiential Learning staff and Faculty.

Experiential Learning Courses (Service & Practicum)- allow students to engage in activities that address human and community needs or a one-time work experience together with structured class assignments.

Research- allows students to gain hands-on experiential learning by conducting research in an academic setting. Research must include relevant application to students’ field of study.

Study Abroad- allows students to gain experiential learning abroad in a structured, university-sponsored program with faculty supervision and guidance.

Leadership Program– Leadership involves the need to collaborate with people who work together to create positive change. Ultimately, students in the Experiential Leadership Program will learn that they are responsible for their actions and share the responsibility for the actions of those they can influence. The Leadership Program provides an opportunity to educate students about leadership concepts and theories and also provides learning experiences that allows them to put theory into practice for the sake of their organizations, communities and society.

Community Service- allows students to engage in a formal or informal consultation with local nonprofit
and community-based organizations; it is designed to improve the quality of life for community residents or to solve particular problems related to community needs.

**Civic Engagement**- allows students to engage in an activity that promotes the quality of life in a community through governmental or not-for-profit development of policy and procedure in both political and non-political processes.

**Application**
The student, in consultation with the ExLP Advisor and Department Chair, completes the Experiential Learning application form, which includes potential tasks, and learning objectives. Student, Chair and Site Supervisor sign the form for the student to complete the registration process.

**Academic Credit**
Academic credit is awarded by departments. The total amount of credit varies based upon the nature of the work, the academic projects, and the amount of time spent on the activity. In most cases, a minimum of 40 hours for each credit earned is required.

**Evaluation**
Students evaluate their work experience by examining structure, value, meaning, relation to coursework, and impact on career goals through ExLP forms and via online surveys. Faculty will evaluate and grade student experiential learning activities through academic assignments.
Academic Regulations

Enrollment Status / Class Status

Students are considered to be full-time if they carry 12 or more credits per semester. Only full-time students taking 12 semester credits or more may live on campus. Full-time students are ordinarily limited to an 18-credit schedule each semester. Students in good academic standing may petition the department chairperson for permission to carry additional credits beyond that limit. Students who wish to register for 21 or more credits must have a minimum GPA of 2.8 and must obtain approval from their department chairperson and the Vice President for Academic Affairs. Students are ranked in classes according to the schedule of successfully completed credits indicated below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Credits Completed</th>
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<tbody>
<tr>
<td>Freshman</td>
<td>0-27</td>
</tr>
<tr>
<td>Sophomore</td>
<td>28-59</td>
</tr>
<tr>
<td>Junior</td>
<td>60-91</td>
</tr>
<tr>
<td>Senior</td>
<td>92 and higher</td>
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</table>

Final Exams

The College’s policy is to schedule a final exam for every credited course at the end of each semester in both day and evening classes. The final exam period is utilized to bring closure to courses by evaluating, documenting and/or summarizing the learning experience. Some courses do not lend themselves to a traditional final exam (e.g. speech, techniques, design, and seminar). In these courses the final exam period will be utilized to bring an end to the educational experience using student presentations, individual student conferences or other appropriate educational activities. Exceptions to this policy must be approved by both the Department Chair and area Dean. Final exam periods are 2 hours in length, and can be on Monday through Saturday during final exam week.

Grades

Midterm grades are submitted by faculty in accordance with the academic calendar. Final grades are submitted by the faculty at the end of each semester. Midterm and final grade reports are not mailed. Grades are available to students through WebAdvisor at www.delval@edu. The Registrar’s Office will not report grades to students over the telephone or by email. Students must contact instructors with questions about course grades. All grade challenges must be completed within one year from the time the final grade is issued. Students who require a midterm or final grade report from the Registrar’s Office must request the report in writing.

Graduation and Degree Requirements

Students who plan to graduate must file an application for graduation with the Registrar’s Office. Failure to do so will preclude participation in Commencement.

For May graduation — filing date is February 15.

For December graduation — filing date is October 1.

The Registrar’s Office must be notified of any changes in Graduation plans and students must re-file the application if they fail to meet the requirements for that semester.

The course requirements for each of the degrees the College offers are summarized in the description of each Department’s program (see Programs, beginning on Page 42). All baccalaureate degree programs require satisfactory completion of the coursework specified for the program, including electives, plus 4 credits earned for successful completion of the Experiential Learning Program. The requirements for each degree are the same for all students seeking that degree, regardless of whether they initially enrolled at Delaware Valley College or transferred credits from another institution of higher education.

Students are subject to the academic requirements and policies contained in the catalog in effect during the semester in which the student is first registered as a matriculated student. If that first semester or term is during the summer, the student is subject to the catalog requirements for the following Fall. Students who change majors, minors, and specializations are subject to the catalog in effect at time of declaration. Students who have been inactive for a period of four consecutive semesters will be subject to the effective catalog at time of re-entry.

Evening College students who have applied for degree candidacy through the Department of Continuing Education are not required to take LA 1020 Skills for College Success and PE 1109/1209 Physical Education I/II. The 3 credits for these courses are made up as general electives. Evening College students must consult their program advisors regarding Experiential Learning requirements.

The ultimate responsibility for meeting gradua-
tion requirements rests with the individual student. Faculty advisors and the Registrar’s Office make every effort to assist the student so that college work may be completed within the desired time period. The College cannot, however, assume responsibility for ensuring that the right courses are taken at the right time. Students shall obtain a Program Evaluation from WebAdvisor or request it from the Registrar’s Office to determine their academic status and progress. Deficiencies are noted on the Program Evaluation. It is the student’s responsibility to provide missing transcripts, make schedule changes and, if necessary and appropriate, obtain approved course substitutions to complete the program requirements for graduation.

**Graduation Honors**

Graduation honors are awarded to undergraduate students who have the appropriate grade point average as follows:

- **Cumulative Academic Average**
  - *Summa Cum Laude* (with highest honors) 3.9-4.00
  - *Magna Cum Laude* (with high honors) 3.7-3.89
  - *Cum Laude* (with honors) 3.5-3.69

Students recognized for this academic achievement are awarded an honor cord to be worn in addition to their academic regalia at Commencement. Students achieving *Summa Cum Laude* wear maize and forest green cords; students achieving *Magna Cum Laude* wear maize and white cords; students achieving *Cum Laude* wear a forest green and white cords. Students must complete all academic program requirements prior to Commencement to be recognized for their achievement.

**Commencement: Walking with Outstanding Requirements**

Students who are missing no more than eight credits of required courses and/or electives may be permitted to walk at Commencement without receiving a diploma. Students requesting this privilege must have:

- More than 8 outstanding credits of required courses and/or electives.
- At least a 2.0 cumulative grade point average
- Completed the Experiential Learning Program
- Completed Skills for College Success or Analytical Thinking
- Completed Student Teaching (If Applicable)
- Fulfilled all other Obligations (Financial Etc.) to the Institution
- Submit this request at least one calendar day prior to Commencement.

Students granted this privilege will walk across the stage and have their names read with the rest of the graduating class, and their names will have an asterisk (*) in the Commencement program noting that the degree will be awarded when all outstanding requirements are completed.

**Honors Program**

The Honors Program is an educational enrichment program designed to enhance the educational opportunities and experiences of students admitted to the program by virtue of their exceptional promise (as newly admitted students) or their exceptional performance (as students already enrolled at the College).

The program consists of an Honors Colloquium offered to first- and second-year students followed by independent study programs in the third and fourth years. The Honors Colloquium is a discussion or seminar group that is focused on a broad theme of interest to society. It features guest lecturers, field trips and both faculty- and student-led discussions.

Students who satisfactorily complete all elements of the Honors Program will earn at least seven elective credits during their participation and will have the Honors designation placed on their official record. Their participation in the program is guided by the Honors Council, which oversees the program as a whole, and the specially selected Honors Faculty, who present the program elements.

Inquiries concerning the Honors Program may be forwarded to the Director of Admissions.

**Independent Study**

Matriculated students who have completed 92 or more credits in good academic standing (2.0 GPA or higher) may request to complete up to two courses by directed independent study. This alternative approach is a faculty supervised, self-paced student learning experience. Students should regard an independent study course as being at least as demanding as a regularly scheduled course and allocate the necessary resources of time and energy. Not all courses are available in an independent study format. Students must first make application to the Office of the Registrar within five business days of the start of a semester. A course syllabus, from the instructor of record, must be submitted to the Registrar before final approval is granted to begin the independent study. A copy of the syllabus will be forwarded to the appropriate department chairperson. The independent study must be completed and graded within the semester in which it is registered. In cases where a student is seeking an independent study to complete
Academic Regulations

a graduation requirement, a student must pursue all other options in conjunction with the academic advisor to complete the requirement to obtain approval. Alternative options include, but are not limited to, DVC evening courses, course substitution, transferring an approved course from another institution, and deferring a course to a future semester. Independent study fees are not included in regular full-time tuition charges. Independent studies are charged by the credit and will be processed by the Bursar’s Office once all necessary approvals are obtained by the student.

International Baccalaureate Organization
Students who have completed International Baccalaureate (IB) courses at either the “Higher Level” (HL) or “Standard Level” (SL) and have successfully completed the corresponding IB examinations and obtained a score of 5 or higher on the Higher Level (HL) or a 7 or higher on Standard Level (SL) examinations may be entitled to credit at Delaware Valley College. Students should have official exam scores sent from IBO to Delaware Valley College. Review of exam scores and determination of credits awarded will be made by the appropriate department chairperson.

Leave of Absence (Hiatus)
Students may request an official leave of absence by providing a written, signed and dated request for a leave of absence to the Registrar. The request must include the reason for and dates of the absence and the expected date of return. Approval for the leave of absence will take into consideration the reason for the absence and that there is a reasonable expectation that the student will return to Delaware Valley College. The total number of days of the student’s combined approved leave of absence cannot exceed 180 days in a 12-month period. If a student fails to return from an approved leave of absence, the student will be withdrawn from the institution. The last date of attendance will be the date of withdrawal.

Major: Declaring a Major
Students must declare a major prior to the registration period following their successful completion of 36 credits. A student with more than 36 completed credits may not be Undeclared (Day students) or listed as No Program (Continuing Education students). Day students must complete a Declaration of Major form (available at the Registrar’s Office). The approved form must be returned to the Registrar’s Office for the change to go into effect. Continuing Education students must complete an Application for Degree Candidacy form, which is available from the Continuing Education Office. Requirements for the completion of the degree are determined by the program requirements that are in effect on the date of the declaration.

Minor: Declaring a Minor
Students who wish to fulfill requirements for a minor must complete all credits before graduating from Delaware Valley College. Students may minor in any subject outside his/her academic major. The following applies:
1) the minor will consist of a minimum of 15 credits;
2) a minimum of 9 credits must be taken at Delaware Valley College;
3) approval by major and minor department chair or program director is required;
4) courses required for the major cannot be used to satisfy minor requirements.

Nontraditional Credits
Students may earn credits toward their degree via a variety of nontraditional strategies. Credit may be earned for successful completion of Advanced Placement Examinations (score of 3 or better) administered to high school students by the College Entrance Examination Board. Students who have acquired proficiency in a subject may elect to gain credit for that proficiency by satisfactorily completing either the College Level Examination Program (CLEP) or the DANTES program, both of which are administered by the Educational Testing Service. Credits earned through these programs are treated as transfer credits. Delaware Valley College’s Department of Continuing Education is an approved site at which CLEP tests may be taken. Contact the Department of Continuing Education for information.

Online Courses
Online courses are college level courses taught over the internet. Delaware Valley College offers a number of courses online each semester. Online student requirements are:
• A disciplined, self-motivated student
• A mandatory distance learning fee

In order to use Blackboard, the college’s online course platform you must meet the minimum system requirements.
Readmission
Students who have withdrawn from the College may apply for Readmission through the Office of the Registrar. Application for readmission to the College must be received by the Registrar’s Office no later than 30 days prior to the semester start date. Students who have had two years of inactivity (four consecutive semesters) may be required to satisfy the program requirements in effect at the time of readmission. The department Chairperson in consultation with the Registrar will evaluate the completed courses and determine the requirements that must be satisfied for graduation.

Remedial Coursework / Institutional Credit
College preparation courses that are remedial or developmental (College Reading, Learning Strategies, Career Explorations, Fundamentals of Algebra, English Essentials and CHOICES Seminar) do not count toward graduation requirements. The grades for these courses are not counted in the cumulative GPA, and they are not counted as electives. Remedial or developmental courses are counted during the semester in which they are being taken for enrollment and financial aid purposes, but are not included in the completed credits. For instance, a student takes 15 credits in his freshman year, 6 of those credits are for remedial courses. The student is considered full time in that semester, but will have only 9 completed credits at the end of that semester. This could have an effect on the student’s eligibility for financial aid in his/her sophomore year. Remedial courses taken at other institutions will not be placed on the Delaware Valley College transcript.

Repeating Courses
Courses may be repeated an unlimited number of times. Although the course will appear with a grade each time it is taken, only the highest grade is calculated in the GPA and credit is received only once. The grade for a course repeated after graduation is replaced; however, the original grade remains in the graduation GPA. Courses may be repeated at another institution; see Transfer Credits from Regionally Accredited Institutions for policy on transfer credits.

Three-plus-One Program: Early Professional School Admission
Students wishing to apply for early admission to professional school may apply for the Three-plus-One Program. Applications for this program must be submitted to the Registrar’s Office before May 1 of the sophomore year. For more specific details, contact the appropriate Department Chairperson (Animal Science, Biology or Dairy Science), in the department this program is offered. Applications are available at the Registrar’s Office.

Transcript of Academic Record
The transcript of a student’s academic record is available in both unofficial and official form. The unofficial transcript is available to students through WebAdvisor for his or her own private use. Unofficial and official copies of a student’s academic transcript are available from the Registrar’s Office. The official academic transcript is printed on safety transcript paper, bears the College seal and the Registrar’s signature.

In accordance with FERPA regulations, no student’s academic record will be released to a third party without the student’s written permission.

The request for a copy of the academic transcript, unofficial or official, must be made by the student in writing, and must include the student’s signature, student ID number, name and dates of attendance at Delaware Valley College. Requests for copies of academic transcripts are fulfilled by the Registrar’s Office within three to five business days. There is a fee for an official transcript. The College will withhold the official transcript if financial obligations to the College have not been met.

Transfer Credits
Students transferring to Delaware Valley College from other regionally or nationally accredited institutions of higher education as baccalaureate candidates must complete at least 48 credits of coursework at Delaware Valley College, including at least 15 credits in the major. The maximum number of credits accepted for transfer will be 78. Only credits for courses in which a grade of “C” or better has been earned are accepted for transfer and only the credits (not the grades or quality points) are transferred. A grade of “D” will be accepted when the course is the first in a two-course sequence and the second course grade was a “C” or better. A grade of “D” will also be accepted when it is part of a completed higher education degree (associate degree).

Prospective, full-time undergraduate transfer students should make application to DelVal by contacting the
Academic Regulations

Admissions office. The Admissions Office will evaluate transfers interested in full-time undergraduate study. Continuing education students should contact the Continuing Education office for admissions criteria and transcript evaluation.

Transfer Policy for Experiential Learning:
• Students who transfer 27 or more credits must complete the Employment Program as part of the graduation requirement.
• 27 credits-59 credits must complete 5 hours of related work experience.
• 6 credits and above must complete 25 hours of related course experience.
• Students who transfer less than 27 credits must complete the Experiential Learning Program as outlined in the academic program requirements.
• Continuing Education students should contact that office to determine if current (and previous) work experience will satisfy the Experiential Learning program.

Evaluation of Credits for Second Bachelor’s Degree
Students who come to Delaware Valley College for a second degree who have an earned baccalaureate degree from another accredited institution will have the baccalaureate transcript evaluated by the respective department chairperson to determine the required coursework to complete the second degree. A grade of “D” will be accepted when it is part of a completed higher education degree (associate degree). Students must complete at least 48 credits at DelVal with a minimum of 15 credits in the major, and also complete one credited activity of the Experiential Learning Program.

Internal Second Bachelor’s Degree
Students that have previously earned a bachelor’s degree at Delaware Valley College must complete a minimum additional 30 credits of coursework. The Core curriculum classes from the initial bachelor’s will be applied to the second degree. Students must complete all major program courses as outlined by the college catalog. The second degree student will be subject to the current catalog in place upon the student’s return for the second degree. Second degree candidates should consult their advisors about Experiential Learning Requirements. Students can not use general or restricted electives that were applied to the initial bachelor’s degree.

Withdrawal from the College
The College defines “official withdrawal” as a systematic process whereby the student notifies the Registrar’s Office of his or her intent to withdraw from all classes at the College.

Non-attendance of classes is not an official withdrawal from the College. It is the student’s responsibility to complete the official withdrawal form or contact the Registrar’s Office, either in person (preferred) or by telephone. If a student simply stops attending classes, but has not notified the Registrar of his or her intention to withdraw from the College, that student will receive the grade of “FA” for all classes.

Additionally, federal law requires that students on financial aid must have an exit interview with the Financial Aid Office upon withdrawal from the College. Failure to comply with this federal regulation may adversely affect future financial aid.

When a student withdraws from the College during the semester, the authorized date of withdrawal will be recorded in the student’s permanent file and reported to the National Student Clearinghouse. If a student withdraws from the College by the last day of classes, the student will receive the grade of “W” for every course. The grade of “W” carries neither credit nor penalty. If the student withdraws from the College after the last day of classes (i.e. during final exam week), the student will receive the grade that was earned for every class.
Continuing Education

The Office of Continuing Education offers high quality, academic education for adults seeking undergraduate degrees through part-time study. The Continuing Education staff provides academic advising for those students seeking information about transfer courses, degree options, or resources related to career options. The goal of the Office of Continuing Education is to provide exceptional customer service to our students. The Division is eager to serve its students at the highest level of service possible.

Delaware Valley College provides a variety of career-oriented degree programs. Students can complete their degrees through part-time (11 or fewer credits per term), evening, online or daytime study. Others who wish to improve their skills for their jobs or to develop new career opportunities can do so by completing study in our numerous certificate programs.

Individuals wishing to pursue part-time studies during the day are welcome. Most of the college’s degree programs are available to part-time day students. It is advisable for part-time day students to meet with a representative of the Office of Continuing Education Office and with the Department Chairperson of the degree program in which they are interested.

Current students are encouraged to meet with an academic advisor to review their record and discuss registration options, new career changes, and more. Appointments are available weekly and are scheduled at the student’s convenience.

ASPiRE Program
The ASPiRE Program is an accelerated degree completion program designed for adult students who have earned at least 45 credit hours and have a minimum 2.0 GPA. The program is a cohort program where students complete their degree requirements with the same group of adults with which they started. Cohorts begin every September and January. Following the cohort schedule, students will be able to complete their undergraduate degree requirements in less than 20 months.

Evening College Programs
The College’s Evening College provides the opportunity for students to participate in classes that meet once a week (twice with lab courses) with a class schedule that is considerate of the adult student’s other commitments.

The following programs may be taken and completed through the Evening College. Please check the appropriate department listing in this catalog for requirements, prerequisites and course descriptions.

Associate of Science Degrees
Business Administration

Bachelor of Science Degrees
Biology
Business Administration (specializing in Accounting, Financial Services, General Business, Management, and Marketing)
Chemistry
Criminal Justice Administration

Not all courses in every program may be available through the Evening College. Please contact the Continuing Education Office for further information.

Certificate Programs
Certificate programs help adults develop their skills in a variety of specialized areas. Certificate programs usually enable individuals to “step-up” to an associate or baccalaureate degree. All courses are credit-bearing courses and can be applied toward a degree. One-half of the required courses must be taken at Delaware Valley College and a 2.00 GPA is required for completion.

Credit Certificate Programs in:
Accounting (30 cr.)
Ecological Landscape Design (36 cr.)
Environmental Studies (18 cr.)
Floral Business (32 cr.)
Continuing Education

**Certificate Requirements**

**Accounting (30 cr.)**
The Accounting Certificate Program is for students who already have an earned bachelor’s degree, and consists of courses that are required to sit for the CPA exam.
- BA 2210 Microeconomics
- BA 2161 Business Law I
- BA 3209 Auditing
- BA 3127 Finance
- BA 3128 Intermediate Accounting I
- BA 3239 Intermediate Accounting II
- BA 4036 Federal Corporate Income Tax
- BA 4144 Advanced Accounting
- BA 4236 Federal Income Tax
- BA 4242 Cost Accounting

**Ecological Landscape Design (36 cr.)**
The courses for this certificate program should be taken in the following order: Tools (T), then Design Studio (DS) and then Management (M).
- LAES 2004 Soils (T)
- LAES 3107 Environmental Geology (T)
- BY 2235 Plant Communities (T)
- IT 3220 Computer-Aided Design (T)
- LAES 2118 Woody Plant Identification II (T) (2 cr.)
- LAES 2220 Woody Plant Identification I (T) (2 cr.)
- LAES 3117 Herbaceous Plant Materials I (T) (2 cr.)
- LAES 3130 Major Native Landscapes (DS)
- OH 3205 Site Analysis & the Design Process (DS)
- OH 3213 Landscape Graphics (DS) (2 cr.)
- LAES 3217 Herbaceous Plant Materials II (T) (2 cr.)
- LAES 3215 History of Landscape Architecture (M)
- OH 4215 The Built Environment (DS)
- LAES 4125 Ecological Landscape Management & Restoration (M)
- LAES 4230 Landscape Contracting & Bidding (M)

**Environmental Studies (18 cr.)**
It is strongly recommended that college level courses in chemistry, biology, and mathematics be completed before enrolling in the Environmental Studies Certificate program.
- LAES 2004 Soils
- LAES 3125 Principles of Ecology
- LAES 3140 Environmental Impacts
- LAES 3220 Watershed Management
- LAES 4015 Regional Land Use Planning

Plus one of the following courses:
- LAES 3107 Environmental Geology
- LAES 4025 Climatology
- LAES 4016 Hydrogeology

**Floral Business (32 cr.)**
- BA 1005 Introduction to Business
- BA 1010 Management Concepts
- PS 2014 Floriculture Techniques
- OH 2120 Floral Business Management
- OH 3020 Basic Design (1 cr.)
- PS 3106 Floral Crop Production I (2 cr.)
- LAES 3117 Herbaceous Plant Materials I (2 cr.)
- PS 3208 Floral Crop Production II (2 cr.)
- LAES 3210 Interior Plantscaping
- LAES 3217 Herbaceous Plant Materials II (2 cr.)
- LAES 3232 Introductory Floral Design
- LAES 4145 Advanced Floral Design (2 cr.)
- PS 4209 Greenhouse Management

**Post Baccalaureate Accelerated Certification for Teachers (PACT)**
The Delaware Valley College Post Baccalaureate Accelerated Certification for Teachers (PACT) is designed to provide students with the skills, competencies and experiences necessary to become a successful teacher. Upon completion of the PACT program students will be eligible to apply for Instructional I certification which is required to teach at the secondary level in public schools throughout the state. Delaware Valley College offers certification in the following areas: Agriculture, Biology, Business/Computers/Information Technology, Chemistry, General Science, English, Mathematics, and Social Studies.

Criteria for Admission to the PACT Program are as follows:
- Baccalaureate Degree in the content area with a GPA of 3.0 or higher
- Successful completion of the Praxis II in the content area
- Evidence of compliance with PA state health regulations for teachers
- Valid PA Child Abuse Clearance
- Valid FBI Clearance
- A writing sample
- An interview

PACT is designed to be completed in as little as eighteen months from the start of the first course to the completion of student teaching. This time frame will vary according to the availability of classes, student teaching assignments, as well as the work ethic and desire of the student.

Students enrolled in the PACT Program at Delaware Valley College.
Valley College must successfully complete twenty-one credit hours of required education courses corresponding field experiences which meet the competencies required by the Pennsylvania Department of Pennsylvania. Students must also successfully complete a semester of supervised full time student teaching.

The seven required courses are offered in cohort groupings and run on accelerated six-week schedule. Courses typically occur on Monday and Wednesday or Tuesday and Thursday evenings. Student teaching will be offered once all courses and field experience requirements are successfully completed.

**High School Honors Program**

High School junior and senior students with a C+ or better average may take courses for credit at Delaware Valley College. This is an excellent way for these students to gain advanced standing at their future college or university. To receive approval, the students must have a letter of recommendation and a transcript from their guidance counselor sent to Delaware Valley College which states that the student demonstrates the knowledge, ability and maturity to take a college level course(s) for credit. The letter is to be addressed to the Director of Continuing Education for approval.

Upon approval, the Registrar will be notified to permit the student to register. These students may take one course per semester or summer session.

If a high school senior is certified by the high school to have completed all academic requirements for graduation by January, and meets Delaware Valley College’s admission requirements, the student may enroll as a part-time or full-time commuter student for the spring semester.
Academic Services for Continuing Education

Advising
All new and current students are encouraged to meet with an advisor in the Division of Continuing Education at least five weeks prior to registration. Advising for evening and part-time day students is done through the Division of Continuing Education. Call the Office of Continuing Education to schedule an appointment.

Evaluation of Transcripts
The College has articulation agreements with many colleges and private schools. These agreements facilitate the transfer of coursework into Delaware Valley College’s degree programs. There is no time limit on transfer credit, and only college level courses which have earned a grade of “C” or better will transfer. Individuals wishing to have their prior coursework evaluated may have copies of their previous academic transcript sent or faxed to the Office of Continuing Education (215-345-1599) for review, stating the intended major. You will then be invited to meet with an advisor to review your previous coursework and determine an educational plan that works for you. Unofficial copies of transcripts may be submitted for an initial evaluation, however, official transcripts are required to apply for degree candidacy.

Procedure for Degree Candidacy
Schedule an interview with either the Continuing Education staff and meet one or several of the following criteria:
• 2.0 Grade Point Average in previous college (post-secondary) work
• Already possess a Bachelor’s Associate’s degree
• Submit high school diploma or if student is not applying for financial aid and has previously attended another college with a GPA of 2.0 or higher, only the official college transcript will be required

If a student’s previous high school or college work is deemed to be deficient (less than a GPA of 2.0, “C” average), the student will receive Conditional Approval for Degree Candidacy. The student will be required to take at least two three-credit courses (6 credit hours) at Delaware Valley College and achieve at least a “C” in each course, after which the “conditional” status will be removed. Application forms for Degree Candidacy are available from the Continuing Education Office and at the college’s website.

Academic Standing
Continuing Education students are expected to maintain normal academic progress in their respective degree programs. Please refer to the Academic Progress section of the catalog under Academic Regulations for an explanation of the required progress standards.

Dean’s List
Evening students who are degree candidates and who complete six credits and earn a grade point average of 3.5 or higher in a semester or term will be placed on the Dean’s List at the conclusion of the Fall and Spring semesters. ASPIRE students follow the same criteria for each term. The six credits must be taken in the same semester or term and may not be split between semesters or terms.

Alpha Sigma Lambda
Delaware Valley College is a member of Alpha Sigma Lambda, the national honor society for adult students. Continuing Education students are considered for induction into Alpha Sigma Lambda if they are matriculated, have a cumulative GPA of 3.2 or higher, and have taken a minimum of 30 credits at the College. The top 10% of this group is selected for induction into Alpha Sigma Lambda each spring.

Non-traditional Credits
Students may earn credit toward their degree through a variety of non-traditional strategies thereby reducing the amount of time to earn a degree.

American Council on Education – ACE Credit
Delaware Valley College grants credit for military experience based on the American Council on Education (ACE) guidelines. Students who wish to receive such credit must provide a copy of their SMAR T or AARTS transcript for evaluation. ACE credits are noted with a grade of “TR” which does not affect the GPA.

College Level Examination Program – CLEP
Proficiency in a subject may be validated by satisfactory completion of the College Level Examination Program test offered through Educational Testing Service. These tests are taken in the Office of Continuing Education. Credits earned through CLEP receive a grade of “CL” which does not affect the GPA.
**Course Challenge**

Students in good academic standing (2.0 GPA or higher) who believe they have at least an average (“C” or better) competence in a course’s subject matter may petition the Registrar’s Office to challenge the course. Not all courses may be challenged. All prerequisites must be satisfied prior to challenging a course. The student may not have been previously registered for the course. Unsuccessful challengers are not permitted to challenge the same course again. The fee for a course challenge is not included in regular tuition charges. The student will consult with the Chairperson of the course’s department to request an appropriate faculty member to administer the challenge. The faculty member will determine the basis upon which the challenge will be assessed and will confer with the student in preparing a portfolio of evidence in support of the student’s contention of competency. A successful course challenge is graded with a grade of “CC” which does not affect the GPA. Students may petition to challenge a course at any time during the semester, but the challenge must be completed within the semester in which it was approved.

**Independent Study**

Matriculated students who have completed 92 or more credits in good academic standing (2.0 GPA or higher) may request to complete up to two courses by directed independent study. This alternative approach is a faculty supervised, self-paced student learning experience. Students should regard an independent study course as being at least as demanding as a regularly scheduled course and allocate the necessary resources of time and energy. Not all courses are available in an independent study format. Students must first make application to the Office of the Registrar within five business days of the start of a semester. A course syllabus, from the instructor of record, must be submitted to the Registrar before final approval is granted to begin the independent study. A copy of the syllabus will be forwarded to the appropriate department chairperson. The independent study must be completed and graded within the semester in which it is registered. In cases where a student is seeking an independent study to complete a graduation requirement, a student must pursue all other options in conjunction with the academic advisor to complete the requirement to obtain approval. Alternative options include, but are not limited to, DelVal evening courses, course substitution, transferring an approved course from another institution, and deferring a course to a future semester. Independent study fees are not included in regular full-time tuition charges. Independent studies are charged by the credit and will be processed by the Bursar’s Office once all necessary approvals are obtained by the student.
Center for Student Professional Development

Dr. Benjamin Rusiloski, Executive Director
Tracy DePedro, Director of Career Services
Deanna Parkton-Advisor
Darrah Mugrauer- Advisor
Matthew Kaminski-Lucas- Study Abroad Coordinator
Priscilla Jackson- CSPD Coordinator

The Center for Student Professional Development assists students of Delaware Valley College in fulfilling the Experiential Learning Program and executing their career goals. We serve as the bridge between college experiences and employment or graduate school assisting students and alumni in applying what they have learned. By providing comprehensive resources, programs and counseling on career development, employment, and graduate school, the office assists students and alumni with making career decisions, connecting with employers and attaining their life goals.

Mission

The mission of the Center for Student Professional Development is to provide guidance and resources to our student body for the achievement of their career-related goals.

In partnership with the students and alumni, the office will facilitate lifelong career development through self-awareness, career exploration, career decision-making and the implementation and reflection of career choices.

In partnership with the faculty and college staff, the office will administer the Experiential Learning Program and provide coaching and resources for students and alumni to aid in achieving career-related goals.

In partnership with alumni, parents and employers, the office will develop informational and experiential networks that involve them as resources in support of the career development of the students.

In partnership with employers, the office will maintain existing and develop new relationships with a base of employers who have an ongoing interest in employment potential and careers of students and alumni.

* For information about the Experiential Learning Program see page 24-26.

Learning Center

James Yard, Coordinator

The Learning Center, located on the second floor of Segal Hall, is an important campus resource that provides individual and group tutoring by appointment in a variety of subjects. While tutoring is available in many upper division courses, the Learning Center’s primary focus is on freshman and sophomore level core courses. To schedule tutoring, students should complete a Tutoring Request Form and submit it to the Learning Center. The Tutoring Request Form is available in the Learning Center or online on the college website.
Student Affairs

The Student Affairs area consists of the Office of Student Health Services, Residence Life, the Office of Involvement the Counseling Department and the Learning Support Services Office (Disabilities) in addition the Department of Athletics reports to the Vice President of Student Affairs. Our mission is to work within the College Mission to facilitate the development of the total person and affirm that campus life is an essential part of the educational process. By offering educationally purposeful activities, Student Affairs profession- als foster citizenship, community and leadership development and the acceptance of differences in a climate of support and challenge.

New Student Orientation
Success at Delaware Valley College begins with a smooth transition from high school (or another college) to DelVal. The College’s two-part orientation program helps facilitate this transition. The June orientation program focuses on preparing students for their academic entrance into Delaware Valley College by providing required testing and academic advising sessions for all new students. The orientation program also focuses on welcoming students and families to the College through activities that introduce them to members of the DelVal community. The August Weekend of Welcome is a more intense introduction and integration of new students into college life. Activities are designed to prepare students for many aspects of academics and student life that they might experience as a new student at Delaware Valley College. Participation in both programs is mandatory.

Orientation Leaders are students who assist in the welcoming of new students during the summer and fall orientation programs. These students act as friendly contacts and resources as new students make their transition to the College. This is a paid position open to upperclassmen students with a minimum cumulative GPA of 2.5. In addition, these Orientation Leaders will be meeting with groups of new incoming students during the fall semester.

Residence Life
The College provides on-campus housing accommodations for over 1,000 undergraduate students. The 9 residence halls provide an array of living experiences including traditional setting, suite-style setting, co-ed and single gender (female). Additionally, on-campus students enjoy amenities including cable TV, a MicroFridge, high-speed internet (all residence halls are wireless), laundry facilities, computer labs, TV lounges, newspapers, and vending machines. All policies and procedures pertaining to the residence halls can be found in the Student Handbook.

On-campus residents are supported by a staff of 4 professional Area Coordinators (AC’s). These staff members live on campus and are on-call 24 hours a day to respond to campus emergencies. They also manage the daily needs of residents, including conflict management, referral to mental and medical health services, social activities, and supervision of the Resident Assistants.

Resident Assistants (RAs) are students who are selected to serve as mentors, resources, and peer leaders. RAs undergo a rigorous selection and training process in preparation for this job. The primary purpose of the RA is to create and sustain an inclusive and respectful environment that supports academic and social activities. Residents are encouraged to consider applying for the RA position, one of the most esteemed student leadership positions on campus.
Clubs and Organizations

The College believes that co-curricular activities are a vital part of the total college experience. A wide range of co-curricular clubs, organizations and activities are available to allow students to explore interests outside the traditional classroom environment. They also provide students with opportunities to develop leadership skills, establish new personal relationships, and broaden their exposure to real-world opportunities.

The Student Government Board and the organizations within it play a principle role in the governance and operation of many student activities. Student Government Board representatives and officers are elected by the students. The organization, functions, and responsibilities of the Student Government are detailed in its constitution which is published in the Student Handbook (a copy of which is provided to each registered student and is available online).

The various clubs and organizations on campus (listed below) act as the primary conduit for student interests and provide a variety of opportunities for involvement. These groups plan and organize numerous activities including movies, concerts, speakers, field trips, workshops, dances, and more. Some of them are affiliated with a specific major or with a special interest within a major; some are service-oriented; still others speak to student interests wholly outside the College’s programs. Students are encouraged to become actively involved in activities that meet their individual interests and needs.

Student Government
A-Day Committee
Commuter Student Association
Homecoming
Inter-Club Council
Inter-Greek Council
Minority Relations Council
Residence Hall Association
Student Activities Council
Student Government Board

Campus Media
Cornucopia (Yearbook)
Gleaner (Literary Journal)
Ram Pages Student Newspaper

Major/Career Related Clubs
Agronomy
Animal Science Society

Biology Club Block
and Bridle Chemistry
Club Criminal Justice
Club Dairy Society
Engaging Designers for a Green Environment (EDGE)
Education Club
Floral Society
Food Industry Club
Fraud Club
Horticulture Society
Intercollegiate Judging Team
Landscape Nursery Club
Positive Awareness of Wildlife and Zoos (PAWZ)
Pre-vet Club
Sports Management Club
Students In Free Enterprise (SIFE)
Turf Club

Interest Related Clubs
4-H
All Text Society
Rescue U
Apiary Society
College Republicans
Collegiate Farm Bureau
DelVal Does It
D.I.Y Club
Drama Club
Equine Club
FFA
Gay, Lesbian, or Whatever (GLOW) Club
Hillel
Intercollegiate Equestrian Team
IMPACT
National Residence Hall Honorary
Project Earth
Students for Diversity

Sports Related/Recreational
Bowling Club
Color Guard
Dance Team
Dressage Team
Equestrian Team
Men’s Lacrosse
Women’s Lacrosse
Rock Climbing Club
Skiing & Outdoor Club
Tennis Club
Ultimate (Frisbee) Club
Vaulting Team

Professional Organizations
Association of Information Technology Professionals (AITP)
National Agricultural Marketing Association (NAMA)
Wildlife Society
Student Affairs

**Honor Societies**
- Delta Tau Alpha
- Order of Omega

**Service Based**
- FeelGood
- Habitat for Humanity
- Lions Club
- Oxfam

**Fraternity and Sorority Life**
- Alpha Gamma Rho -(fraternity)
- Alpha Phi Omega -(co-ed fraternity)
- Delta Epsilon Beta -(sorority)
- Omega Chi -(sorority)
- Rho Epsilon Kappa -(fraternity)
- Sigma Alpha -(sorority)
- Zeta Chi -(fraternity)
- Order of Omega (Greek honor society)

**Code of Conduct**
Delaware Valley College holds high standards for all of the members of the college community. These standards include an expectation that all students will conduct themselves with respect for others, themselves, and the College. Any behavior that does not meet these standards detracts from the ability of others to pursue personal and academic excellence.

All student conduct expectations can be found in the Delaware Valley College Student Handbook, which is issued to every student each academic year. Students are expected to conduct themselves in a manner that reflects positively on the College, as well as in accordance with all federal, state and local laws.

Breach of these standards will be addressed through the campus disciplinary process. Detailed procedures and instructions can be found in the Student Handbook.

**Health Services & Wellness Center**
The College makes every effort to have a positive impact on the health experiences of the student. Full-time students are encouraged to use the valuable resources that are available at the Student Health & Wellness Center. Services include health promotion and disease prevention as well as illness treatment. Psychological Counseling services available. Physician’s services are available to the student on a daily basis Monday through Friday.

The first year at DeVal, all full-time students are required to submit a physical form which includes a physician’s exam. Additionally, all full-time students are required to carry health insurance. The College offers a health insurance plan for those students who are not otherwise covered. Students who do not provide the required proof of insurance will automatically be enrolled in a health insurance plan at the student’s expense.

Medical conditions that require continuous care and specialized or surgical interventions are managed either by referral or return to the primary physician at the students’ expense. The College assumes no financial responsibility for the medical, surgical, or dental services required by the student.

**Wellness Center**
The College expanded the Student Health Center for the Fall 2012 semester. This expansion consists of combining the current Student Health Services and Counseling Services into one Student Health and Wellness Center. Located in Elson Hall, the Delaware Valley College Student Health and Wellness Center will provide a more holistic approach to student health and well-being. The mission of the center is to support student success by providing health and wellness services as well as education regarding healthy, responsible choices. It will offer confidential medical and counseling services and health promotion and wellness education programs.

**Counseling Services**
Sharon Donnelly, Counseling Director
Tiffany Thomas, Counselor

The mission of Delaware Valley College Counseling Services is to provide a professional and confidential setting for the psychological, emotional, and development support of students as they pursue academic goals and explore personal growth. The Counseling staff also act as a resource for faculty and staff to assist with their interactions with students. When this mission is fulfilled, the quality of students’ experience at Delaware Valley College is enhanced, and students are more likely to achieve academic and personal success.

Professional counselors assist students in identifying and handling their stressors in healthy ways. Counselors work with students on such issues as: adjusting to college, anxiety and stress reduction, time management, academic concerns, decision-making, skills, disordered eating, sexual assault/date rape, depression, relationship issues, health concerns, drug and alcohol issues, conflict management, and any concerns that a student might have. When necessary, the Counseling Center also interacts with resources in the community to provide outside referrals to students. The Counseling Center is located on the top floor of Segal Hall.
Learning Support Services
Sharon Malka, Learning Support Specialist

Learning Support Services is a resource for students with disabilities located within Student Support Services at Delaware Valley College. Its goal is to assure reasonable accommodations and equal access to the college’s educational programs and activities for students with disabilities. The office offers a variety of academic support services directed at student achievement and adjustment in college. In addition, Learning Support Services serves as a liaison within the college community, an information center, and a referral source on disability related issues.

Students requesting academic adjustments or accommodations should contact Learning Support Services as early as possible following acceptance to the College. At that time, they are asked to provide documentation of their specific disability. Throughout their time at the College, students interact with the Learning Support Specialist to implement arrangements that meet their specific learning needs.

Learning Support Services strives to provide superior levels of assistance to students with disabilities. When a student requests and provides information in a timely manner, personalized accommodations can be implemented effectively.

Athletics

Athletic activities, including intercollegiate and intramural events, are an important component of the educational experience for the individual at Delaware Valley College. The essential value of athletics is participation. The program seeks to integrate athletic involvement with the College’s academic objectives. Lifetime physical fitness, the self-discipline of individual achievement, the value of cooperation in a mutual struggle, the capacity to deal with success and failure, and the ability to perform under stress are all qualities learned in athletic competition that can be carried over into the educational experience and lifelong learning.

The College is a member of the National Collegiate Athletic Association (NCAA, Division III), The Eastern College Athletic Conference (ECAC), and the Middle Atlantic Conference (MAC).

Intercollegiate sports are offered for both male and female student athletes. Sports for men include: baseball, basketball, cross-country, football, golf, soccer, track and field, and wrestling. Women compete in basketball, cross-country, field hockey, soccer, softball, track and field, and volleyball.

Additional program offerings include a broadly supported intramural program. Some of the activities scheduled are as follows: touch football, volleyball, basketball, softball and tennis. Membership is held with the National Intramural Sports Association (NISA).

Other Organizations

In addition to the intercollegiate athletic teams, several other student groups also compete with students representing other colleges and universities. The College sponsors both English and Western Intercollegiate Equestrian Teams, and Intercollegiate Judging Teams compete regionally and nationally in the evaluation of dairy cattle, livestock, and soils. Students in the Dairy and Animal Science programs play active parts in fitting and showing animals in a number of regional and state competitions. Each year, students from the Ornamental Horticulture and Environmental Design Department design and produce an exhibit for the Philadelphia Flower Show. All of these activities require considerable time and dedication by the participating students and the faculty members who coach and advise them. The experiences gained by the students, however, are of incalculable value.

One of the most exciting annual activities at Delaware Valley College is A-Day. This certified Pennsylvania State Fair is staged each year over the last weekend in April, providing students with the opportunity to showcase their skills and programs. A-Day is the product of months of preparation under the leadership of a representative student committee that is encouraged and advised by a faculty and staff committee. It features livestock exhibitions and judging contests, an extensive floral design exhibition, exhibits produced by the various majors and student organizations, live entertainment, contests of skill and much more, in a country fair atmosphere that brings thousands of visitors to the campus each spring.

Cultural Activities

Delaware Valley College is committed to the cultural development of its students by extending student activities into cultural areas. Student publications include the student newspaper, The RamPages; the student literary magazine, The Gleaner; and the yearbook, The Cornucopia. Students may earn .5 credit for each semester of participation in these publication activities.

The College’s music program includes: Jazz Band, String Ensemble, Chorale, and Community Concert Band, each of which offer several concerts each year and participate in annual programs such as Homecoming, Founders’ Day, A-Day and Commencement. Students may earn 1 credit for each semester of participation in Chorale or Community Concert Band.

The Drama Club provides an artistic and creative outlet that produces quality performances throughout the year.
Student Affairs

These cultural programs are supplemented by a variety of on-campus programs and off-campus field trips sponsored by the Liberal Arts Department, featuring artists and technicians that bring a diverse range of talents to the students of Delaware Valley College.
Graduate Degree Programs

MASTER OF BUSINESS ADMINISTRATION
Michael Prushan, Interim Director

The Master of Business Administration (MBA) degree is one of the most sought-after degrees in the world. The advanced skills students learn, both quantitatively and qualitatively, benefit entrepreneurs and corporations of every size, helping them achieve their growth and innovation goals. MBA degrees provide strategy and concept, development leadership abilities and a network of alliances formed with classmates and professors, which provide invaluable resources for future alliances.

The MBA program prepares students with the skills and knowledge to make decisions based on concrete data analysis versus “gut feelings.” Students will gain:

- Tools for Quantitative Analysis
- Deeper Knowledge of Finance and Business Investment
- Broader Perspective on the Strategic Market Environment and Fundamental Operating and Understanding of Key Business functions

Students enrolling in the MBA program can select from eight concentrations: General Business, Accounting, Entrepreneurship, Finance, Food and Agribusiness, Executive Global Leadership, Human Resource Management, and Supply Chain Management. The total number of credits required for graduation—with an MBA is 33 for all specializations, except accounting, which requires 34 credits for completion.

RECOMMENDED COURSE SEQUENCE: GENERAL BUSINESS

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<thead>
<tr>
<th>Required Core Courses</th>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>GB 6010</td>
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Electives
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<td>GB 6211</td>
<td>Business Ethics</td>
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Graduate Programs
GB 6212  Leadership ........................................... 3
GB 6213  International Business and Economics 3
GB 6214  Graduate Study Tour  ......................... 3

RECOMMENDED COURSE SEQUENCE: ACCOUNTING

Required Core Courses

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### RECOMMENDED COURSE SEQUENCE: ENTREPRENEURSHIP

#### Required Core Courses

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#### Required Advanced Courses

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<td>GB 6231</td>
<td>International Business for Entrepreneurs</td>
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<td>Social Entrepreneurship</td>
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### RECOMMENDED COURSE SEQUENCE: FOOD AND AGRIBUSINESS

#### Required Core Courses

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<td>GB 6111</td>
<td>Current Issues in Food and Agribusiness</td>
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<td>GB 6113</td>
<td>Management of Food and Agribusiness Delivery Systems</td>
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<td>GB 6114</td>
<td>Food and Agribusiness Price Analysis...</td>
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<tr>
<td>GB 6115</td>
<td>Topics of International Food and Agribusiness</td>
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**RECOMMENDED COURSE SEQUENCE: GLOBAL EXECUTIVE LEADERSHIP**

**Required Core Courses**

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Total: 21

**Required Advanced Courses**

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<td>Corporate Governance</td>
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<tr>
<td>GB 6216</td>
<td>Global Executive Leadership</td>
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**RECOMMENDED COURSE SEQUENCE: HUMAN RESOURCE MANAGEMENT**

**Required Core Courses**

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<td>GB 6060</td>
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<td>Operations Management</td>
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Total: 21

**Required Advanced Courses**

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<td>Compensation and Benefits</td>
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<td>GB 6161</td>
<td>Global Human Resources and Diversity</td>
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<td>GB 7125</td>
<td>Human Resources Management</td>
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<td>GB 6360</td>
<td>Legal Issues in Human Resource Management</td>
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**RECOMMENDED COURSE SEQUENCE: SUPPLY CHAIN MANAGEMENT**

**Required Core Courses**

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<td>GB 6227</td>
<td>Global Supply Chain Management</td>
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<td>GB 7015</td>
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<td>Strategic Procurement</td>
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<td>GB 6309</td>
<td>Supply Chain MIS</td>
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<td>GB 6341</td>
<td>Law and Ethics Supply Chain Management</td>
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EDUCATIONAL LEADERSHIP

W. Rodney Stone, Interim Director

Delaware Valley College developed the Educational Leadership program with practicing educators in mind. The program blends sound educational theory, authentic learning experiences, attention to the needs of our students and a faculty of practicing educational leaders.

The goal of this program is to provide teachers with the experience and skills necessary to become Pennsylvania or New Jersey principals or supervisors of curriculum. DelVal offers graduate students the opportunity to learn from some of the region’s top academic administrators. Our program helps transform classroom discussions and experiences into real-world professional skills.

The total number of credits required for graduation with an Educational Leadership degree is 33 with an additional four credits of Advanced Fieldwork for students seeking state certification.

RECOMMENDED COURSE SEQUENCE:

Required Core Courses

<table>
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<td>Theory &amp; Application of Educational .... Administration ...</td>
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<td>Teaching and Supervising Diverse Student Populations</td>
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<td>GE 6055</td>
<td>Human Development, Communication and Learning...</td>
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<td>Organizational Development, Change Theory and Staff Development</td>
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<td>Instructional Leadership and Supervision ..........</td>
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<td>Principles, Methods, Development and Assessment of Curriculum ...</td>
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<td>School Law ........................................</td>
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<td>School Finance and Accounting ..................................</td>
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<td>Foundations of Instructional Technology for Teaching and Learning</td>
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<td>Design, Development and Assessment of Instruction ...........</td>
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Fieldwork

Required for students pursuing certification:

GE 7020, 7021, 7022, 7023 Advanced Fieldwork .... 4

TEACHING AND LEARNING

W. Rodney Stone, Interim Director

This program is designed to allow teachers to advance their individual knowledge and skills required to design and incorporate instructional teaching and learning modifications into the daily process of instruction essential to meeting the needs of all levels of learners in the classroom.

Students will have the opportunity to learn under experienced secondary education professionals with expertise in teaching and learning issues. The program would continue the College’s educational philosophy to develop competence in careers that balance theoretical knowledge with rigorous application in professional practice. A distinctive feature within the program is one where the graduate student will be conducting a research study into a topic of interest that is also a topic of interest of school stakeholders whether they are parents, administrators, teachers, students, or community members.

The total number of credits required for graduation with a degree in Teaching and Learning is 33 credits.

RECOMMENDED COURSE SEQUENCE:

Required Core Courses

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<td>GE 6027</td>
<td>Reading and Writing Across the Curriculum ...................</td>
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<td>Educational Trends and Development 3</td>
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<td>The Special Needs Student .......................................</td>
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Undergraduate Degree Programs

AGRIBUSINESS
Thomas C. Slane, Jr., Chairperson

Agribusiness, the global food system, accounts for nearly twenty percent of the U.S. economy and employs almost one-fifth of the work force. Agribusiness firms need well-trained employees prepared in both management and agricultural sciences. These key people will manage the businesses that provide supplies and services to producers and firms that transform and market raw agricultural products into food for consumers and byproducts for industrial use.

Agribusiness students develop knowledge in business and agriculture, management expertise, leadership ability and creativity in thought, problem solving and expression. Student abilities are expanded through the comprehensive program of course work, employment experience, and participation with agribusiness professionals. The learning environment is extended to the resource people and facilities of industry and government throughout the northeastern region.

This curriculum provides training, encouraging students to be involved with the social, economic, political, as well as the technological changes taking place in the world. Students will be prepared for careers in food, agribusiness, and the environment. Recent graduates in Agribusiness have landed positions in the following areas: Financial Consultant, Training and Publication Specialist, Flock Manager, Crop Consultant, Farm Market Manager, Nursery Manager, Animal Health Product Sales, Pharmaceutical Sales, Plant Protection Quarantine Officer, Quality and Water Analyst, and Product Research and Development.

Students are advised to select minor, specialization or elective courses which enable them to focus on an area of their personal interest. For example, Agribusiness: Supply and Service students may want to consider Agronomy and Environmental Science, Restaurant and Foodservice Management, Horticulture or Ornamental Horticulture and Environmental Design. Agribusiness: Marketing and Management students may want to consider Accounting, Financial Services, or Marketing.

The total number of credits required for graduation with a degree in Agribusiness is 128, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major's program requirements.

Minimum requirements:
• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• Students must have completed 27 credits to enroll in Experiential Learning Activities.
• All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCE

FRESHMAN YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>AB 2225</td>
<td>Agricultural Economics</td>
<td>3</td>
</tr>
<tr>
<td>BY 1115</td>
<td>Natural Science 1</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English 1</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts...</td>
<td>1.5</td>
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<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
<td></td>
</tr>
<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
<td>3</td>
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Undergraduate Programs

**Second Semester**

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<tbody>
<tr>
<td>BA 1005</td>
<td>Introduction to Business</td>
<td>3</td>
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<td>CH 1001</td>
<td>Chemistry Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CH 1001L</td>
<td>Chemistry Fundamentals Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>IT 1031</td>
<td>Intermediate Computer Applications...</td>
<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
<td></td>
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<td>MP 1205</td>
<td>Finite Mathematics or</td>
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**Sophomore Year**

**First Semester**

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<tbody>
<tr>
<td>AS 1006</td>
<td>Introduction to Animal Science</td>
<td>3</td>
</tr>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>BA 2123</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BA 2161</td>
<td>Business Law I</td>
<td>3</td>
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<tr>
<td>MP 2215</td>
<td>Statistics for Business</td>
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<td>PE 1109</td>
<td>Physical Education I</td>
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**Second Semester**

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<tr>
<td>PS 2202</td>
<td>Field Crops I</td>
<td>3</td>
</tr>
<tr>
<td>BA 1010</td>
<td>Management Concepts</td>
<td>3</td>
</tr>
<tr>
<td>BA 2224</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>EN 2226</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
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<tr>
<td>PE 1209</td>
<td>Physical Education II</td>
<td>1</td>
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**Junior Year**

**First Semester**

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<tbody>
<tr>
<td>AB 3126</td>
<td>Agricultural Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA 3127</td>
<td>Finance</td>
<td>3</td>
</tr>
<tr>
<td>BA 3129</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>FS 3120</td>
<td>Introduction to Nutrition or</td>
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<tr>
<td>PS 4132</td>
<td>Principles of Plant Protection</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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**Second Semester**

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<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AB 4243</td>
<td>Agribusiness Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 3027</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>Humanities Area</td>
<td></td>
<td>3</td>
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<tr>
<td>Elective</td>
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**Senior Year**

**First Semester**

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<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AB 4113</td>
<td>Farm Management or</td>
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</tr>
<tr>
<td>BA 3141</td>
<td>Small Business Management or</td>
<td></td>
</tr>
<tr>
<td>BA 3229</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>Humanities Area</td>
<td></td>
<td>3</td>
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<tr>
<td>Social Science Area</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
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<tr>
<td>Total</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB 4242</td>
<td>Food and Agricultural Policy</td>
<td>3</td>
</tr>
<tr>
<td>BA 4236</td>
<td>Federal Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
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<tr>
<td>Electives</td>
<td></td>
<td>5</td>
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**Social Science Area:** select one of the following:

<table>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 4203</td>
<td>Social Psychology and Human Interaction</td>
<td>3</td>
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**Humanities Area:** select two courses from the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Agribusiness Minor**

Students in most majors may complete a minor in Agribusiness to better prepare for job opportunities in the global food production and marketing system. One course may be substituted with prior approval of the department chair.

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB 2225</td>
<td>Agricultural Economics</td>
<td>3</td>
</tr>
<tr>
<td>AB 3126</td>
<td>Agricultural Marketing</td>
<td>3</td>
</tr>
<tr>
<td>*BA 3141</td>
<td>Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td>*AB 4113</td>
<td>Farm Management</td>
<td>3</td>
</tr>
<tr>
<td>AB 4242</td>
<td>Food and Agricultural Policy</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

* Requires prerequisite.
AGRONOMY AND ENVIRONMENTAL SCIENCE

ANIMAL BIOTECHNOLOGY AND CONSERVATION

Faculty:
Reginald Hoyt, Co-Chairperson
Kimberly J. Kovath, Co-Chairperson
Edward A. Chroscinski, Jr.
Gary M. Fortier
April Laskow
Margaret Liguori
Alicia Shenko

The Department of Animal Biotechnology and Conservation emphasizes the management, conservation, and humane care of animals. Students may major in Small Animal Science, Conservation and Wildlife Management, or Zoo Science.

The Conservation and Wildlife Management major emphasizes the conservation of animals in their native habitat, with particular emphasis on game animals and species that are threatened or endangered. Students in the conservation program will themselves well prepared for a career in wildlife biology, conservation, or game management.

The Small Animal Science major prepares students for admission into veterinary school, graduate school, or employment in the biomedical and animal health professions. Courses focusing on animal behavior and enrichment of various species may be taken as an area of concentration in this major. Emphasis is placed on alternatives to whole animal research, including the use of cell culture techniques. The implementation of cutting-edge technologies keeps graduates of our program in demand with both graduate schools and employers.

The Zoo Science major also focuses on conservation, but it is specifically designed to prepare students for careers in the zoo and aquarium industry. The major combines classroom instruction with hands-on internships and laboratories. The Zoo Science major covers all aspects of zoo science and conservation, including husbandry, handling, care, nutrition, disease, behavior, training, and aquarium management. It includes a one year, part-time internship at a zoo or aquarium, divided between animal husbandry and public education. Students are responsible for providing their own transportation to internships. The Zoo Science major is open to full-time non-transfer freshmen only.

Animal laboratories are taught at the Small Animal Science Center. It is a federally licensed, environmentally-controlled instructional laboratory. The animal quarters house a wide variety of species including mice, chickens, ferrets, rats, guinea pigs, rabbits, amphibians, reptiles, and fish. Additional facilities on campus house a natural history museum collection. Laboratories also support cell tissue culture, histology, and biotechnology.

The success of our majors can be attributed to several factors such as a hands-on approach to learning and our ongoing investment in technology. The advantages of a degree in Animal Biotechnology and Conservation from Delaware Valley College allow our students to excel both academically and professionally. Our graduates find employment in a variety of fields, including the pet trades, health science and biomedical research, state and federal government agencies, zoos, animal conservation organizations, and related industries.

The total number of credits required for graduation with a degree in Animal Biotechnology and Conservation vary with the major: 124 credits for Conservation and Wildlife Management, 122 credits for Small Animal Science, and 124 credits for Zoo Science. These totals include 15 credits of free electives and 4 credits for completion of the Experiential Learning Program. These are model course sequences. Courses shown may not be available during the semester they are listed in the sequencing.

These are model course sequences. Courses shown may not be available during the semester they are listed in the sequence.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple Experiential Learning activities and will earn 5 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.

Delaware Valley College 47
Undergraduate Programs

- All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

**RECOMMENDED COURSE SEQUENCES**

**Conservation and Wildlife Management**

### FRESHMAN YEAR

#### First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BY 1116</td>
<td>Biological Science I</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103L</td>
<td>General Chemistry I Lab</td>
<td>1</td>
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<tr>
<td>EN 1101</td>
<td>English I</td>
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<td>LA XXXX</td>
<td>Experiential Learning</td>
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<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
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<td>MP 1203</td>
<td>Elementary Functions</td>
<td>3</td>
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<tr>
<td>SA 1105</td>
<td>Intro. to Animal Management</td>
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#### Second Semester

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BY 1217</td>
<td>Biological Science II</td>
<td>3</td>
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<tr>
<td>CH 1203</td>
<td>General Chemistry II</td>
<td>3</td>
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<tr>
<td>CH 1203L</td>
<td>General Chemistry II Lab</td>
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<td>EN 1201</td>
<td>English II</td>
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<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
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<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
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<td>MP 1203</td>
<td>Elementary Functions</td>
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<td>MP 1204</td>
<td>Calculus I</td>
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### SOPHOMORE YEAR

#### First Semester

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<tbody>
<tr>
<td>BY 2108</td>
<td>Ecology</td>
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<tr>
<td>CH 2003</td>
<td>Princ. of Organic Chemistry and</td>
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<td>CH 2003L</td>
<td>Princ. of Organic Chemistry Lab or</td>
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<td>CH 2120</td>
<td>Organic Chemistry I</td>
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<td>CH 2120L</td>
<td>Organic Chemistry I Lab</td>
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<td>LA 2005</td>
<td>Speech</td>
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<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
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<td>Elective</td>
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#### Second Semester

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>SA 4124</td>
<td>Pathology and Diseases of Small</td>
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<tr>
<td>Animals or</td>
<td>BY 4123 or BY 2240 or BY3007</td>
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<tr>
<td>Major Elective</td>
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<td>3</td>
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<tr>
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<td></td>
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### JUNIOR YEAR

#### First Semester

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AS 3123</td>
<td>Animal Husbandry Techniques</td>
<td>2</td>
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<tr>
<td>DS 3118</td>
<td>Anatomy and Physiology of Animals</td>
<td>4</td>
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<tr>
<td>SA 3112</td>
<td>Wildlife Management</td>
<td>3</td>
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<tr>
<td>Major Elective</td>
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<td>3</td>
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<tr>
<td>Elective</td>
<td></td>
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#### Second Semester

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SA 3032</td>
<td>Herpetology or</td>
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<tr>
<td>SA 3034</td>
<td>Mammalogy or SH3133.</td>
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<tr>
<td>Major Elective</td>
<td>(SA 3034, SA3032, SA3133, BY2240 or</td>
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<td>3007)</td>
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<td>Elective</td>
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### SENIOR YEAR

#### First Semester

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<tr>
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<td>Macroeconomics</td>
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<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
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<tr>
<td>Major Elective</td>
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<td>Elective</td>
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<td>SA 4016</td>
<td>Senior Seminar</td>
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#### Second Semester

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<tbody>
<tr>
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<td>Non-Western Societies</td>
<td>3</td>
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<tr>
<td>Social Science Area</td>
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### Undergraduate Programs

**Humanities Area:** select two courses from the following:
- LA 2040 Modern History of Western Societies .......... 3
- LA 2042 Introduction to Philosophy .................... 3
- LA 2138 History of Western Civilization I ............ 3
- LA 302 American History and Government since 1877 .... 3
- LA 4127 United States Foreign Policy .................. 3

**Conservation and Wildlife Management Electives Take**

12 credits from the following courses to complete the Conservation and Wildlife Management

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<thead>
<tr>
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<th>Course Title</th>
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<tr>
<td>LAES 2004</td>
<td>Soils ...........................................</td>
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<td>PS 2013</td>
<td>Agricultural Machinery ..........................</td>
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</tr>
<tr>
<td>LAES 3105</td>
<td>Soil Conservation ..................................</td>
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<td>LAES 3107</td>
<td>Environmental Geology ...........................</td>
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<td>LAES 3140</td>
<td>Environmental Impacts ...........................</td>
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<td>AE 3145</td>
<td>Land Planning and the Law ........................</td>
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<td>LAES 4200</td>
<td>Watershed Management ............................</td>
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<td>LAES 4015</td>
<td>Regional Landuse Planning ........................</td>
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<tr>
<td>BY 2001</td>
<td>Botany ............................................</td>
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<tr>
<td>BY 2010</td>
<td>Introduction to Aquaculture ......................</td>
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<td>BY 2235</td>
<td>Plant Communities ..................................</td>
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<td>BY 2240</td>
<td>Ornithology .......................................</td>
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<td>BY 3002</td>
<td>Microbiology ......................................</td>
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<td>BY 3007</td>
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<td>BY 3126</td>
<td>Limnology .........................................</td>
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<td>BY 3203</td>
<td>Taxonomy of Vascular Plants .....................</td>
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<td>BY 3250</td>
<td>Tropical Ecology ...................................</td>
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<td>CH 4213</td>
<td>Descriptive Environmental Chemistry, ........................</td>
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<td>LAES 3132</td>
<td>Dendrology ........................................</td>
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<td>IT 3205</td>
<td>Geographic Information Systems ...................</td>
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<td>SA 2110</td>
<td>Intro to Zookeeping ................................</td>
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<td>SA 3032</td>
<td>Herpetology .......................................</td>
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<td>SA 3034</td>
<td>Mammalogy .........................................</td>
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<td>SA 3050</td>
<td>Animals in the Public Eye ..........................</td>
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<td>SA 3123</td>
<td>Aquatic Animal Science ............................</td>
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</tr>
<tr>
<td>SA 4033</td>
<td>Wildlife Conservation ............................</td>
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<tr>
<td>CH 4213</td>
<td>Descriptive Environmental Chemistry, ..............</td>
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<tr>
<td>SA XXXX</td>
<td>Wildlife Law &amp; Policy ............................</td>
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**Small Animal Science**

**FRESHMAN YEAR**

**First Semester**

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<thead>
<tr>
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<th>Course Title</th>
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<tr>
<td>BY 1116</td>
<td>Biological Science I ..............</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103</td>
<td>General Chemistry I ..................</td>
<td>3</td>
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<tr>
<td>CH 1103L</td>
<td>General Chemistry I Lab ...........</td>
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<tr>
<td>EN 1101</td>
<td>English I ...................................</td>
<td>1</td>
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<td>LA 1020</td>
<td>Skills for College Success ..........</td>
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</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or ...................</td>
<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions ..................</td>
<td>3</td>
</tr>
<tr>
<td>SA 1105</td>
<td>Intro. to Animal Management ........</td>
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**Second Semester**

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BY 1217</td>
<td>Biological Science II .............</td>
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<td>CH 1203</td>
<td>General Chemistry II ..............</td>
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<td>CH 1203L</td>
<td>General Chemistry II Lab ..........</td>
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<td>EN 1201</td>
<td>English II ............................</td>
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<td>IT 1011</td>
<td>Information Technology Concepts ...</td>
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<td>IT 1012</td>
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<td>Elementary Functions ..............</td>
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<td>Calculus I .........................</td>
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**SOPHOMORE YEAR**

**First Semester**

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<td>BY 2003</td>
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<td>Princ. of Organic Chemistry and ...</td>
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<td>CH 2003L</td>
<td>Princ. of Organic Chemistry Lab ...</td>
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<tr>
<td>CH 2120</td>
<td>Organic Chemistry I and ..........</td>
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<td>Organic Chemistry I Lab ..........</td>
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<td>LA 2005</td>
<td>Speech ..................................</td>
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<td>PE 1109</td>
<td>Physical Education I ..............</td>
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**Second Semester**

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<td>Introduction to Literature ..... ...</td>
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<td>Statistics for Science ..........</td>
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<td>MP 3250</td>
<td>Biostatistics .....................</td>
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<td>Physical Education II ............</td>
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</table>
Undergraduate Programs

JUNIOR YEAR
First Semester
Course No. Course Title Credits
BY 3002 General Microbiology 4
DS 3118 Anatomy and Physiology of Animals 4

Humanities Area 3
Major Elective 3

Total ........................................... 14

Second Semester
LA 2036 Introduction to Psychology 3
SA 4124 Pathology and Diseases of Small Animals 3

Major Elective 3
Electives 6

Total ........................................... 15

SENIOR YEAR
First Semester
Course No. Course Title Credits
BA 2008 Macroeconomics 3
LA 1060 Introduction to the Fine Arts 3
SA 4129 Clinical Pathology 3
SA 4222 Reproduction of Small Animals 3

Elective 3

Total ........................................... 15

Second Semester
LA 4037 Non-Western Societies 3
SA 4016 Senior Seminar 1
SA 4225 Small Animal Research Techniques 3

Major Elective 3
Elective 3

Total ........................................... 13

Humanities Area: select two courses from the following:
LA 2040 Modern History of Western Societies 3
LA 2042 Introduction to Philosophy 3
LA 2138 History of Western Civilization I 3
LA 3032 American History and Government since 1877 3
LA 4127 United States Foreign Policy 3

Small Animal Science Electives
Take 9 credits from the following courses to complete the Small Animal Science Requirements:
Course No. Course Title Credits
AS 3123 Animal Husbandry Techniques 2
AS 4106 Principles of Animal Nutrition 3
BA 3141 Small Business Management 3
BT 3000 Intro to Biotechnology 3
BT 3000L Introduction to Biotech Lab 1
BY 2010 Introduction to Aquaculture 3

BY 2223 Comparative Anatomy 4
BY 4155 Molecular Biology 4
BY 4218 Histology 4
CH 2220 Organic Chemistry II and 3
CH 2220L Organic Chemistry II Lab 1
CH 3001 Introductory Biomedical Instrumental Methods 3
EN 3056 Technical Writing 3
ES 2450 Equine Behavior 3
MP 1204 Calculus 4
MP 2119 Physics I 4
MP 2219 Physics II 4
MP 2123 Physics Ic 4
MP 2224 Physics Iic 4
SA 2001 People and Animals 3
SA 2101 Animal Assisted Activities 3
SA 2218 Animal Training and Enrichment 3
SA 3032 Herpetology 3
SA 3034 Mammalogy 3
SA 3050 Animals in the Public Eye 3
SA 3124 Animal Behavior 3
SA 3475 Companion Animals 3
SA 4050 Canine Behavior and Enrichment 3

Zoo Science
The Zoo Science major is available to non-transfer freshman full-time, Day students only.

FRESHMAN YEAR
First Semester
Course No. Course Title Credits
BY 1116 Biological Science I 3
CH 1103 General Chemistry I 3
CH 1103L General Chemistry I Lab 1
EN 1101 English I 3
MP 1102 College Algebra or
MP 1203 Elementary Functions 3
SA 2110 Introduction to Zoo Keeping 3
LA XXXX Experiential Learning 1

Total .................................................. 17

Second Semester
BY 1217 Biological Science II 3
CH 1203 General Chemistry II 3
CH 1203L General Chemistry II Lab 1
EN 1201 English II 3
MP 1203 Elementary Functions or
MP 1204 Calculus I 3-4

Total .................................................. 13-14

50 Delaware Valley College
### SOPHOMORE YEAR

**First Semester**

<table>
<thead>
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<th>Course Title</th>
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<tr>
<td>BA 1010</td>
<td>Management Concepts</td>
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<td>CH 2003</td>
<td>Princ. of Organic Chemistry and</td>
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<td>CH 2003L</td>
<td>Princ. of Organic Chemistry Lab</td>
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<td>CH 2120</td>
<td>Organic Chemistry I and</td>
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<td>CH 2120L</td>
<td>Organic Chemistry I Lab</td>
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<td>LA 2005</td>
<td>Speech</td>
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<td>PE 1109</td>
<td>Physical Education I</td>
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<tr>
<td>SA 2113</td>
<td>Wild Animals in Captivity</td>
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**Total** ................................................. 14

**Second Semester**

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<thead>
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<tr>
<td>BY 2003</td>
<td>Genetics</td>
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<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
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<td>Computer Applications</td>
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<td>PE 1209</td>
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<td>3</td>
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<tr>
<td>SA 3124</td>
<td>Animal Behavior</td>
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**Total** ................................................. 16

### JUNIOR YEAR

**First Semester**

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<tr>
<td>DS 3118</td>
<td>Anatomy and Physiology of Animals</td>
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<tr>
<td>SA 2218</td>
<td>Animal Training and Enrichment</td>
<td>3</td>
</tr>
<tr>
<td>SA 3115</td>
<td>Zoo Internship I: Animal Care</td>
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**Total** ................................................. 15

**Second Semester**

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<td>Zoo Internship II: Public Education</td>
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<td>Major Elective</td>
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<td>Elective</td>
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**Total** ................................................. 14

### SENIOR YEAR

**First Semester**

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<tbody>
<tr>
<td>AS 3123</td>
<td>Animal Husbandry Techniques</td>
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<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
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<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
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<td>SA 4016</td>
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<td>SA 4224</td>
<td>Wildlife Nutrition</td>
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**Total** ................................................. 15

**Second Semester**

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<tr>
<td>SA 4124</td>
<td>Pathology and Diseases of Small Animals or SA4123</td>
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**Total** ................................................. 15

### Humanities Area: select two courses from the following:

- LA 2040  Modern History of Western Societies ........ 3
- LA 2042  Introduction to Philosophy ................. 3
- LA 2138  History of Western Civilization ........... 3
- LA 3032  American History and Government since 1877 3
- LA 4127  United States Foreign Policy ............... 3

**Zoo Science Electives**

4 ARE E6 CREDITS FROM THE FOLLOWING COURSES TO COMPLETE THE 00

**Science Requirements:**

<table>
<thead>
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<th>Course Title</th>
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<td>Intro to Animal Science</td>
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<tr>
<td>BY 2010</td>
<td>Introduction to Aquaculture</td>
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<tr>
<td>BY 2108</td>
<td>Ecology</td>
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<tr>
<td>BY 2240</td>
<td>Ornithology</td>
<td>3</td>
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<tr>
<td>BY 3007</td>
<td>Entomology</td>
<td>3</td>
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<tr>
<td>BY 3123</td>
<td>Invertebrate Zoology</td>
<td>3</td>
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<tr>
<td>BY 3250</td>
<td>Tropical Ecology</td>
<td>4</td>
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<tr>
<td>EN 1115</td>
<td>Intro to Communication</td>
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<td>EN 3144</td>
<td>Writing for Public Relations, Promotion and Advertising</td>
<td>3</td>
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<tr>
<td>LA 2230</td>
<td>Educational Psychology</td>
<td>3</td>
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<td>SA 2220</td>
<td>Animal Record Keeping Systems</td>
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<td>SA 3032</td>
<td>Herpetology</td>
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<td>SA 3034</td>
<td>Mammalogy</td>
<td>3</td>
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<td>SA 3050</td>
<td>Animals in the Public Eye</td>
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<td>SA 3112</td>
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<td>SA 4035</td>
<td>Wildlife Conservation</td>
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<tr>
<td>SA 4222</td>
<td>Reproduction of Small Animals</td>
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</table>

**Minors**

The curriculum for a Minor in the Department of Animal Biotechnology and Conservation must be arranged in advance with the permission of the Department Chairperson.
Undergraduate Programs

ANIMAL SCIENCE

Faculty:
Pamela J. Reed, Chairperson
Sara Crawford
Rodney Gilbert
Larry D. Morris
Marta Piotrow
Bruce F. Richards
Robin S. Shedlauskas

The Animal Science Department offers a four-year Bachelor of Science degree. Students can select from three specializations offered by the department: Equine Science and Management, Livestock Science and Management or Science. Students selecting the Equine Science specialization will learn the humane care, science, use and production of horses as they are used for pleasure and profit in the Equine industry. Students selecting the Livestock Science specialization will also learn the humane care, science, use, and production of farm animals as they are used for the production of meat and fiber. The Science specialization, which requires more courses to be taken in biology, chemistry and mathematics, is expected to appeal to those students who have an interest in the Animal Sciences and are considering furthering their education in either veterinary or graduate school.

The Department maintains livestock facilities which give students an opportunity to participate in the care, breeding, and management of beef cattle, sheep, swine, and horses. All livestock facilities are located on campus and within walking distance of the dormitories and classrooms. Graduates of the Animal Science Department have a wide variety of career options available due to the diversity of the collegiate training and the work experience related to the major.

Delaware Valley College Animal Science graduates are sought by industry for employment as livestock managers and herd managers, breed association representatives, extension livestock specialists, and artificial insemination technicians. As a result of training in both livestock production and business, many graduates obtain employment with pharmaceutical companies, feed manufacturers, and veterinary supply companies. Students graduating recently with a degree in Animal Science have found positions such as: Animal Caretaker, Cooperative Extension Agent, Lab Technician, Herdsperson, Kennel Manager, and Zookeeper.

Animal Science also offers the opportunity for a career in education. Many graduates are involved with 4-H, and FFA programs as well as teaching vocational education and science in high schools. For graduates interested in pursuing additional training in either veterinary medicine or graduate studies, one will find DelVal alumni attending universities throughout the U.S.

The total number of credits required for graduation with a degree in Animal Science is 128 credits, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• All students must have completed 27 credits to enroll in Experiential Learning Activities.
• All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCES
Equine Science and Management

FRESHMAN
First Semester

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<thead>
<tr>
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<th>Course Title</th>
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<td>CH 1103</td>
<td>General Chemistry I</td>
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<td>General Chemistry I Lab</td>
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<td>MP 1102</td>
<td>College Algebra or</td>
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Second Semester

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<tbody>
<tr>
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<td>2</td>
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<tr>
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<td>3</td>
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<td>3</td>
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<tr>
<td>CH 1203</td>
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Second Semester

<table>
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<tr>
<td>AS 4016</td>
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<tr>
<td>AS 3210</td>
<td>Mare and Foal Management or Stallion Management</td>
<td>3</td>
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<td>ES 4222</td>
<td>Equine Business Management</td>
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**Business Area: select one of the following:**

- AB 2225 Agricultural Economics
- BA 2225 Accounting Fundamentals
- BA 3028 Supervision and Management
- BA 3141 Small Business Management

### Livestock Science and Management

#### FRESHMAN

**First Semester**

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<td>CH 1103L</td>
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</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
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**Second Semester**

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#### SOPHOMORE

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<td>PS 2007</td>
<td>Feed Grains and Forages</td>
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<tr>
<td>IT 1101</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
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<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
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#### SENIOR

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<td>Physiology of Reproduction</td>
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<td>BA 2008</td>
<td>Macroeconomics</td>
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<tr>
<td>AS 4111</td>
<td>Yearling Horse Sale Management</td>
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**Second Semester**

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<td>CH 2003L</td>
<td>Princ. of Organic Chemistry Lab</td>
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<td>PS 2007</td>
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<td>Information Technology Concepts</td>
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<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>DS 3029</td>
<td>Dairy and Livestock Genetics</td>
<td>3</td>
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<tr>
<td>LA 2005</td>
<td>Speech</td>
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**Undergraduate Programs**
Undergraduate Programs

Second Semester
AS 2116 Livestock Evaluation .................. 3
AS 3123 Animal Husbandry Techniques ....... 2
EN 2028 Introduction to Literature .......... 3
LA 1060 Intro. to the Fine Arts ............... 3
PE 1209 Physical Education II ............... 1
Total .............................................. 15

JUNIOR
First Semester
Course No. Course Title Credits
Elective ........................................... 3
Production Option ............................ 3
Humanities Area .............................. 3
AS 4106 Principles of Animal Nutrition .... 3
BA 2008 Macroeconomics .................... 3
Total .............................................. 15

Second Semester
Elective .......................................... 3
DS 3118 Anat. and Phys. of Animals ........ 4
LA 4037 Non-Western Societies .............. 3
AS 4214 Animal Diseases ..................... 3
DS 3010 Animal Feeding and Nutrition .... 3
Total .............................................. 16

SENIOR
First Semester
Course No. Course Title Credits
DS 4134 Physiology of Reproduction ....... 3
Elective/Production Option ................. 3
Elective ........................................... 3
Humanities Area .............................. 3
Business Area ................................. 3
Total .............................................. 15

Second Semester
AS 4016 Seminar (Animal Science) .......... 1
Social Science Area .......................... 3
Production Option ........................... 3
Business Area ................................. 3
Elective ......................................... 4
Total .............................................. 14

Business Area: select two of the following:
AB 2225 Agricultural Economics
BA 1005 Introduction to Business
BA 2225 Accounting Fundamentals
BA 3027 Human Resource Management
BA 3028 Supervision and Management
BA 3141 Small Business Management

Science

FRESHMAN
First Semester
Course No. Course Title Credits
AS 1006 Intro. To Animal Science .......... 3
EN 1101 English I ............................. 3
BY 1116 Biological Science I ............... 3
CH 1103 General Chemistry I .......... .... 3
CH 1103L General Chemistry I Lab ........ 1
LA 1020 Skills for College Success .......... 1
MP 1203 Elementary Functions ............ 3
Total .............................................. 17

Second Semester
AS 1045 Livestock Industries and Careers . 2
EN 1201 English II ............................ 3
BY 1217 Biological Science II .............. 3
CH 1203 General Chemistry II .......... .... 3
CH 1203L General Chemistry II Lab ...... 1
MP 3231 Statistics for Science or MP3250 . 3
Total .............................................. 15

SOPHOMORE
First Semester
Course No. Course Title Credits
PE 1109 Physical Education I ............... 1
CH 2120 Organic Chemistry I .......... .... 3
CH 2120L Organic Chemistry I Lab ....... 1
IT 1011 Information Tech. Concepts ...... 1.5
IT 1012 Computer Applications ............ 1.5
Humanities ................................. 3
DS 3029 Dairy and Livestock Genetics .... 3
Total .............................................. 17

Second Semester
PE 1209 PE II .................................. 1
CH 2203 Biochemistry ........................ 3
CH 2203L Biochemistry Lab ................ 1
CH 2220 Organic Chemistry II .......... .... 3
CH 2220L Organic Chemistry II Lab ...... 1
EN 2028 Introduction To Literature ...... 3
AS 3123 Animal Husbandry Techniques .. 2
LA 1060 Intro. to the Fine Arts .......... .... 3
Total .............................................. 17
### JUNIOR
#### First Semester

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<td>LA 4037</td>
<td>Non-Western Societies</td>
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<tr>
<td>AS 4106</td>
<td>Principles of Animal Nutrition</td>
<td>3</td>
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<tr>
<td>MP 2119</td>
<td>Physics I</td>
<td>3</td>
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<tr>
<td>MP 2119L</td>
<td>Physics I Lab</td>
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#### Second Semester

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<td>Anat. &amp; Phys. of Animals</td>
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<tr>
<td>DS 3118L</td>
<td>Anat. &amp; Phys. of Animals Lab</td>
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<td>Animal Diseases</td>
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<td>MP 2219</td>
<td>Physics II</td>
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<td>MP 2219L</td>
<td>Physics II Lab</td>
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### SENIOR
#### First Semester

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#### Second Semester

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<th>Course Title</th>
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### Production Option

(1 course required)

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<tr>
<td>4027</td>
<td>Sheep Science</td>
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<tr>
<td>AS 4028</td>
<td>Swine Science</td>
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<td>AS 4029</td>
<td>Poultry Science</td>
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<td>AS 4219</td>
<td>Horse Breeding Management</td>
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<tr>
<td>AS 3150</td>
<td>Behavior and Management of</td>
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<td></td>
<td>Alternative Agricultural Animals</td>
</tr>
<tr>
<td>AS 1101</td>
<td>Stable Management</td>
</tr>
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</table>

### Minors

Students specializing in Livestock Science and Management may take additional courses that may be approved for a Minor in Pre-veterinary Science. Substitutions may be arranged in advance with permission of the Animal Science department chairperson.

### International Exchange

Animal Science students may participate in a one-semester exchange program at Hartpury College, Gloucestershire, Great Britain during the spring semester of their junior year. Contact the Animal Science Department to apply.

### BIOLOGY

#### Faculty:
Ronald E. Johnson, Chairperson
Richard N. Bortnick
Gregory A. George
Cynthia Keler
Patrick Killion
Kathryn S. Ponnock
Darl Swartz
Christopher Tipping

There are three reasons why Delaware Valley College Biology graduates do well: our faculty, our curriculum, and our facilities. The faculty are specialists in their respective areas. They are interested in the educational welfare of each student and generate a thirst for learning.

The Biology Department offers a curriculum that provides the student with a broad core of background information in biology and related disciplines. This prepares the student for many careers in biology, or for advanced study in the health professions or graduate school. In addition to gaining acceptance to professional and graduate schools, recent Biology graduates from Delaware Valley College have found positions as: Biologists, Inorganic Analytical Chemists, Quality Assurance Technicians, Bio Technicians, Environmental Laboratory Technicians, and Teratologists. A series of biology and free elective course options offer the student the opportunity to specialize in an area of his or her own choosing.

The Biology Department is housed in a modern building that is well furnished with laboratory instruments and equipment with which the student is encouraged to develop proficiency. In addition, there are a variety of natural study areas available on or near campus. Members of the department are also involved in staff-guided student research proj-
Undergraduate Programs

ects, as well as projects of faculty interest, which offer the opportunity to engage in research. Students interested in research opportunities take part in our undergraduate research program.

There are five areas within the major in which students can specialize: Botany, Ecology/ Environmental Science, Microbiology and Biotechnology, Pre-Professional (which includes re-med, pre-vet, and pre-graduate school), and Zoology. These specializations allow students, with departmental counseling, to focus their program to better fit their career goals.

The freshman year program is the same for all entering biology majors. Students must declare one of the specializations after completing 30 credits, or by their sophomore year. Transfer students with 30 or more credits must declare a specialization as part of the admission process.

The College is a partner in the Pennsylvania Biotechnology Center of Bucks County. This unique relationship exposes interested students to the latest developments in this exciting field. It also provides a limited number of student employment opportunities.

All Biology majors have available 15 credits for free electives. The free elective credits may be used for courses which directly relate to the student’s specialization, they may be devoted to a minor of choice in any other department, or they may be applied to meet any other needs. Academic advising is provided to help with course selection in these areas.

Teacher Certification in Biology and in General Science at the secondary level (grades 7 through 12) may be obtained by completing a prescribed set of courses. For further information, please see the section on Education or contact the Education Department Chairperson.

Students seeking admission to professional schools in the human medical professions or veterinary medicine should complete the Pre-Professional Major. Occasionally truly exceptional pre-professional students are able to obtain admission to a professional school program at the end of their junior year. This is called the 3 + 1 Program and students must register for it before the start of their sophomore year. Such students will be eligible to earn their Bachelor of Science in Biology degree from the College upon the successful completion of their first full-time year of study in the professional school program, provided they have completed all of the required courses in the Biology major (except Biology Seminar), the required Pre-Professional Major courses, the College Core courses, and the Experiential Learning Program requirements.

The total number of credits required for graduation with a degree in Biology is 127, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:

- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

FRESHMAN YEAR
First Semester

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Second Semester

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**SOPHOMORE YEAR**

**First Semester**

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* Calculus I or a science-based statistics course is the minimum mathematics requirement for the Biology major. Non-required mathematics courses are counted as electives.

**Second Semester**

<table>
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<td>Biochemistry</td>
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<tr>
<td>CH 2220L</td>
<td>Organic Chemistry II Lab</td>
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<td>EN 2028</td>
<td>Introduction to Literature</td>
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</table>

**JUNIOR YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
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<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>MP 2119</td>
<td>Physics I</td>
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<td>Major Courses or Electives</td>
<td>4-6</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BY 2004</td>
<td>*Genetics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MP 2219</td>
<td>Physics II</td>
<td>4</td>
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<td></td>
<td>Major Courses or Electives</td>
<td>9-11</td>
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* Genetics Laboratory may be taken any semester.

**SENIOR YEAR**

**First Semester**

<table>
<thead>
<tr>
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<tr>
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<td>Macroeconomics</td>
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<tr>
<td>BY 4110</td>
<td>Seminar (Biology)</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Humanities Area</td>
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<tr>
<td>Social Science Area</td>
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<td>Major Courses or Electives</td>
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**Specialization Areas**

19 total credits required in each major area.

**Botany**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 2108</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BY 2235</td>
<td>Plant Communities</td>
<td>3</td>
</tr>
<tr>
<td>PS 2005</td>
<td>Plant Physiology</td>
<td>3</td>
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<tr>
<td></td>
<td>Specialized Botany Electives</td>
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<td><strong>Total</strong></td>
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Take 9 credits from the following courses to fulfill the Botany requirements:

<table>
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<th>Title</th>
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<tbody>
<tr>
<td>LAES 2004</td>
<td>Soils</td>
<td>3</td>
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<tr>
<td>PS 2209</td>
<td>Soil Fertility and Fertilizers</td>
<td>3</td>
</tr>
<tr>
<td>LAES 3104</td>
<td>Field Soil Morphology</td>
<td>3</td>
</tr>
<tr>
<td>PS 3202</td>
<td>Plant Breeding</td>
<td>3</td>
</tr>
<tr>
<td>PS 4116</td>
<td>Weed Science</td>
<td>3</td>
</tr>
<tr>
<td>BY 3002</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BY 3007</td>
<td>Entomology</td>
<td>3</td>
</tr>
<tr>
<td>BY 3105</td>
<td>Introduction to the Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Ecology of Algae</td>
<td>3</td>
</tr>
<tr>
<td>BY 3106</td>
<td>Introduction to the Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Ecology of Fungi</td>
<td>3</td>
</tr>
<tr>
<td>BY 3126</td>
<td>Limnology</td>
<td>4</td>
</tr>
<tr>
<td>BY 3203</td>
<td>Taxonomy of Vascular Plants</td>
<td>3</td>
</tr>
<tr>
<td>BY 4250</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>PS 3025</td>
<td>Plant Cell and Tissue Culture</td>
<td>2</td>
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<tr>
<td>LAES 3132</td>
<td>Dendrology</td>
<td>3</td>
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<tr>
<td>HT 3205</td>
<td>Subtropical Horticulture</td>
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Undergraduate Programs

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<th>Credits</th>
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<td>PS 4005</td>
<td>Plant Pathology</td>
<td>3</td>
</tr>
<tr>
<td>PS 4225</td>
<td>Plant Disease Diagnosis</td>
<td>3</td>
</tr>
<tr>
<td>PS 3005</td>
<td>Plant Propagation</td>
<td>3</td>
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<tr>
<td>LAES 4125</td>
<td>Ecological Landscape</td>
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</tr>
<tr>
<td></td>
<td>Management and Restoration</td>
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</table>

**Environmental Biology**

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
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<tr>
<td>LAES 2004 Soils</td>
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<tr>
<td>BY 2108 Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BY 3126 Limnology</td>
<td>4</td>
</tr>
<tr>
<td>Specialized Ecology/</td>
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<tr>
<td>Environmental Science Electives</td>
<td>8</td>
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**Total** ................................................. 19

Take 8 credits from any of the following courses to fulfill the Environmental Biology requirements:

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PS 2209</td>
<td>Soil Fertility and Fertilizers</td>
<td>3</td>
</tr>
<tr>
<td>LAES 3105</td>
<td>Soil Conservation</td>
<td>3</td>
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<tr>
<td>LAES 3107</td>
<td>Environmental Geology</td>
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<tr>
<td>LAES 3140</td>
<td>Environmental Impacts</td>
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<tr>
<td>AE 3145</td>
<td>Land Planning and the Law</td>
<td>3</td>
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<tr>
<td>LAES 3216</td>
<td>Soil Classification</td>
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<tr>
<td>LAES 4010</td>
<td>Soil and Environmental Planning</td>
<td>3</td>
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<tr>
<td>LAES 4015</td>
<td>Regional Land Use Planning</td>
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<tr>
<td>LAES 4016</td>
<td>Hydrogeology</td>
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<tr>
<td>LAES 4025</td>
<td>Climatology</td>
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</tr>
<tr>
<td>LAES 4043</td>
<td>Applied Toxicology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Risk Assessment</td>
<td>3</td>
</tr>
<tr>
<td>BY 2235</td>
<td>Plant Communities</td>
<td>3</td>
</tr>
<tr>
<td>BY 2240</td>
<td>Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>BY 3002</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BY 3007</td>
<td>Entomology</td>
<td>3</td>
</tr>
<tr>
<td>BY 3008</td>
<td>Intro. to Earth and Space Science</td>
<td>3</td>
</tr>
<tr>
<td>BY 3203</td>
<td>Taxonomy of Vascular Plants</td>
<td>3</td>
</tr>
<tr>
<td>BY 3250</td>
<td>Tropical Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BY 4257</td>
<td>Comparative Physiology</td>
<td>4</td>
</tr>
<tr>
<td>CH 3130</td>
<td>Analytical Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>PS 4204</td>
<td>Plant Pest Management</td>
<td>3</td>
</tr>
<tr>
<td>LAES 4125</td>
<td>Ecological Landscape Restoration</td>
<td>3</td>
</tr>
<tr>
<td>SA 3032</td>
<td>Herpetology</td>
<td>3</td>
</tr>
<tr>
<td>SA 3112</td>
<td>Wildlife Management</td>
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<tr>
<td>SA 3034</td>
<td>Mammalogy</td>
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<tr>
<td>SA 3124</td>
<td>Animal Behavior</td>
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</table>

**Microbiology and Biotechnology**

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BY 3002 General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BY 4132 Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BY 4155 Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>MP 3231 Statistics for Science</td>
<td>3</td>
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<td>Specialized Microbiology and</td>
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<tr>
<td>Biotechnology Electives</td>
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**Total** ................................................. 19

44<KY4CREDITSFROMTHEFOLLOWINGCOURSETO

fulfill the Microbiology and Biotechnology requirements: Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BT 3000</td>
<td>Introduction to Biotechnology</td>
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<tr>
<td>BT 3001</td>
<td>Introduction to Biotechnology Lab....</td>
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<tr>
<td>BY 4206</td>
<td>Determinative Microbiology</td>
<td>4</td>
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<tr>
<td>BY 4250</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>CH 3001</td>
<td>Introductory Biomedical</td>
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<tr>
<td></td>
<td>Instrumental Methods</td>
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<tr>
<td>CH 3130</td>
<td>Analytical Chemistry</td>
<td>4</td>
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<tr>
<td>FS 3120</td>
<td>Introduction to Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>PS 4005</td>
<td>Plant Pathology</td>
<td>3</td>
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<tr>
<td>SA 4124</td>
<td>Pathology and Diseases</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>of Small Animals</td>
<td></td>
</tr>
<tr>
<td>SA 4129</td>
<td>Clinical Pathology</td>
<td>3</td>
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<tr>
<td>SA 4222</td>
<td>Reproduction of Small Animals</td>
<td>3</td>
</tr>
<tr>
<td>SA 4225</td>
<td>Small Animal Research Techniques</td>
<td>3</td>
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<tr>
<td>BY 4156</td>
<td>Cell Biology</td>
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**Pre-Professional**

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>BY 3002 General Microbiology</td>
<td>4</td>
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<tr>
<td>BY 4132 Human Physiology</td>
<td>4</td>
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<tr>
<td>Specialized Pre-Professional</td>
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<tr>
<td>BY 3208 Vertebrate Embryology</td>
<td>4</td>
</tr>
<tr>
<td>BY 3229 Immunology</td>
<td>4</td>
</tr>
<tr>
<td>BY 4218 Histology</td>
<td>4</td>
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<tr>
<td>BY 4250 Virology</td>
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</table>

**Total** ................................................. 19

Take 3 credits from the following Specializations to fulfill the Pre-Professional requirements:

**Pre-Medical (3 credits required)**

<table>
<thead>
<tr>
<th>Recommended Courses</th>
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<tbody>
<tr>
<td>AS 4106 Principles of Animal Nutrition</td>
<td>3</td>
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<tr>
<td>AS 4129 Clinical Pathology</td>
<td>3</td>
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<tr>
<td>BY 3208 Vertebrate Embryology or</td>
<td></td>
</tr>
<tr>
<td>BY 3229 Immunology or</td>
<td></td>
</tr>
<tr>
<td>BY 4218 Histology</td>
<td>4</td>
</tr>
<tr>
<td>BY 4155 Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BY 4206 Determinative Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BY 4250 Virology</td>
<td>3</td>
</tr>
<tr>
<td>CH 3001 Introductory Biomedical</td>
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</tr>
<tr>
<td>Instrumental Methods</td>
<td>3</td>
</tr>
<tr>
<td>CH 3130 Analytical Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>FS 3120 Introduction to Nutrition</td>
<td>3</td>
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<tr>
<td>BY 4156 Cell Biology</td>
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**Pre-Veterinary (3 credits required)**

<table>
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<tr>
<td>AS 4106 Principles of Animal Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>AS 4129 Clinical Pathology</td>
<td>3</td>
</tr>
<tr>
<td>BY 3208 Vertebrate Embryology or</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BY 3229 Immunology or
BY 4156 Cell Biology
BY 4156 Cell Biology
Histology ........................................ 4
BY 4155 Molecular Biology .................... 4
BY 4206 Determinative Microbiology .......... 4
BY 4250 Virology ................................ 3
CH 3001 Introductory Biomedical Instruments Methods ............ 3
CH 3130 Analytical Chemistry ................. 4
SA 4124 Pathology and Diseases of Small Animals .......... 3
SA 4225 Small Animal Research Techniques .... 3

Pre-Graduate School (3 credits required)
Recommended Courses  Credits
AS 4106 Principles of Animal Nutrition or
FS 3120 Introduction to Nutrition ............... 3
AS 4129 Clinical Pathology ........................ 3
BY 3208 Vertebrate Embryology or
BY 4218 Histology ................................ 4
BY 4155 Molecular Biology ..................... 4
BY 4206 Determinative Microbiology .......... 4
CH 3130 Analytical Chemistry ................. 4
MP 3231 Statistics for Science .................. 3
SA 4124 Pathology and Diseases of Small Animals .......... 3
SA 4225 Small Animal Research Techniques .... 3

Zoology
Required Courses  Credits
BY 2108 Ecology .................................. 4
BY 3123 Invertebrate Zoology .................. 4
BY 4257 Comparative Physiology ............. 4
BY 4257 Comparative Physiology ............. 4
BY 4257 Comparative Physiology ............. 4
Specialized Zoology Electives ............... 7
Total ................................................ 19

Take 7 credits from the following courses to fulfill the Zoology requirements:

Credits
AS 3123 Animal Husbandry Techniques .......... 3
AS 4106 Principles of Animal Nutrition ........ 3
AS 4214 Animal Diseases ....................... 3
BY 2240 Ornithology ............................ 3
BY 3002 General Microbiology .................. 4
BY 3007 Entomology ............................ 3
BY 3126 Limnology .............................. 4
BY 3208 Vertebrate Embryology .................. 4
BY 3221 Apiculture ................................ 3
BY 3250 Tropical Ecology ....................... 4
BY 4155 Molecular Biology ..................... 4
BY 4250 Virology ................................ 3
DS 2230 Physiology of Lactation ................ 3
DS 4134 Physiology of Reproduction .......... 3
SA 3032 Herpetology ............................ 3
SA 3034 Mammalogy ............................ 3
Undergraduate Programs

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SA 3124</td>
<td>Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td>SA 4124</td>
<td>Pathology and Diseases of Small Animals</td>
<td>3</td>
</tr>
<tr>
<td>SA 4129</td>
<td>Clinical Pathology</td>
<td>3</td>
</tr>
<tr>
<td>SA 4222</td>
<td>Reproduction and Nutrition of Small Animals</td>
<td>3</td>
</tr>
<tr>
<td>SA 4225</td>
<td>Small Animal Research Techniques</td>
<td>3</td>
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</tbody>
</table>

**Biology Minor**

A student majoring in another department’s program may earn a minor in biology by successfully completing 15 credits in non-required biology courses. Minor programs must be approved by the Biology Department Chair.

**BUSINESS ADMINISTRATION**

**Faculty**

Lawrence B. Stelmach, Chairperson
David S. Beck
Ermira Gegvata
Tracy Hunt
Elizabeth Kolar
Anthony Rohach
Christine Seel

Business Administration is a broad, comprehensive career program that deals with the science and art of managing the human, physical and economic resources of a business enterprise. As a science and art, it deals with principles, concepts, and practices that influence the activities of finance, production, personnel, distribution and marketing. Emphasis is placed on management’s ability to analyze, plan, motivate, coordinate and control the varied activities necessary for effective and successful operation of a business organization.

In addition to going on for a Master’s in Business Administration, Delaware Valley College business graduates have found positions as: commercial loan analysts, owners/operators of businesses, accountants, compliance specialists, credit associates, supervisors, office managers, bankers, and auditors, as well as other positions in management.

There are seven specializations within Business Administration. Accounting, Entrepreneurship, Financial Services, General Business Administration, Management, Marketing, and Sports Management. These specializations allow students, with departmental counseling, to focus their programs to better fit their career goals.

The total number of credits required for graduation with a degree in Business Administration is
125, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• All students must have completed 27 credits to enroll in Experiential Learning Activities.
  • All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCE

FRESHMAN YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
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<td>Introduction to Business</td>
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<tr>
<td>EN 1101</td>
<td>English I</td>
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<tr>
<td>IT 1011</td>
<td>Information Technology Concepts...</td>
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<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
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<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
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</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
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<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
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<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
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Second Semester

<table>
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<th>Course Title</th>
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<tbody>
<tr>
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<td>Management Concepts</td>
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<tr>
<td>EN 1201</td>
<td>English II</td>
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<tr>
<td>IT 1031</td>
<td>Intermediate Computer Applications..</td>
<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
<td></td>
</tr>
<tr>
<td>MP 1204</td>
<td>Calculus I or</td>
<td></td>
</tr>
<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
<td>3-4</td>
</tr>
<tr>
<td>PE 1209</td>
<td>Physical Education II</td>
<td>1</td>
</tr>
<tr>
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</tr>
</tbody>
</table>

SOPHOMORE YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>BA 2123</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BA 2161</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>MP 2215</td>
<td>Statistics for Business</td>
<td>4</td>
</tr>
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Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 2210</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>BA 2261</td>
<td>Business Law II</td>
<td>3</td>
</tr>
<tr>
<td>BA 2224</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>EN 2226</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
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</table>

JUNIOR YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 2017</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA 3127</td>
<td>Finance</td>
<td>3</td>
</tr>
<tr>
<td>BA 3129</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>BY 1115</td>
<td>*Natural Science I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tr>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3027</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>BY 1216</td>
<td>*Natural Science II</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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* Students may substitute two semesters of Introductory Biology, Chemistry, or Physics with the permission of the Department Chairperson.

SENIOR YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
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<tr>
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### Undergraduate Programs

**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 4236</td>
<td>Federal Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>BA 4244</td>
<td>Management Seminar</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities Area</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Major courses or electives</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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**Social Science Area: select one of the following:**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 4203</td>
<td>Social Psychology and</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Human Interaction</td>
<td></td>
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</table>

**Humanities Area: select two courses from the following:**

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Accounting**

Students who complete this specialization are qualified to sit for the CPA exam in Pennsylvania. This major requires the following courses in addition to the minimum accounting requirement (Principles of Accounting I and II and Federal Income Tax) that are required in the Business Core:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3138</td>
<td>Intermediate Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BA 3209</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>BA 3239</td>
<td>Intermediate Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>BA 4020</td>
<td>Fraud Examination</td>
<td>3</td>
</tr>
<tr>
<td>BA 4036</td>
<td>Federal Corporate Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>BA 4144</td>
<td>Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BA 4242</td>
<td>Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**Entrepreneurship**

The economic significance of “small business” is enormous; it accounts for the majority of all businesses in the U.S., and is the source for most innovation and employment opportunities. This specialization focuses on the development of new ideas, as well as the management of the organization which will make these opportunities a reality.

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3040</td>
<td>Finance for Entrepreneurs</td>
<td>3</td>
</tr>
<tr>
<td>BA 3141</td>
<td>Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 3360</td>
<td>Law for Entrepreneurs</td>
<td>3</td>
</tr>
<tr>
<td>BA 4041</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 4565</td>
<td>Entrepreneurship in Practice</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**Financial Services**

This specialization offers traditional finance and applied financial management courses. The emphasis is on applied financial understanding, financial problem solving and the marketing of financial services. Take the following courses in addition to the Business Core:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3034</td>
<td>Real Estate Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>BA 3126</td>
<td>Fundamentals of Investing</td>
<td>3</td>
</tr>
<tr>
<td>BA 3240</td>
<td>Risk Management Insurance</td>
<td>3</td>
</tr>
<tr>
<td>BA 4119</td>
<td>Estate Planning</td>
<td>3</td>
</tr>
<tr>
<td>BA 4235</td>
<td>Financial and Retirement Planning</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**General Business Administration**

This specialization requires the following courses in addition to the Business Core:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3126</td>
<td>Fundamentals of Investing</td>
<td>3</td>
</tr>
<tr>
<td>BA 3141</td>
<td>Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**Management**

This specialization requires the following courses in addition to the Business Core:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3229</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BA 4132</td>
<td>Industrial Relations</td>
<td>3</td>
</tr>
<tr>
<td>BA 4242</td>
<td>Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>IT 3103</td>
<td>Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>IT 4146</td>
<td>Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>
**Marketing**

This specialization requires the following courses in addition to the Business Core:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3023</td>
<td>E-Commerce</td>
<td>3</td>
</tr>
<tr>
<td>BA 4011</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 4044</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 4146</td>
<td>Sales</td>
<td>3</td>
</tr>
<tr>
<td>BA 4247</td>
<td>Advertising</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**Sports Management**

This specialization requires the following courses in addition to the Business Core:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 3020</td>
<td>History of Sports</td>
<td>3</td>
</tr>
<tr>
<td>BA 3131</td>
<td>Sports Management and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>BA 3233</td>
<td>Sports Facilities</td>
<td>3</td>
</tr>
<tr>
<td>BA 3235</td>
<td>Sports Law</td>
<td>3</td>
</tr>
<tr>
<td>BA 4145</td>
<td>Sports Marketing and Media Relations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**Associate Degree in Business Administration**

This unique two-year degree program is designed specifically to meet the needs of adults who are moving into Supervision, Administration, and Management positions or who are seeking to prepare for a career in one of these fields. The curriculum is designed to provide essential concepts and principles of these disciplines, and an understanding of how these concepts are influenced, changed and implemented. This degree is offered only through the Evening College.

**Business Administration Minor**

The Minor in Business Administration, consisting of at least 15 credits of course work, is available to students majoring in other disciplines. The following is a suggested course list. Alternative courses may be selected to meet the student’s individual career goals. The Minor in Business Administration must be approved by the Business Department Chairperson.

**Course No.** | **Course Title**                           | **Credits** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><em>BA 1005</em></td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BA 2161</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>BA 2225</td>
<td>Accounting Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>BA 1010</td>
<td>Management Concepts</td>
<td>3</td>
</tr>
<tr>
<td>IT 1031</td>
<td>Intermediate Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

* BA 1005, Introduction to Business, is a prerequisite to all advanced management courses.

**Chemistry**

**Faculty:**

Karen G. McPherson, Chairperson
Jason Cross
Kenneth B. Dedecian
Melissa L. Langston
Yun Li
Ronald T. Petruso
Benjamin E. Rusiloski, III
Edward J. Sambriski
William P. Stephens
Sheela Venkitachalam

Chemistry has been dubbed “the central science,” a title that highlights its connection to several fields, including biology, physics, engineering, environmental studies, geology, and medicine, to name a few. As the study of material things (living and inanimate) and the changes these undergo, chemistry enters every aspect of our existence: consider foods and their breakdown to provide nourishment, hygiene products and medications as health-sustaining agents, batteries powering up devices and vehicles, or sunlight as a source of vitamin D and a steady supply of energy for crops. Another important aspect of chemistry is the research and development of improved materials and systems, many of which find immediate application in biomedical technologies, engineering operations, high-performance electronics, and environmentally green efforts.

The need for chemists in many related and vastly different areas makes for a broad field of study. The Chemistry program at DVC addresses that diversity. The Bachelor of Science degree in Chemistry is approved and certified by the American Chemical Society, a distinction which ensures a high-quality program of study empowering its graduates to be successful in a competitive job market. Both rigor and requirements of a certified degree confer a
Undergraduate Programs

credential of nationwide recognition valued by potential employers and graduate schools.

A high-quality program in chemistry not only establishes a strong scientific foundation that meets the demands of a career at the baccalaureate level, but also provides the background to pursue advanced studies at the graduate level. The curriculum at DVC fulfills this need by encompassing the traditional areas of chemistry (analytical, biochemical, general, inorganic, organic, and physical), as well as advanced coursework in mathematics and physics. An important hallmark of the Chemistry program is the practical approach that faculty exercise while training students. Modern instrumentation provides the opportunity for hand-on experience in qualitative and quantitative methods. The development of communication, research, leadership, and teamwork skills is an integral part of the program. A chapter of the Student Affiliates of the American Chemical Society operates on campus and serves as an interest-based, student-led organization supporting events and career development.

With a good education in chemistry, students may look forward to careers that are rewarding in both personal realization and financial compensation. Attractive employment opportunities can be found in a host of enterprises, including agriculture, biotechnology, consumer products, electronics, food and flavor science, forensics, medicine, metallurgy, nutrition, oil and petroleum, pharmaceuticals, polymers, and textiles, among others. The chemistry of today can be found in the laboratory just as much as outside of one. A sampling of endeavors beyond the laboratory include those in consulting, education, environmental field work, law and policymaking, national security and defense, quality control and assurance, sales and marketing, scientific publishing, and so forth. Given such a wide gamut of employment opportunities, a person trained in chemistry is likely to find a position that suits his/her tastes and interests, while becoming part of a large and important family of professionals.

The total number of credits required for graduation with a degree in Chemistry is 129, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• Students must have completed 27 credits to enroll in Experiential Learning Activities.
• All students must complete and introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCE

FRESHMAN YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>CH 1103</td>
<td>General Chemistry I..........................</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103L</td>
<td>General Chemistry I Lab....................</td>
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</tr>
<tr>
<td>EN 1101</td>
<td>English I....................................</td>
<td>3</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success................</td>
<td>1</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech........................................</td>
<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions........................</td>
<td>3</td>
</tr>
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<td>PE 1109</td>
<td>Physical Education I.......................</td>
<td>1</td>
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<td><strong>15</strong></td>
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Second Semester

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>General Chemistry II.......................</td>
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</tr>
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<td>CH 1203L</td>
<td>General Chemistry II Lab..................</td>
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</tr>
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<td>English II...................................</td>
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</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts...........</td>
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</tr>
<tr>
<td>IT 1012</td>
<td>Computer Applications.....................</td>
<td>1.5</td>
</tr>
<tr>
<td>MP 1204</td>
<td>Calculus I...................................</td>
<td>4</td>
</tr>
<tr>
<td>PE 1209</td>
<td>Physical Education II.....................</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>.................................</strong></td>
<td><strong>15</strong></td>
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</table>

SOPHOMORE YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics..............................</td>
<td>3</td>
</tr>
<tr>
<td>CH 2120</td>
<td>Organic Chemistry I........................</td>
<td>3</td>
</tr>
<tr>
<td>CH 2120L</td>
<td>Organic Chemistry I Lab...................</td>
<td>1</td>
</tr>
<tr>
<td>MP 2119</td>
<td>Physics I or Ic.............................</td>
<td>4</td>
</tr>
<tr>
<td>MP 2121</td>
<td>Calculus II...................................</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>15</strong></td>
</tr>
</tbody>
</table>
Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 2220</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CH 2220L</td>
<td>Organic Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>MP 2219</td>
<td>Physics II or IIIc</td>
<td>4</td>
</tr>
<tr>
<td>MP 2223</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

Humanities Area: select one of the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Introduction to Sociology</td>
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<tr>
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<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 4203</td>
<td>Social Psychology and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human Interaction</td>
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JUNIOR YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CH 3130</td>
<td>Analytical Chemistry I</td>
<td>4</td>
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<tr>
<td>CH 3125</td>
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<td>3</td>
</tr>
<tr>
<td>CH 3125L</td>
<td>Physical Chemistry I Lab</td>
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<tr>
<td>MP 3124</td>
<td>Physics IIIc</td>
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<tr>
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<td>Social Sciences Area</td>
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</tr>
<tr>
<td></td>
<td>Restricted Elective</td>
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</table>

Biochemistry Minor

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 2003</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BY 3002</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BY 4155</td>
<td>Molecular Biology</td>
<td>4</td>
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<tr>
<td>CH 4205</td>
<td>Advanced Biochemistry</td>
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Second Semester

<table>
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<tr>
<th>Course No.</th>
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<tbody>
<tr>
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<tr>
<td>CH 3223</td>
<td>Analytical Chemistry II</td>
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<tr>
<td>CH 3224</td>
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<td>CH 3224L</td>
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<td>CH 2006</td>
<td>Safety in the Lab</td>
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Societal Area: select two courses from the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Biotechnology Minor

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 2003</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BT 3000</td>
<td>Introduction to Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BY 3002</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>FS 3122</td>
<td>Food Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>FS 4004</td>
<td>Industrial Fermentations</td>
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SENIOR YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
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</thead>
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<tr>
<td>CH 4117</td>
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<tr>
<td>CH 4126</td>
<td>Advanced Inorganic Chemistry</td>
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</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
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</table>

Biochemistry Minor

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 2003</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BT 3000</td>
<td>Introduction to Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BY 3002</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>FS 3122</td>
<td>Food Engineering I</td>
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Second Semester

<table>
<thead>
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<tr>
<td>CH 3220</td>
<td>Advanced Organic Chemistry</td>
<td>3</td>
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<tr>
<td>CH 4241</td>
<td>Physical Chemistry III</td>
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<td>Physical Chemistry III Lab</td>
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<td>CH 4201</td>
<td>Chemistry Seminar</td>
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<td>LA 1060</td>
<td>Introduction to the Arts</td>
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Humanities Area: select two courses from the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
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</tbody>
</table>

Biotechnology Minor

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 2003</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BT 3000</td>
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<td>3</td>
</tr>
<tr>
<td>BY 3002</td>
<td>General Microbiology</td>
<td>4</td>
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<td>FS 3122</td>
<td>Food Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>FS 4004</td>
<td>Industrial Fermentations</td>
<td>3</td>
</tr>
</tbody>
</table>

Restricted Electives: any Science or Mathematics course that is not already required.
Undergraduate Programs

**COMPUTER AND BUSINESS INFORMATION SYSTEMS**

**Faculty:**
Guoqi (George) Lu, Chairperson
Kenneth Lee

The CBIS department offers two IT courses for all DeVal students. The IT Concepts course emphasizes concepts of computer hardware and software, web technologies, telecommunications and networks, databases, and information systems; the Computer Applications course emphasizes hands-on exercises and a working knowledge of Windows operating system, word processing, spreadsheet, and presentation software applications.

The department also offers several high level IT courses for students with various specializations in the Business Administration, Education, and English departments.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete and introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

**Minor in Computer and Business Information Systems**

Students must meet with the CBIS Chairperson in advance to create a minor in CBIS that will best benefit the individual student. Required courses for this minor are: IT 1031 Intermediate Computer Applications (3 credits) plus five additional IT courses (15 credits) that must be approved in advance by the CBIS chairperson.

Any courses required by the student’s major cannot be used in this minor.

**COUNSELING PSYCHOLOGY**

**Faculty:**
Jack W. Schmidt, Chairperson
Allison A. Buskirk-Cohen
Audrey Ervin

The Counseling Psychology major at Delaware Valley College offers a unique opportunity for students interested in understanding the human psyche and helping others. Unlike general psychology programs offered at other schools, the Counseling Psychology major provides students with advanced training in counseling psychology so they are better prepared to join the mental health profession.

The Counseling Psychology curriculum is consistent with American Psychological Association guidelines. The curriculum includes 19 credits of counseling foundation classes, 18 credits of counseling concentration classes, and 18 credits of advanced counseling psychology electives that will enhance students’ understanding of this field. The curriculum is practitioner-oriented, rather than research-oriented, in accordance with Delaware Valley College’s emphasis on professional studies.

The total number of credits required for graduation with a degree in Counseling Psychology is 125, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete and introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.
### RECOMMENDED COURSE SEQUENCE

#### FRESHMAN YEAR

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BY 1116</td>
<td>Biological Science I</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
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<tr>
<td>IT 1011</td>
<td>Information Technology Concepts... 1.5</td>
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<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions</td>
<td>3</td>
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<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
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Total .......................................................... 14

**Second Semester**

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<thead>
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<th>Course Title</th>
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<tbody>
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<td>EN 1201</td>
<td>English II</td>
<td>3</td>
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<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>MP 1203</td>
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</tr>
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<td>MP 1204</td>
<td>Calculus I</td>
<td>3-4</td>
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Total .......................................................... 16-17

#### SOPHOMORE YEAR

**First Semester**

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<th>Course Title</th>
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<tbody>
<tr>
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<td>Introduction to the Fine Arts</td>
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<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2375</td>
<td>Personality Theories</td>
<td>3</td>
</tr>
<tr>
<td>LA 2450</td>
<td>Life Span Development</td>
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Total .......................................................... 15

**Second Semester**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
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<tr>
<td>BA 2005</td>
<td>Speech</td>
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<tr>
<td>LA 2575</td>
<td>Introduction to Counseling Theories</td>
<td>3</td>
</tr>
<tr>
<td>LA 2620</td>
<td>Multicultural Issues in Psychology</td>
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Total .......................................................... 15

#### JUNIOR YEAR

**First Semester**

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<tr>
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<td>Introduction to Literature</td>
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<td>LA 3380</td>
<td>Introduction to Counseling Techniques</td>
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</tr>
<tr>
<td>LA 3390</td>
<td>Measurement and Assessment in Psychology</td>
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<td>MP 3231</td>
<td>Statistics for Research</td>
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Total .......................................................... 15

### Second Semester

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<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Methods of Psychological Research with Lab</td>
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<td>History and Systems in Psychology</td>
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Total .......................................................... 16

#### SENIOR YEAR

**First Semester**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
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<td>Abnormal Psychology</td>
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<td>LA 4015</td>
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Total .......................................................... 15

**Second Semester**

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<thead>
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<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>LA 4045</td>
<td>Seminar (Counseling Psychology)</td>
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</tr>
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<td>LA 4046</td>
<td>Developmental Disabilities</td>
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Total .......................................................... 15

**Advanced Psychology Electives:** take a total of 18 credits:

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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</tr>
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<td>LA 3034</td>
<td>Adolescent Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 3055</td>
<td>Substance Use and Abuse</td>
<td>3</td>
</tr>
<tr>
<td>LA 3750</td>
<td>Child Development</td>
<td>3</td>
</tr>
<tr>
<td>LA 4040</td>
<td>Developmental Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>LA 4203</td>
<td>Social Psychology and Human Interaction</td>
<td>3</td>
</tr>
<tr>
<td>LA 4372</td>
<td>Couples and Family Counseling</td>
<td>3</td>
</tr>
<tr>
<td>LA 4583</td>
<td>Introduction to Behavior</td>
<td>3</td>
</tr>
<tr>
<td>LA 4892</td>
<td>Childhood Psychopathology</td>
<td>3</td>
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</table>

**Humanities Area:** select two courses from the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Minor in Psychology

A minor in Psychology allows students majoring in other disciplines the opportunity to develop their understanding of human behavior, thus enhancing their credentials for prospective employers or graduate admissions officers. The minor in psychology must be arranged in advance with the permission of the department chairperson.
Undergraduate Programs

CRIMINAL JUSTICE ADMINISTRATION

Faculty:
Donna S. Kochis, Chairperson

The curriculum in Criminal Justice Administration is an interdisciplinary career program offering sociopsychological, business management, and administration preparation for students planning to enter the field of criminal justice in the American legal system. The program offers professional preparation through the study of criminal justice, sociology, psychology, business management, liberal arts and the science of investigation.

The curriculum prepares the student through specialized courses with the necessary knowledge of the subject field and the professional skills and state-of-the-art techniques required for a successful career. The curriculum integrates theory and practice for the development of the individual along with sound philosophical insights for understanding society and the ideals of the American system of justice.

Additionally, the curriculum offers opportunities for continued professional growth to assist in the educational growth and development of the communities served by the College. The DeVal program fosters the advancement of knowledge and professionalism in the American legal system.

The curriculum helps to prepare the individual for management careers in law enforcement, corrections, probation and parole, security, and other aspects of the judicial system. It also serves as a preparation for students considering graduate or law school.

The total number of credits required for graduation with a degree in Criminal Justice Administration is 124, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete and introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCE

FRESHMAN YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 1005</td>
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<td>3</td>
</tr>
<tr>
<td>CJ 1009</td>
<td>Introduction to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
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</tr>
<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
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</tr>
<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
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<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>17</strong></td>
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Second Semester

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>LA 2012</td>
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<td>PE 1209</td>
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SOPHOMORE YEAR
First Semester

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<tr>
<th>Course No.</th>
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<tr>
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<td>CJ 2124</td>
<td>Criminology</td>
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<td>LA 3034</td>
<td>Adolescent Psychology or</td>
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<td>LA 4014</td>
<td>Abnormal Psychology</td>
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<td>MP 1203</td>
<td>Elementary Functions or</td>
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Second Semester

BY 1216 Natural Science II or 
CH 1001 Chemistry Fundamentals and .......... 3
CH 1001L Chemistry Fundamentals Lab (1) 
CJ 3120 Penology ..................................... 3
EN 2028 Introduction to Literature............... 3
Major Elective ........................................ 3
Elective .............................................. 3

Total ................................................................ 15-16

JUNIOR YEAR

First Semester

Course No. Course Title Credits
BA 2008 Macroeconomics............................. 3
BA 2161 Business Law I................................ 3
BA 2225 Accounting Fundamentals ............... 3
Humanities Area ........................................ 3
Elective ................................................. 3

Total ................................................................ 15

Second Semester

BA 2261 Business Law II ............................... 3
BA 3027 Human Resource Management
BA 3229 Organizational Behavior .................... 3
LA 4228 The American Family ....................... 3
Major Elective ........................................... 3
Elective .................................................... 3

Total ................................................................ 15

SENIOR YEAR

First Semester

Course No. Course Title Credits
CJ 3230 International Crime and Terrorism....... 3
CJ 4240 Senior Seminar: Research Methods in Criminal Justice Admin. ....... 3
LA 1060 Introduction to the Fine Arts.............. 3
LA 4037 Non-Western Societies ....................... 3
Elective .................................................... 3

Total ................................................................ 15

Second Semester

CJ 3250 Issues in Criminal Justice Administration and Management .... 3
LA 4224 Cultural Minorities ........................... 3
Major Elective ........................................... 3
Elective .................................................... 3

Total ................................................................ 12

Major Electives: select three courses from the following:
CJ 2225 Juvenile Delinquency.......................... 3
CJ 2230 Women, Crime and the Criminal Justice System ...................... 3
CJ 3140 Probation, Parole and Community

CJ 3145 Court Process.................................... 3
CJ 3150 Criminal Law.................................... 3
CJ 3210 Criminal Procedure .......................... 3
CJ 3240 Organized and White Collar Crime .... 3
CJ 4220 Criminalistics.................................. 3

Humanities Area: select two courses from the following:
LA 2040 Modern History of Western Societies .. 3
LA 2042 Introduction to Philosophy................. 3
LA 2138 History of Western Civilization I ....... 3
LA 3032 American History and Government since 1877 .................. 3
LA 4127 United States Foreign Policy .............. 3

DAIRY SCIENCE

Faculty:
Pamela J. Reed, Chairperson
Rodney Gilbert
Larry D. Morris
Bruce F. Richards

The curriculum in Dairy Science emphasizes the basic sciences, economics, and general education, as well as courses in professional dairy science. As a result, the students are prepared to enter a wide variety of occupations directly and indirectly related to the field of specialization.

With a 95% rate of placing graduates within six months of graduation, there are a variety of employment opportunities for Dairy Science graduates. Opportunities are found principally in six occupational categories: sales and service, production, teaching, veterinary medicine, research and agribusiness. The drug and feed industries are particularly interested in dairy science graduates for sales and administrative positions. Service opportunities are available in state and federal civil services, artificial insemination, state extension services, dairy plant and farm inspection, and cooperatives offering supplies and services to the dairyman.

A number of graduates enter productive farming as dairy herd managers, farm managers, and farm owners. Teaching at the secondary school level in the sciences has become an increasingly popular field for graduates in dairy science. In recent years, graduate work leading to industrial research and college teaching positions has been attracting a number of graduates.

Students interested in attending veterinary school can meet the requirements for veterinary programs offered in the United States through the Dairy Science program. Veterinary schools have unique admission
Undergraduate Programs

requirements; thus, students should choose their undergraduate elective credits carefully to meet veterinary school requirements.

The total number of credits required for graduation with a degree in Dairy Science is 131, which includes 4 credits for completion of the Experiential Learning. The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• Students must have completed 27 credits to enroll in Experiential Learning Activities.
• All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

**RECOMMENDED COURSE SEQUENCE**

**FRESHMAN YEAR**

**First Semester**

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<td>Biological Science I</td>
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<td>CH 1103</td>
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**Second Semester**

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<td>Principles of Dairy Science</td>
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**SOPHOMORE YEAR**

**First Semester**

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<td>CH 2003</td>
<td>Princ. of Organic Chemistry</td>
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<td>Dairy and Livestock Genetics</td>
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**Second Semester**

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<td>DS 2213</td>
<td>Dairy Cattle Judging</td>
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<td>Introduction to Literature</td>
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**JUNIOR YEAR**

**First Semester**

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<td>Principles of Animal Nutrition</td>
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<td>BY 3002</td>
<td>General Microbiology</td>
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<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
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<td>LA 4037</td>
<td>Non-Western Societies</td>
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**Second Semester**

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<td>DS 3010</td>
<td>Animal Feeding and Nutrition</td>
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<td>DS 3118</td>
<td>Anatomy and Physiology of Animals</td>
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<td>DS 3226</td>
<td>Dairy Husbandry Techniques I</td>
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**SENIOR YEAR**

**First Semester**

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<td>DS 4115</td>
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<td>DS 4143</td>
<td>Dairy Husbandry Techniques II</td>
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<td>DS 4134</td>
<td>Physiology of Reproduction</td>
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Second Semester

DS 4235 Dairy Systems and Management ........ 3
BA 2008 Macroeconomics .......................... 3
Social Sciences Area ............................... 3
Electives ........................................... 6
Total .................................................. 15

Social Science Area: select one of the following:
LA 2012 Introduction to Sociology ............... 3
LA 2036 Introduction to Psychology ............... 3
LA 4203 Social Psychology and
Human Interaction ................................ 3

Humanities Area: select two courses from the following:
LA 2040 Modern History of Western Societies .. 3
LA 2042 Introduction to Philosophy............... 3
LA 2138 History of Western Civilization I........ 3
LA 3032 American History and
Government since 1877 ......................... 3
LA 4127 United States Foreign Policy ............ 3

EDUCATION

Faculty:
Kathleen Kennedy-Reilly, Chairperson
Anthony LaSalle

The Education Department at Delaware Valley College is a premier provider of training for secondary education teachers in the state of Pennsylvania. Students who major in Education will be prepared to teach at the secondary school level (grades 7 to 12) in the following subjects: biology, chemistry, English, general science, or social studies. Agriculture and Business/Computers/Information Technology certifications are K-12.

The Education curriculum is a blend of professional studies, teaching competencies, field experience and the subject area concentration. The Education major provides a career program based on knowledge of subject content (through required courses in the area of certification), understanding of the teaching and learning processes (through required courses in Education and field experience), and proficiency in the liberal arts (through required College core courses).

A program sequence of courses for each content area and certification is prescribed. The program sequence of courses strives for thorough knowledge of subject area, classroom management skills for the diverse and inclusive classroom, communication skills, use of instructional technology, and the development of rational analysis and critical judgment as it applies to education.

In compliance with Chapter 354 of the General Standards of the Pennsylvania Department of Education, students are required to seek formal admission into the Education major. This process is outlined in the Department Manual, and requires the following:

- Three credits of college-level English or American Literature; three credits of college-level English Composition; and six credits of college-level Mathematics.
- Cumulative GPA of 3.0 or higher by the completion of forty-eight credit hours. The 3.0 GPA must be maintained through graduation in order for Delaware Valley College to recommend the individual for PA certification. If the GPA falls below 3.0, the Education Department will place the student on probation until the student raises the GPA to the acceptable level.
- All transfer students must enter with a cumulative 3.0 GPA in order to be admitted to the Education Program. A 3.0 GPA must be maintained in order to receive recommendation for certification.
- Attainment of proper background clearances Acts 34, 82, 114, and 151.
- Successful completion of Pre-Service Academic Performance Assessment (PAPA) in Reading, Writing and Math.
- An Application for Admission into the major must be completed after forty-eight credit hours. Eligibility and departmental recommendation for the student teaching practicum are dependent upon formal acceptance into the major.

The Department Chair, in consultation with the student’s advisor and Content Area Chair, reviews the applications to determine formal acceptance to the Education Department. Students will not be permitted to progress in the professional sequence of the program until testing and grade standards are met; they will be re-examined in subsequent semesters to determine eligibility and their future success in the program.

For the past three years, Delaware Valley College pass rates for the Praxis II exams have exceeded 90% in Agriculture (Fundamental Subjects), Agriculture Content, Biology, Business (Fundamental Subjects), Business Content, and English Language and Literature. For complete scoring information, including Praxis scores, see the Pennsylvania Department of Education site at http://www.teacherspassrates.ed.state.pa.us.
Undergraduate Programs

A student may enter the Education program as a major in Education or as a major in an academic discipline seeking certification. The number of credits required for graduation with a degree in Secondary Education is 127-136 credits, depending on the content area. This includes 12 credits earned for successful completion of the Student Teaching Seminar.

All certification candidates must also complete field experience competencies as required by the Pennsylvania Department of Education.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Education students should consult with their advisors for specific major requirements to complete the Experiential Learning Program.

Minimum requirements:

• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• Students must have completed 27 credits to enroll in Experiential Learning Activities.
• All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

RECOMMENDED COURSE SEQUENCE

The curriculum of Education students is a blend of professional studies, subject area concentrations, and the liberal arts; consequently, student course load is a reflection of Education courses, courses in the areas of concentration and courses from the DeVal Core Curriculum. Before registering each semester, students should consult with their Education Advisor as well as their content area advisor when choosing courses. All candidates for certification are required to complete all field experience competencies before student teaching as required by Pennsylvania Department of Education.

Agriculture

FRESHMAN YEAR

First Semester

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<th>Course Title</th>
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<td>Biological Science I</td>
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<td>ED 1010</td>
<td>American Education</td>
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<td>EN 1101</td>
<td>English I</td>
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<td>ED 2030</td>
<td>Educational Psychology</td>
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<td>Informational Technology Concepts</td>
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SOPHOMORE YEAR

First Semester

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<td>Agricultural Machinery</td>
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<td>ED 2142</td>
<td>Instructional Methods</td>
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<td>Introduction to Literature</td>
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Second Semester

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JUNIOR YEAR

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<td>Small Business Management</td>
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<td>ELL &amp; the Multicultural Classroom</td>
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<td>LA 3040</td>
<td>Developmental Disabilities</td>
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Second Semester

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<td>in the Inclusive Classroom</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities Area</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Agriculture Elective</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>
SENIOR YEAR

First Semester

Course No.  Course Title                          Credits
AB 4113    Farm Management                        3
ED 3014    Teaching Agriculture: Methods and Experiences  3
LA 4037    Non-Western Societies                   3
Humanities Area                                      3
Agriculture Electives                                 6
Total                                                18

Second Semester

ED 4010    Student Teaching and Professional Seminar  12
Total                                                12

Agricultural Electives: Select a minimum of one course each in dairy, poultry and beef:

AS 4014    Beef Science                           3
AS 4029    Poultry Science                       3
DS 1065    Principles of Dairy Science            3
DS 3226    Dairy Husbandry                        3

Agriculture elective credits may be selected from the following areas: Agribusiness, Agronomy and Environmental Science, Animal Science, Dairy Science, Food Science, Horticulture, and Ornamental Horticulture and Environmental Design.
Other experiences required: FFA Chapter field experience.

A total of 136 credits is required for the Agriculture Certification.

Certification in Biology

FRESHMAN YEAR

First Semester

Course No.  Course Title                          Credits
BY 1113     Biology I                              4
CH 1103     General Chemistry I                   3
CH 1103L    General Chemistry I Lab               1
ED 1010     American Education                    3
EN 1101     English I                             3
IT 1011     Information Technology Concepts....... 1.5
IT 1012     Computer Applications                 1.5
LA 1020     Skills for College Success            1
Total                                                18

Second Semester

BY 1214     Biology II                             4
CH 1203     General Chemistry II                  3
CH 1203L    General Chemistry II Lab              1
ED 2030     Educational Psychology                3
EN 1201     English II                             3
MP 1204     Calculus I                             4
Total                                                18

Calculus I is the minimum mathematics requirement for the Biology certification. Non-required mathematics courses are counted as electives, which are not required for the Education major.

SOPHOMORE YEAR

First Semester

Course No.  Course Title                          Credits
BY 2001     Botany                                 4
BY 2108     Ecology                                4
CH 2006     Safety in the Laboratory              1
CH 2120     Organic Chemistry I                   3
CH 2120L    Organic Chemistry I Lab               1
ED 2142     Instructional Methods and Assessment.. 3
EN 2028     Introduction to Literature            3
Total                                                19

Second Semester

BA 2008     Macroeconomics                        3
BY 2003     Genetics                               3
CH 2203     Biochemistry                          3
CH 2203L    Biochemistry Lab                      1
CH 2220     Organic Chemistry II                  3
CH 2220L    Organic Chemistry II Lab              1
ED 2210     Literacy in the Content Area Classroom.. 3
PE 1109     Physical Education I                  1
Total                                                18

JUNIOR YEAR

First Semester

Course No.  Course Title                          Credits
BY 3002     General Microbiology                  4
BY 3008     Introduction to Earth/Space            3
ED 3230     English Language Learners and the Multicultural Classroom 3
LA 4040     Developmental Disabilities             3
MP 2119     Physics I                              4
PE 1209     Physical Education II                 1
Total                                                18

Second Semester

BY 2223     Comparative Anatomy                   4
ED 2040     Field Experience                      1
ED 3327     Differentiated Instruction            3
MP 2224     Physics II                             4
MP 3231     Statistics for Science                3
Humanities Area                                      3
Total                                                18
Undergraduate Programs

SENIOR YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ED 3011</td>
<td>Teaching Science: Methods and Experiences</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non Western Societies</td>
<td>3</td>
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<tr>
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<td>Humanities Area</td>
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Second Semester

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ED 4010</td>
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Humanities Area: Select two courses from the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
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</table>

A total of 136 credits is required for Certification in Biology.

Students who complete the Certification in Biology program are eligible for General Science Certification.

CERTIFICATION IN BUSINESS, COMPUTERS AND INFORMATION TECHNOLOGY

FRESHMAN YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 1005</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BY 1115</td>
<td>Natural Science I</td>
<td>3</td>
</tr>
<tr>
<td>ED 1010</td>
<td>American Education</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
</tr>
<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
<td>1</td>
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<tr>
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Second Semester

<table>
<thead>
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<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>BY 1216</td>
<td>Natural Science II</td>
<td>3</td>
</tr>
<tr>
<td>ED 2030</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions</td>
<td>3</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>PE 1209</td>
<td>Physical Education II</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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SOPHOMORE YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 2123</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BA 2161</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>ED 2142</td>
<td>Instructional Methods and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>IT 1031</td>
<td>Intermediate Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>MP 2114</td>
<td>Business Statistics</td>
<td>3</td>
</tr>
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<td><strong>Total</strong></td>
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Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 2017</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA 2224</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>BA 3016</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>ED 2210</td>
<td>Literacy in the Content Area</td>
<td>3</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>IT 2118</td>
<td>Web Design</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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</tbody>
</table>

JUNIOR YEAR

First Semester

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 3127</td>
<td>Finance</td>
<td>3</td>
</tr>
<tr>
<td>ED 3230</td>
<td>English Language Learners and the Multicultural Classroom</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>LA 4040</td>
<td>Developmental Disabilities</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities Area</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 3028</td>
<td>Supervision and Management</td>
<td>3</td>
</tr>
<tr>
<td>BD 3327</td>
<td>Differentiated Instruction</td>
<td>3</td>
</tr>
<tr>
<td>ED 2040</td>
<td>Field Experience</td>
<td>1</td>
</tr>
<tr>
<td>EN 2226</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities Area</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</table>

SENIOR YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 3023</td>
<td>E-Commerce</td>
<td>3</td>
</tr>
<tr>
<td>BA 4239</td>
<td>International Trade</td>
<td>3</td>
</tr>
<tr>
<td>ED 3015</td>
<td>Teaching Business: Methods and Experiences</td>
<td>3</td>
</tr>
<tr>
<td>IT 2216</td>
<td>Introductory Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 4109</td>
<td>Network Concepts</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>15</strong></td>
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</tbody>
</table>
Second Semester
ED 4010  Student Teaching and Professional Seminar ............ 12

Total .............................................. 12

Humanities Area: Select two courses from the following:
LA 2040  Modern History of Western Societies .......................... 3
LA 2042  Introduction to Philosophy .................................... 3
LA 2138  History of Western Civilization I ........................... 3
LA 3032  American History and Government since 1877 ............ 3
LA 4127  United States Foreign Policy ................................. 3

A total of 128 credits is required for Certification in Business, Computers and Information Technology.

Certification in Chemistry

FRESHMAN YEAR
First semester
Course No.  Course Title ........................................ Credits
CH 1103 General Chemistry I ............................................. 3
CH 1103L General Chemistry I Lab .................................. 1
ED 1010 American Education ........................................... 3
EN 1101 English I ......................................................... 3
IT 1101 Information Technology Concepts .......................... 1.5
IT 1012 Computer Applications ........................................ 1.5
LA 1020 Skills for College Success ................................... 1
MP 1204 Calculus I ....................................................... 4
PE 1109 Physical Education I ........................................... 1

Total .................................................. 19

Second Semester
CH 1203 General Chemistry II ......................................... 3
CH 1203L General Chemistry II Lab ................................. 1
ED 2030 Educational Psychology ...................................... 3
EN 1201 English II ....................................................... 3
IT 1031 Intermediate Computer Applications .................... 3
MP 2121 Calculus II ..................................................... 4
PE 1209 Physical Education II ....................................... 1

Total .................................................. 18

SOPHOMORE YEAR
First Semester
Course No.  Course Title ........................................ Credits
BY 1116 Biological Science I ......................................... 3
CH 2120 Organic Chemistry I ........................................ 3
CH 2120L Organic Chemistry I Lab .................................. 1
ED 2142 Instructional Methods and Assessment .................. 3
LA 2005 Speech ......................................................... 3
MP 2119 Physics I ..................................................... 4

Total .................................................. 17

Second Semester
BY 1217 Biological Science II ........................................... 3
CH 2006 Safety in the Laboratory .................................... 1
CH 2220 Organic Chemistry II ........................................ 3
CH 2220L Organic Chemistry II Lab ............................... 1
ED 2210 Literacy in the Content Area Classroom ............... 3
EN 2028 Introduction to Literature ................................ 3
MP 2219 Physics II ................................................... 4

Total .................................................. 18

JUNIOR YEAR
First Semester
Course No.  Course Title ........................................ Credits
CH 2005 Chemistry of Hazardous Materials or CH elective .... 1
CH 3125 Physical Chemistry I ........................................ 3
CH 3125L Physical Chemistry I Lab ............................... 1
CH 3130 Analytical Chemistry ....................................... 4
ED 3230 English Language Learners and the Multicultural Classroom ........................................... 3
ED 2040 Field Experience ............................................... 1
LA 4040 Developmental Disabilities ................................. 3

Total .................................................. 16

Second Semester
CH 2203 Biochemistry .................................................. 3
CH 2203L Biochemistry Lab ........................................... 1
CH 3224 Physical Chemistry II ....................................... 3
CH 3224L Physical Chemistry II Lab ............................... 1
ED 3327 Differentiated Instruction ................................ 3
LA 2042 Introduction to the Fine Arts ............................. 3

Total .................................................. 17

SENIOR YEAR
First Semester
Course No.  Course Title ........................................ Credits
BA 2008 Macroeconomics .............................................. 3
CH 3157 Inorganic Synthesis Lab ................................... 2
CH 4126 Advanced Inorganic Chemistry ......................... 3
ED 3011 Teaching Science: Methods and Materials .......... 3
LA 4037 Non-Western Societies .................................... 3

Total .................................................. 17

Delaware Valley College 75
Undergraduate Programs

Humanities Area: Select two courses from the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies ..............</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy..........................</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I ..................</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government since 1877 .......</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy ......................</td>
<td>3</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 4010</td>
<td>Student Teaching and Professional Seminar ..........</td>
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</table>

Total ........................................................................ 12

A total of 134 credits is required for the Chemistry Certification.

Chemistry Certification students who complete the following courses are also eligible for General Science certification:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BY 2003</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BY 2108</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BY 3008</td>
<td>Introduction to Earth and Space Science ...........</td>
<td>3</td>
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Certification in English

**FRESHMAN YEAR**

**First Semester**

<table>
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<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BY 1115</td>
<td>Natural Science I</td>
<td>3</td>
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<tr>
<td>ED 1010</td>
<td>American Education</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
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</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts ........................</td>
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<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra</td>
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</tr>
<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
<td>1</td>
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Total ........................................................................ 16

**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BY 1216</td>
<td>Natural Science II</td>
<td>3</td>
</tr>
<tr>
<td>ED 2030</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
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<tr>
<td>MP 1203</td>
<td>Elementary Functions</td>
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<td>PE 1209</td>
<td>Physical Education II</td>
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Total ........................................................................ 17

**SOPHOMORE YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics...........................................</td>
<td>3</td>
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<tr>
<td>ED 2142</td>
<td>Instructional Methods and Assessment ................</td>
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<td>EN 2010</td>
<td>Linguistics................................................</td>
<td>3</td>
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<td>EN 2134</td>
<td>Literary Interpretation..................................</td>
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<td>EN 2136</td>
<td>American Literature before the Civil War ..........</td>
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<tr>
<td>EN 2138</td>
<td>World Literature</td>
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Total ........................................................................ 18

**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
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<tbody>
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<td>Literacy in the Content Area Classroom................</td>
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<tr>
<td>EN 2135</td>
<td>Classical and Medieval Literature ...................</td>
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<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts .......................</td>
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<td>EN 2238</td>
<td>American Literature after the Civil War ............</td>
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<tr>
<td>LA 4040</td>
<td>Developmental Disabilities</td>
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<tr>
<td>Humanities Area .............................................</td>
<td>3</td>
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</tbody>
</table>

Total ........................................................................ 18

**JUNIOR YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ED 3230</td>
<td>English Language Learners and the Multicultural Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EN 2129</td>
<td>Structure of English</td>
<td>3</td>
</tr>
<tr>
<td>EN 1115</td>
<td>Intro to Communication</td>
<td>3</td>
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<tr>
<td>EN 3030</td>
<td>Shakespeare................................................</td>
<td>3</td>
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<td>EN 3050</td>
<td>Contemporary Literature</td>
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<tr>
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Total ........................................................................ 18

**Second Semester**

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ED 2040</td>
<td>Field Experience</td>
<td>1</td>
</tr>
<tr>
<td>ED 3327</td>
<td>Differentiated Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EN 2240</td>
<td>Theory of Writing</td>
<td>3</td>
</tr>
<tr>
<td>EN 3031</td>
<td>Introduction to Film</td>
<td>3</td>
</tr>
<tr>
<td>EN 3055</td>
<td>English Renaissance and Enlightenment Literature</td>
<td>3</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>Humanities Area .............................................</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total ........................................................................ 19
SENIOR YEAR

First Semester
Course No.   Course Title                        Credits
ED 3013    Teaching English: Methods and Experiences         3
EN 3010    Adolescent and Young Adult Literature            3
EN 4010    Critical Theory                                  3
EN 4050    English Literature of the 19th and Early 20th Century 3
EN 4152    Senior Seminar                                    3
Total                                                      15

Second Semester
ED 4010    Student Teaching Seminar and Professional Seminar       12
Total                                                      12

Humanities Area: Select two courses from the following:
LA 2040    Modern History of Western Societies                3
LA 2042    Introduction to Philosophy                         3
LA 2138    History of Western Civilization I                 3
LA 3052    American History and Government since 1877       3
LA 4127    United States Foreign Policy                       3

A total of 130 credits is required for English Certification.

Certification in General Science

FRESHMAN YEAR

First Semester
Course No.   Course Title                        Credits
BY 1116    Biological Science I                  3
CH 2006    Safety in the Laboratory             1
ED 1010    American Education                   3
EN 1101    English I                            3
IT 1011    Information Technology Concepts       1.5
IT 1012    Computer Applications                1.5
LA 1060    Introduction to the Fine Arts        3
PE 1109    Physical Education I                 1
Total                                                      17

Second Semester
BA 2008    Macroeconomics                        3
BY 1217    Biological Science II                3
ED 2030    Educational Psychology               3
EN 1201    English II                           3
LA 1020    Skills for College Success           1
MP 1203    Elementary Functions                 3
PE 1209    Physical Education II                1
Total                                                      17

SOPHOMORE YEAR

First Semester
Course No.   Course Title                        Credits
CH 1103    General Chemistry I                  3
CH 1103L   General Chemistry I Lab              1
ED 2142    Instructional Methods and Assessment. 3
LA 2005    Speech                               3
EN 2028    Introduction to Literature           3
Science Elective                                     3-4
Total                                                      16-17

Second Semester
BY 3008    Introduction to Earth and Space Science 3
CH 1203    General Chemistry II                 3
CH 1203L   General Chemistry II Lab             1
ED 2210    Literacy in the Content Area Classroom 3
LA 4040    Developmental Disabilities             3
Humanities Area                                      3
Total                                                      16

JUNIOR YEAR

First Semester
Course No.   Course Title                        Credits
BY 2003    Genetics                             3
BY 2108    Ecology                              4
CH 2003    Principles of Organic Chemistry I    3
CH 2003L   Principles of Organic Chemistry I Lab 1
ED 3230    English Language Learners            3
MP 2119    Physics I                            4
Total                                                      18

Second Semester
CH 2203    Biochemistry                         3
CH 2203L   Biochemistry Lab                     1
ED 2040    Field Experience                     1
ED 3327    Differentiated Instruction           3
MP 2219    Physics II                           4
MP 3231    Statistics for Science               3
Total                                                      15

SENIOR YEAR

First Semester
Course No.   Course Title                        Credits
BY 3002    General Microbiology                 4
ED 3011    Teaching Science: Methods and Experiences 3
LA 4037    Non-Western Societies                 3
Humanities Area                                     3
Science Elective                                     3-4
Total                                                      16-17

Delaware Valley College 77
Undergraduate Programs

Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ED 4010</td>
<td>Student Teaching and Professional Seminar</td>
<td>12</td>
</tr>
<tr>
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<td><strong>Total</strong></td>
<td><strong>12</strong></td>
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</table>

Humanities Area: Select two courses from the following:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

A total of 127 credits is required for the General Science Certification.

Certification in Social Studies

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 1115</td>
<td>Natural Science I</td>
<td>3</td>
</tr>
<tr>
<td>ED 1010</td>
<td>American Education</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>LA 1031</td>
<td>Early American History</td>
<td>3</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra</td>
<td></td>
</tr>
<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
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Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 1216</td>
<td>Natural Science II</td>
<td>3</td>
</tr>
<tr>
<td>ED 2030</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>3</td>
</tr>
<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>Modern American History</td>
<td>1.5</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions</td>
<td>1.5</td>
</tr>
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<td><strong>Total</strong></td>
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Sophomore Year

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ED 2142</td>
<td>Instructional Methods and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>LA 2224</td>
<td>PA History and Government</td>
<td>3</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
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Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 2210</td>
<td>Literacy in the Content Area Classroom</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>PE 1209</td>
<td>Physical Education II</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
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</table>

Junior Year

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 3230</td>
<td>English Language Learners and the Multicultural Classroom</td>
<td>3</td>
</tr>
<tr>
<td>ED 2040</td>
<td>Field Experiences</td>
<td>1</td>
</tr>
<tr>
<td>LA 3101</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>LA 3132</td>
<td>Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>LA 4224</td>
<td>Cultural Minorities</td>
<td></td>
</tr>
<tr>
<td>LA 4040</td>
<td>Developmental Disabilities</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 3327</td>
<td>Differentiated Instruction</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>LA 3240</td>
<td>Political and Cultural Geography</td>
<td>3</td>
</tr>
<tr>
<td>LA 3241</td>
<td>Technology in America</td>
<td></td>
</tr>
<tr>
<td>LA 4127</td>
<td>U.S. Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
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</tbody>
</table>

Senior Year

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 3016</td>
<td>Teaching Social Studies: Methods and Experiences</td>
<td>3</td>
</tr>
<tr>
<td>LA 4110</td>
<td>Critical Issues in World History</td>
<td>3</td>
</tr>
<tr>
<td>LA 4111</td>
<td>International Political Economics and Diplomacy</td>
<td>3</td>
</tr>
<tr>
<td>LA 4112</td>
<td>Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>LA 4228</td>
<td>The American Family</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 4010</td>
<td>Student Teaching and Professional Seminar</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

A total of 127 credits is required for the Social Studies Certification.
**Intern Certification**

The Education Department, through the Office of Continuing Education, offers a program in Intern Certification, the Teacher Intern Certification Program (TICP), for candidates who already possess a bachelor’s degree in one of the following content areas: Agriculture, Biology, Business, Chemistry, English, General Science, Mathematics or Social Studies.

To qualify for admission, students must possess a bachelor’s degree in a content area, a minimum of a 3.0 cumulative GPA, and six college credits in both English and mathematics. Successful completion of Praxis I and II exams may be required. Applicants with a minimum 2.8 GPA will be admitted to the program provisionally until they have completed 9 credit hours on campus with a 3.0 or higher GPA.

Prospective students should contact the Office of Continuing Education at 215-489-4848 for complete details of program requirements.

**TICP Course Sequence**

The seven required courses in the program are offered in cohort groupings, and run on an accelerated six-week schedule. Courses typically occur on Monday and Wednesday evenings or Tuesday and Thursday evenings or on Saturdays. The courses, which carry undergraduate credit, are currently offered in the following sequence:

- ED 1010 American Education.................................3
- ED 2030 Educational Psychology..............................3
- ED 2142 Instructional Methods and Assessment...........3
- LA 4040 Developmental Disabilities........................3
- ED 2210 Literacy in the Content Area Classroom.........3
- ED 3230 EEL and the multicultural classroom.............3
- ED 3327 Differentiated Instruction...........................3
- Total........................................................................21

To achieve the optimum experience from the program, intern candidates are required to take the courses in the listed sequence.

After successfully completing all Praxis exams, finishing 6 credits of education courses with a cumulative GPA of 3.0 or higher, and obtaining the background clearances required by the Pennsylvania Department of Education (Acts 34, 114 and 151), students may apply for the Intern Certificate.**

Candidates then secure their own full-time teaching position at a public, parochial or private accredited middle or secondary school in Pennsylvania for a minimum of 12 weeks. Teaching positions should be found within a 25-mile radius of a TICP site. Students will be recommended for Instructional I Certification when all required coursework and the internship observation have been completed according to program standards.

**The Intern Certificate is issued by the Pennsylvania Department of Education and is valid for only three years from the date of issuance. It may not be renewed.

**ENGLISH**

**Faculty:**
Jack W. Schmidt, Chairperson
Ronald DePeter
Joann Donigan
Brian Lutz
Linda J. Maisel
James O’Connor
Karen N. Schramm
Michael W. Stamps
Wilbert Turner, Jr.
Jessica McCall

**Majors within the English Degree**

Students in English may choose a major in English Literature or in Media and Communication. Students should discuss their goals and interests with their advisor in order to design the curriculum best suited for them.

**The English Literature Major**

Students enrolled in the English Literature major have the opportunity to study literary works from a variety of genres, periods and cultures. In addition to a broad knowledge of literature, they will gain an understanding of literary history and an awareness of how literary works relate to broader cultural issues. Students will also be exposed to various methods of literary criticism and interpretation.

The English Literature major at Delaware Valley College prepares students to enter the workforce with confidence, expertise and invaluable practical experience. Whether a student is preparing for a career as a high school teacher, a college professor, a journalist, a lawyer, or a business person, Delaware Valley College’s courses will provide the skills needed to succeed. Careful reading, clear thinking, and effective writing are needed in all areas of business and professional life. Good communication skills and the ability to critically analyze information can make the difference between a job and a growing career.

Students graduating from DeVal with a degree in English Literature have pursued careers in law, teaching, marketing, technical writing, journalism, and editing. In addition, Literature majors may earn
Undergraduate Programs

Teacher Certification in English at the secondary level (grades 7 through 12) by combining their literary study with a set of courses offered by the Education Department.

The number of credits required for graduation with a degree in English as an English Literature major is 127, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• Students must have completed 27 credits to enroll in Experiential Learning Activities.
• All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCE

FRESHMAN YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 1101</td>
<td>Information Technology Concepts</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>LA 2012</td>
<td>Introduction to Sociology or</td>
<td></td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
<td></td>
</tr>
<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
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Total ........................................................................................................... 16

Second Semester

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<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
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<td>MP 1204</td>
<td>Calculus I or</td>
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<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
<td>3-4</td>
</tr>
<tr>
<td>PE 1209</td>
<td>Physical Education II</td>
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<tr>
<td></td>
<td>Science Elective</td>
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<tr>
<td></td>
<td>Language Study Elective</td>
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Total ........................................................................................................... 16-17

SOPHOMORE YEAR
First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EN 2134</td>
<td>Literary Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>EN 2136</td>
<td>American Literature</td>
<td>3</td>
</tr>
<tr>
<td>EN 2138</td>
<td>Before the Civil War</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
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<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
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Total ........................................................................................................... 16

Second Semester

<table>
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<tr>
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<tbody>
<tr>
<td>EN 2135</td>
<td>Classical and Medieval Western Literature</td>
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<td>EN 2236</td>
<td>American Literature</td>
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</tr>
<tr>
<td>EN 2226</td>
<td>Professional Communications or</td>
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<tr>
<td>EN 3008</td>
<td>Journalism or</td>
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<tr>
<td>EN 3056</td>
<td>Technical Writing</td>
<td>3</td>
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<td>General Elective</td>
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Total ........................................................................................................... 15

JUNIOR YEAR
First Semester

<table>
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<tbody>
<tr>
<td>EN 2005</td>
<td>History of the English Language</td>
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<tr>
<td>EN 3030</td>
<td>Shakespeare</td>
<td>3</td>
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<tr>
<td>EN 3050</td>
<td>Contemporary Literature in English</td>
<td>3</td>
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<tr>
<td></td>
<td>English Elective</td>
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</tr>
<tr>
<td></td>
<td>General Elective</td>
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</tbody>
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Total ........................................................................................................... 15
Second Semester

EN 3055  Renaissance and Enlightenment Literature............... 3
LA 2042  Introduction to Philosophy.............................. 3
English Elective ........................................... 3
Language Study Elective ......................... 3
General Elective ........................................ 3
Total .................................................................. 15

SENIOR YEAR

First Semester

Course No.  Course Title  Credits
EN 4010  Critical Theory ....................... 3
EN 4152  Seminar (English) ...................... 3
Humanities Elective .............................. 3
English Elective ................................. 3
General Elective ................................. 3
Total .................................................................. 15

Second Semester

LA 4037  Non-Western Societies .................. 3
EN 4050  English Literature of the 19th and Early 20th Centuries........ 3
EN 4055  Themes in Literature ..................... 3
English Elective ................................. 3
General Elective ................................. 3
Total .................................................................. 15

The Media and Communication Major

The Media and Communication major has been designed to reflect the enormous change that has occurred in the communication industry. Advances in digital communication and the World Wide Web have created a wide range of opportunities for students interested in working as multi-media communicators. The Media and Communication program has been tailored to provide students with a curriculum that includes digital video production, digital photography, web design and writing across the converging mediums of print, Web and broadcast. This major is for the student who is a creative, hands-on learner with an artistic spirit and an entrepreneurial spark. The range of skills that students will learn in the Media and Communication program will give them a significant edge when they enter the digital workplace. The major prepares students for jobs as news writers, reporters and photographers, as well as, corporate communicators, educators, entrepreneurs and highly-trained candidates for graduate education.

The total number of credits required for graduation with a degree in English as a major in Media and Communication is 125, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major's program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCE

FRESHMAN YEAR

First Semester

Course No.  Course Title  Credits
EN 1101  English 1.................................... 3
EN 1115  Intro to Communications............. 3
IT 1011  Information Technology Concepts..... 1.5
IT 1012  Computer Applications................. 1.5
LA 1020  Skills for College Success 1
MP 1102  College Algebra or
MP 1203  Elementary Functions or
MP 1205  Finite Math.............................. 3
PE 1109  Physical Education........................ 1
Total .................................................................. 14

Second Semester

Course No.  Course Title  Credits
EN 1201  English.................................... 3
EN 2139  Media Management.................... 3
LA 2005  Speech.................................... 3
LA 2012  Intro to Sociology or
LA 2036  Introduction to Psychology......... 3
MP 1203  Elementary Functions or
MP 1204  Calculus or
MP 1205  Finite Mathematics.................. 3-4
PE 1209  Physical Education...................... 1
Total .................................................................. 16-17
## Undergraduate Programs

### SOPHOMORE YEAR

#### First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature or</td>
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</tr>
<tr>
<td>EN 2134</td>
<td>Literacy Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>EN 2226</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>EN 3017</td>
<td>RamPages or</td>
<td></td>
</tr>
<tr>
<td>EN 3027</td>
<td>The Cornucopia or</td>
<td></td>
</tr>
<tr>
<td>EN 3037</td>
<td>The Gleaner</td>
<td>0.5</td>
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<tr>
<td>IT 2118</td>
<td>Web Design</td>
<td>3</td>
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<td>General Elective</td>
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**Total ........................................................................ 15.5**

#### Second Semester

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>EN 2241</td>
<td>New Media Publication and Design</td>
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<tr>
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<td>News Reporting and Writing</td>
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</tr>
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<td>EN 3017</td>
<td>RamPages or</td>
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<tr>
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<td>The Cornucopia or</td>
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<tr>
<td>EN 3037</td>
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<td>Literature Elective</td>
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**Total ........................................................................ 15.5**

### JUNIOR YEAR

#### First Semester

<table>
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<tr>
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<tr>
<td>EN 3027</td>
<td>The Cornucopia or</td>
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<tr>
<td>EN 3037</td>
<td>The Gleaner</td>
<td>0.5</td>
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<tr>
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<td>Writing for Public Relations,</td>
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<tr>
<td></td>
<td>Promotion and Advertising</td>
<td>3</td>
</tr>
<tr>
<td>EN 4025</td>
<td>Video Production I</td>
<td>3</td>
</tr>
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<td></td>
<td>Language Study Elective</td>
<td>3</td>
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<td>Literature Elective</td>
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#### Second Semester

<table>
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<tr>
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<tbody>
<tr>
<td>EN 3017</td>
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<tr>
<td>EN 3027</td>
<td>The Cornucopia or</td>
<td></td>
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<tr>
<td>EN 3037</td>
<td>The Gleaner</td>
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<tr>
<td>EN 3246</td>
<td>Writing for Radio/TV</td>
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<tr>
<td>EN 4025</td>
<td>Video Production II</td>
<td>3</td>
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<td>Humanities Elective</td>
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<td>Language Study Elective</td>
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**Total ........................................................................ 15.5**

### SENIOR YEAR

#### First Semester

<table>
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<tbody>
<tr>
<td>EN 3040</td>
<td>Digital Photography and Editing</td>
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<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Communication Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Science Elective</td>
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**Total ........................................................................ 15**

#### Second Semester

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<tbody>
<tr>
<td>EN 4152</td>
<td>Seminar (English)</td>
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<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
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<td>3</td>
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<tr>
<td></td>
<td>Science Elective</td>
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**Total ........................................................................ 14**

### Humanities Electives

<table>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government since</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1877</td>
<td></td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
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*Required for English Literature majors.

### Communications Electives

<table>
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<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EN 3265</td>
<td>Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>EN 3056</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>BA 3128</td>
<td>E-Commerce</td>
<td>3</td>
</tr>
<tr>
<td>BA 2017</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA 4247</td>
<td>Advertising (Prerequisite: BA 2017)</td>
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</table>

### Language Study Electives

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EN 2005</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
<tr>
<td>EN 2010</td>
<td>Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>EN 2043</td>
<td>Semantics and Semiotics</td>
<td>3</td>
</tr>
<tr>
<td>EN 2240</td>
<td>Theory of Writing</td>
<td>3</td>
</tr>
<tr>
<td>EN 2129</td>
<td>Structure of English</td>
<td>3</td>
</tr>
</tbody>
</table>

(Foreign language courses may also be used as Language Study Electives.)

### Literature Electives

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 2238</td>
<td>American Literature after the Civil War</td>
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</tr>
<tr>
<td>EN 3020</td>
<td>Environmental Literature</td>
<td></td>
</tr>
<tr>
<td>EN 3050</td>
<td>Contemporary Literature in English</td>
<td></td>
</tr>
<tr>
<td>EN 2138</td>
<td>World Literature</td>
<td></td>
</tr>
<tr>
<td>EN 3031</td>
<td>Introduction to Film</td>
<td></td>
</tr>
<tr>
<td>EN 4050</td>
<td>English Literature of the 19th and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20th Century</td>
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</table>

### Science Electives

Take 6 credits of any Biology, Chemistry or Physics courses. Minimum requirement is Natural Science I and II.
**English Minor**
A minor in English, available to students in majors other than English, requires a student to successfully complete 15 credits hours of English courses beyond those required in the student’s major. Courses will be chosen in consultation with the English Department Chairperson.

**Communication Minor**
The Communication minor is designed for students who wish to enhance their professional preparation with a focused program in media and communication as part of their career planning. Students must successfully complete 15 credits from the following list:

**Required:**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 2139</td>
<td>Media Management</td>
<td>3</td>
</tr>
<tr>
<td>EN 2226</td>
<td>Professional Communications</td>
<td>3</td>
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</table>

**Select three of the following:**

<table>
<thead>
<tr>
<th>Course No.</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 2241</td>
<td>New Media Publication and Design</td>
<td>3</td>
</tr>
<tr>
<td>EN 2242</td>
<td>News Reporting and Writing</td>
<td>3</td>
</tr>
<tr>
<td>EN 3056</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>EN 3144</td>
<td>Writing for Public Relations, Promotions and Advertising</td>
<td>3</td>
</tr>
<tr>
<td>EN 3246</td>
<td>Writing for Radio, Television and Internet</td>
<td>3</td>
</tr>
<tr>
<td>BA 4247</td>
<td>Advertising (prerequisite BA 2017)</td>
<td>3</td>
</tr>
</tbody>
</table>

**EQUINE STUDIES**

**Faculty:**
Pamela J. Reed, Chairperson
Breann DePietro
Cory Herald Kieschnick
Marta Piotrow (Adjunct)
Angelo Telatin
Susan Turcott White
Katie Kashner
Sarah Young

The curriculum in this program is designed to provide students with great breadth and depth in all aspects of Equine Studies. As is true of all the College’s programs, this degree features “learning by doing.” This practical educational strategy is designed to prepare graduates for challenging careers in the equine industry, such as the manufacturing, distribution and sale of supplies, feed, and healthcare products; stable management; retail management; riding instruction; horse training; veterinary practice management; and equine nutrition. Majors in Equine Business and Management and Equine Instruction and Training are available, as well as the Associate of Science degree in Equine Science.

The College maintains equine facilities on campus including a breeding facility and a riding and training facility. The Equestrian Center is an Official Approved Riding Establishment and Testing Center of the British Horse Society. Located on campus, it consists of an indoor arena (84’ x 280’) along with 52 stalls, tack and harness rooms, wash stalls, a carriage room, and student lockers. A 140’ x 185’ outdoor jumping ring, Round Pen and Eight Horse Exerciser complete the facility. Surrounding the Equestrian Center are acres of pasture, farmland, and cross-country trails. The Breeding Facility consists of over 20 stalls, a breeding shed, a laboratory, and turn-out sheds with associated pastures. The College stands Standardbred stallions and a broodmare herd. Equine students have the opportunity to assist with foaling and breeding procedures.

All Equine students are required to work at the Equestrian Center and Breeding Facility as part of their coursework. Weekly and weekend assignments are allocated at the beginning of each semester. Reflective of the “hands-on” nature of the Equine Studies program, several academic courses require time commitments outside of classroom hours. New students entering the program will be required to complete a non-credit Equine Studies Orientation in order to familiarize themselves with the stable routine. This program is scheduled in the middle of August, just before the start of the fall semester. Information regarding fees and registration for the orientation program is forwarded to incoming students.

Students enrolled in the Equine Studies Program are not required to bring their own horses. Those students wishing to bring their own horse may inquire about lease arrangements. Alternative arrangements may be made to board locally. A complete list of boarding facilities is available from the Equine Studies Program office.

Delaware Valley College is an active member of the Intercollegiate Horse Show Association and the Intercollegiate Dressage Association. The College sponsors Hunt Seat, Dressage, and Western Equestrian Teams. Equine Studies majors have the opportunity to participate in a semester exchange program with Hartpury College in the U.K. Like DelVal, Hartpury College has a strong agricultural tradition. Furthermore, Hartpury is home to a premiere British Horse Society equestrian facility, site of the annual Hartpury Advanced Horse Trials. This cooperative arrangement provides an excellent opportunity for students wishing to receive advanced instruction.
Undergraduate Programs

in cross-country riding and for further preparation toward the British Horse Society Riding and Instructor Certification exams. Interested students should inquire about application qualifications and procedures.

All students in the program are expected to be appropriately outfitted with riding boots, breeches, an approved ASTM-SEI helmet, and gloves. Students must bring four polo bandages, a dressage whip, jumping bat, and braiding kit. Body Protector Vests are highly recommended for jumping classes, and are required for cross-country jumping (Comparative Techniques Riding Skills course). All horses, saddles, bridles, harnesses, carriages, and grooming equipment are provided by the College. An Equine Studies Program fee is assessed to support the specialized costs of this program. Part-time students will pay half of the Equine fee.

Due to the physical requirements of the program and emphasis upon practical skills acquisition, a moderate degree of physical fitness and personal discipline is expected of all enrolled students for reasons of safety and preparedness. To perform stable chores students must be capable of lifting 50 pounds. Prior riding and horse handling experience is required. Students should be capable of cantering a strange horse in a group of riders, and must submit a professional reference from a work or volunteer position. Because of the competitive nature and limited enrollment in Equine Studies, all candidates are encouraged to submit their applications prior to January 15th.

The total number of credits required for graduation with a Bachelor of Science degree in Animal Science is 128, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

**Bachelor of Science Degree**

**Equine Business and Management Major**

**FRESHMAN YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BY 1115</td>
<td>Natural Science I</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
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<tr>
<td>ES 1101</td>
<td>Stable Management</td>
<td>3</td>
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<tr>
<td>ES 1102</td>
<td>Introduction to Equine Science</td>
<td>3</td>
</tr>
<tr>
<td>ES 1106</td>
<td>Equine Practicum I</td>
<td>2</td>
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<tr>
<td>ES 20xx</td>
<td>Riding Skills</td>
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<tr>
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**Second Semester**

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<td>BY 1216</td>
<td>Natural Science II</td>
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<tr>
<td>EN 1201</td>
<td>English II</td>
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<td>ES 1208</td>
<td>Equine Practicum II</td>
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<td>ES 1202</td>
<td>Equine Health Management</td>
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<td>ES 1205</td>
<td>Equestrian Event Management</td>
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<td>ES 20xx</td>
<td>Riding Skills</td>
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<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
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**SOPHOMORE YEAR**

**First Semester**

<table>
<thead>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BA 1005</td>
<td>Introduction to Business</td>
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<tr>
<td>ES 2107</td>
<td>Equine Nutrition and Feeding</td>
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<tr>
<td>ES 2111</td>
<td>Horse Show Management</td>
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<td>ES 20xx</td>
<td>Riding Skills</td>
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<tr>
<td>ES 3217</td>
<td>Equine Anatomy &amp; Physiology</td>
<td>3</td>
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<td>MP 1102</td>
<td>College Algebra</td>
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**Second Semester**

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<td>Driving the Single Horse</td>
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<tr>
<td>ES 4219</td>
<td>Horse Breeding Management</td>
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<td>ES 20xx</td>
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<tr>
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<tr>
<td>IT 1012</td>
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**JUNIOR YEAR**

**First Semester**

<table>
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<th>Course Title</th>
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<tbody>
<tr>
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<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>BA 2161</td>
<td>Business Law I</td>
<td>3</td>
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<td>ES 20xx</td>
<td>Riding Skills</td>
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<tr>
<td>LA 2005</td>
<td>Speech</td>
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<tr>
<td>Total</td>
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</table>
Second Semester
BA 2017  Principles of Marketing ......................  3
BA 4233  Personal Finance ...............................  3
EN 2226  Professional Communication ................  3
ES 20xx  Riding Skills ...................................  2
                        Elective ..................................  3
EN 2028  Introduction to Literature ...................  3
Total .......................................................  17

SENIOR YEAR
First Semester
Course No.  Course Title  Credits
BA 2225  Accounting Fundamentals .................  3
BA 3141  Small Business Management ...............  3
ES 4222  Equine Business Management ...............  3
                      Humanities Area .......................  3
                        Electives ..............................  5
Total .......................................................  17

Second Semester
ES 4290  Equine Senior Seminar .....................  3
LA 1060  Introduction to the Fine Arts ..............  3
LA 4037  Non-Western Societies .......................  3
                      Electives ..............................  5
                        Senior Seminar .......................  3
Total .......................................................  17

Bachelor of Science Degree
Equine Instruction and Training Major

To be accepted into the Equine Instruction and Training major, the student must submit an application and pass the British Horse Society Stage 2 examination.

FRESHMAN YEAR
First Semester
Course No.  Course Title  Credits
BY 1115  Natural Science I .........................  3
EN 1101  English I .....................................  3
ES 1101  Stable Management .........................  3
ES 1102  Introduction to Equine Science ..........  3
ES 1106  Equine Practicum I .........................  2
ES 20xx  Riding Skills .................................  2
Total .......................................................  16

Second Semester
BY 1216  Natural Science II ...........................  3
EN 1201  English II .....................................  3
ES 1208  Equine Practicum II ........................  2
ES 1202  Equine Health Management ................  3
ES 1205  Equestrian Event Management ..............  1
ES 20xx  Riding Skills .................................  2
LA 1020  Skills for College Success ................  1
Total .......................................................  15

SOPHOMORE YEAR
First Semester
Course No.  Course Title  Credits
BA 1005  Introduction to Business .................  3
EN 2028  Introduction to Literature .................  3
ES 2107  Equine Nutrition and Feeding ..............  3
ES 2111  Horse Show Management ....................  1
ES 20xx  Riding Skills .................................  2
MP 1102  College Algebra .............................  3
Total .......................................................  15

Second Semester
ES 2210  Driving the Single Horse ..................  2
ES 4219  Horse Breeding Management ...............  3
ES 20xx  Riding Skills .................................  2
LA 2036  Introduction to Psychology ...............  3
IT 1011  Information Technology Concepts ....... 1.5
IT 1012  Computer Applications ..................... 1.5
MP 1203  Elementary Functions .....................  3
Total ....................................................... 16

JUNIOR YEAR
First Semester
Course No.  Course Title  Credits
BA 2225  Accounting Fundamentals .................  3
ES 20xx  Riding Skills .................................  2
ES 3218  Introduction to Equine Instruction ......  3
ES 4018  Training and Conditioning .................  3
LA 2005  Speech .........................................  3
                      Humanities Area .......................  3
Total .......................................................  17

Second Semester
BA 2008  Macroeconomics .............................  3
EN 2226  Professional Communication ..............  3
ES 20xx  Riding Skills .................................  2
ES 3210  Teaching Techniques .........................  3
ES 3217  Equine Anatomy and Physiology ..........  3
                        Elective ..............................  3
Total ....................................................... 17

SENIOR YEAR
First Semester
Course No.  Course Title  Credits
BA 3028  Supervision and Management ..............  3
ES 20xx  Riding Skills .................................  2
LA 4037  Non-Western Societies ......................  3
                      Humanities Area .......................  3
                        Elective ..............................  6
Total ....................................................... 17

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Undergraduate Programs

Second Semester

ES 20xx Riding Skills ........................................... 2
ES 4222 Equine Business Management .................... 3
LA 1060 Introduction to the Fine Arts ..................... 3
Electives .......................................................... 6
Total .................................................................. 14

Humanities Area: select two courses from the following:

LA 2040 Modern History of Western Societies ............ 3
LA 2042 Introduction to Philosophy ......................... 3
LA 2138 History of Western Civilization I ............... 3
LA 3032 American History and Government since 1877 . 3
LA 4127 United States Foreign Policy ..................... 3

Associate of Science Degree in Equine Studies

This curriculum is designed to provide the student with a solid base of knowledge in various aspects of Equine Studies. The student is exposed to the basics in all aspects of the equine industry. Elementary ground-training, riding, driving, breeding, and stable management are presented. The "learn by doing" approach is a very strong feature of this program. Career opportunities are available in entry-level positions for stable management, training, and other related equine industry areas.

Program fees, weekly work assignments, required equipment, participation in orientation, completion of the Experiential Learning Program, physical requirements and riding requirements in the Associate of Science Degree Program are identical to those stipulated above for the Bachelor of Science Degree Program. Students who wish to complete the Bachelor of Science and Associate of Science Degrees must declare their intent to pursue both degrees by the end of their Freshman year.

Enrollment in this program is limited. Transfer students entering the Associate of Science program must complete at least 24 credits of coursework at Delaware Valley College.

The total number of credits required for graduation with an Associate of Science Degree in Equine Studies is 63, which includes completion of 2 credits of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major's program requirements.

Minimum requirements:

- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCES

Associate of Science Degree - Equine Studies

FRESHMAN YEAR

First Semester

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BY 1115</td>
<td>Natural Science I</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>ES 1101</td>
<td>Stable Management</td>
<td>3</td>
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<tr>
<td>ES 1102</td>
<td>Introduction to Equine Science</td>
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</tr>
<tr>
<td>ES 1106</td>
<td>Equine Practicum I</td>
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<td>ES 20xx</td>
<td>Riding Skills</td>
<td>2</td>
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Second Semester

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<tbody>
<tr>
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<td>ES 1202</td>
<td>Equine Health Management</td>
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<td>ES 1205</td>
<td>Equestrian Event Management</td>
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<td>ES 1208</td>
<td>Equine Practicum II</td>
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<td>Riding Skills</td>
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<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
</tr>
<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
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<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
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SOPHOMORE YEAR

First Semester

<table>
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<tr>
<td>BA 1005</td>
<td>Introduction to Business</td>
<td>3</td>
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<tr>
<td>EN 2226</td>
<td>Professional Communication</td>
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<td>ES 20xx</td>
<td>Riding Skills</td>
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<td>ES 2107</td>
<td>Equine Nutrition and Feeding</td>
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<tr>
<td>ES 2111</td>
<td>Horse Show Management</td>
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<tr>
<td>PE 2011</td>
<td>First Aid and CPR</td>
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**Second Semester**

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<tr>
<td>BA 2225</td>
<td>Accounting Fundamentals</td>
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<tr>
<td>ES 20xx</td>
<td>Riding Skills</td>
<td>2</td>
</tr>
<tr>
<td>ES 2210</td>
<td>Driving the Single Horse</td>
<td>2</td>
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<tr>
<td>ES 4219</td>
<td>Horse Breeding Management</td>
<td>3</td>
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<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<td><strong>Total</strong></td>
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</table>

**Food Science, Nutrition, and Management**

*Faculty:
Robert Pierson, Chairperson
Catherine Davies*

The curriculum in Food Science, Nutrition, and Management is designed to prepare students for careers in the food production and food service industries. Science and business are emphasized to different extents in the three specializations within the major. Communications skills and a broad background in liberal arts are important components of the programs. An important objective for our program is the education of students to meet the career needs of the industry which will employ them. Industry advisors review our programs periodically to help us accomplish this.

The food and allied industries employ large numbers of people with widely varying skills and talents. Graduates are employed in many sectors of the food-service industry, such as quality assurance, production management, industrial food management, food marketing, food and pharmaceutical packaging, food purchasing, product development, research, technical sales, restaurant or foodservice management. Graduates often work as sales representatives or market development coordinators. Placement of graduates is excellent.

The curriculum is designed to permit the student to pursue an interest in either food science and technology or foodservice management. It is ideal for the student interested in opening his or her own business in the food industry (restaurant or food production).

The total number of credits required for graduation with a degree in Food Science, Nutrition, and Management is 128, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major's program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete an introductory course course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

**RECOMMENDED COURSE SEQUENCE**

**Food Science and Food Technology**

Graduates of these specializations are prepared to enter food ingredient or food processing industries such as baking, confections, dairy products, meats, flavors, convenience foods, and packaging. They may also be employed in government regulations, commercial testing laboratories, or in technical sales for companies which supply the food industry. University and government laboratories also employ food scientists and technologists. Close association with area food processors and government laboratories enables our students to gain firsthand knowledge of the industry through field trips and summer employment. Students have access to excellent paid internship opportunities with major foodservice corporations.

**Food Science Specialization**

The Food Science specialization contains the courses specified by the Institute of Food Technologists and is recommended for students interested in graduate studies in food science, research, and applications in the foodservice industry.

**Freshman Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Biological Science I</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103L</td>
<td>General Chemistry I Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>FS 1130</td>
<td>Food, Culture and Cuisine</td>
<td>3</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
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<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
<td>1</td>
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<td><strong>Total</strong></td>
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</table>
Undergraduate Programs

Second Semester
BY 1217 Biological Science II .............................. 3
CH 1203 General Chemistry II .............................. 3
CH 1203L General Chemistry II Lab ...................... 1
EN 1201 English II ........................................... 3
FS 1203 Technology and Food Systems ................. 3
MP 1204 *Calculus I .......................................... 4
PE 1209 Physical Education II ............................. 1
Total .......................................................... 18

*Sophomore Year is the minimum mathematics requirement for the Food Science Specialization. Non-required mathematics courses taken as prerequisites are counted as elective credits.

Sophomore Year
First Semester
Course No. Course Title Credits
CH 2003 Prin. of Organic Chemistry .................. 3
CH 2003L Prin. of Organic Chemistry Lab ............ 1
FS 2212 Sanitation Mgmt ................................... 3
MP 2119 Physics I ............................................. 4
MP 2121 Calculus I ........................................... 4
Total .......................................................... 15

Second Semester
CH 2203 Biochemistry ...................................... 3
CH 2203L Biochemistry Lab ............................... 3
EN 2028 Introduction to Literature ..................... 3
FS 2116 Physical Science and Food ..................... 3
IT 1011 Information Technology Concepts .. 1.5
IT 1102 Computer Applications .......................... 1.5
LA 2005 Speech .............................................. 3
Total .......................................................... 16

Junior Year
First Semester
Course No. Course Title Credits
BY 3002 General Microbiology ......................... 4
FS 3120 Introduction to Nutrition ..................... 3
FS 3122 Food Engineering I .............................. 3
FS 3211 Food Chemistry ................................... 4
Total .......................................................... 14

Second Semester
FS 3218 Food Microbiology .............................. 4
FS 4126 Food Analysis ..................................... 3
Humanities Area .......................................... 3
Electives .................................................. 5
Total .......................................................... 15

Senior Year
First Semester
Course No. Course Title Credits
BA 2028 Macroeconomics .............................. 3
FS 4112 Food Preservation .............................. 3
FS 4149 Quality Assurance and Regulation .......... 3
LA 1060 Introduction to the Arts ...................... 3
Humanities Area .......................................... 3
Elective .................................................... 3
Total .......................................................... 15

Second Semester
FS 4223 Seminar (Food Science) ....................... 1
FS 4224 Food Product Development .................... 3
MP 3231 Statistics for Science .......................... 3
LA 4037 Non-Western Societies ......................... 3
Social Science Area ....................................... 3
Elective .................................................... 3
Total .......................................................... 16

Social Science Area: select one of the following:
LA 2012 Introduction to Sociology .................... 3
LA 2036 Introduction to Psychology .................... 3
LA 4203 Social Psychology and Human Interaction .... 3

Humanities Area: select two courses from the following:
LA 2040 Modern History of Western Societies .. 3
LA 2042 Introduction to Philosophy ................... 3
LA 2138 History of Western Civilization I ........ 3
LA 3032 American History and Government since 1877 ... 3
LA 4127 United States Foreign Policy .................. 3

Food Technology Major
The Food Technology Major is similar to Food Science, but is more oriented to management. It is ideal for the student who does not plan to study food science at the graduate level.

Freshman Year
First Semester
Course No. Course Title Credits
BY 1116 Biological Science I ........................... 3
CH 1103 General Chemistry I ........................... 3
CH 1103L General Chemistry I Lab ................... 1
EN 1101 English I .......................................... 3
FS 1130 Food, Culture and Cuisine ................... 3
LA 1020 Skills for College Success .................... 1
MP 1102 College Algebra or
MP 1203 Elementary Functions or
MP 1205 Finite Mathematics ........................... 3
Total .......................................................... 17
**Second Semester**

<table>
<thead>
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<th>Course No.</th>
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<tbody>
<tr>
<td>BY 1217</td>
<td>Biological Science II</td>
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<td>CH 1203</td>
<td>General Chemistry II</td>
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<td>General Chemistry II Lab</td>
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<td>EN 1201</td>
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<tr>
<td>FS 1203</td>
<td>Technology and Food Systems</td>
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<td>MP 1203</td>
<td>Elementary Functions or</td>
<td></td>
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<tr>
<td>MP 1204</td>
<td>Calculus I or</td>
<td></td>
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<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
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### SOPHOMORE YEAR

**First Semester**

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<th>Course Title</th>
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<td>CH 2003L</td>
<td>Princ. of Organic Chemistry Lab</td>
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<td>FS 2212</td>
<td>Sanitation Mgmt</td>
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<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
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<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
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**Second Semester**

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<td>3</td>
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<tr>
<td>CH 2203L</td>
<td>Biochemistry Lab</td>
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<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
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<td>FS 2116</td>
<td>Physical Science and Food</td>
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### JUNIOR YEAR

**First Semester**

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<td>General Microbiology</td>
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<td>FS 3120</td>
<td>Introduction to Nutrition</td>
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<tr>
<td>FS 3122</td>
<td>Food Engineering I</td>
<td>3</td>
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<tr>
<td>FS 3211</td>
<td>Food Chemistry</td>
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<td>Physical Education I</td>
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**Second Semester**

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<th>Course Title</th>
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<tr>
<td>FS 3218</td>
<td>Food Microbiology</td>
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<td>FS 4126</td>
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### SENIOR YEAR

**First Semester**

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<tr>
<td>FS 4149</td>
<td>Quality Assurance and Regulation</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Intro to the Arts</td>
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<td>Humanities Area</td>
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<tr>
<td></td>
<td>Elective</td>
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**Second Semester**

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<th>Course Title</th>
<th>Credits</th>
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<tr>
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<td>Seminar (Food Science)</td>
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<td>Food Product Development</td>
<td>3</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
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**Major Electives: take three credits from the following courses:**

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<td>FS 3223</td>
<td>Dairy Products Processing</td>
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<tr>
<td>FS 4000</td>
<td>Selected Topic II</td>
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<td>FS 4004</td>
<td>Industrial Fermentations</td>
<td>3</td>
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<tr>
<td>FS 4015</td>
<td>Waste Treatment and Control</td>
<td>2</td>
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<tr>
<td>FS 4041</td>
<td>Senior Research</td>
<td>1-3</td>
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<tr>
<td>FS 4042</td>
<td>Sensory Evaluation of Foods</td>
<td>2</td>
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<tr>
<td>FS 4119</td>
<td>Food Distribution Systems</td>
<td>3</td>
</tr>
<tr>
<td>FS 4212</td>
<td>Refined Foods and Food Ingredients</td>
<td>3</td>
</tr>
<tr>
<td>FS 4228</td>
<td>Meat and Meat Products</td>
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**Social Science Area: select one of the following:**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 4023</td>
<td>Social Psychology and</td>
<td>3</td>
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<tr>
<td></td>
<td>Human Interaction</td>
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**Humanities Area: select two courses from the following:**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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</tr>
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<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
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<td>LA 2138</td>
<td>History of Western Civilization I</td>
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</tr>
<tr>
<td>LA 3032</td>
<td>American History and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
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</table>

### Nutrition Science Specialization

The specialization in Nutrition Science is a four-year program that emphasizes food and health promotion, and is extremely beneficial in preparing students for a career in nutrition science or the medical profession. The specialization in Nutrition Science is designed to enhance students’ ability in chemical, biological, and food science as they are defined by nutrition. This area of study will prepare students for careers concentrating on disease preven-
Undergraduate Programs

tion, preventative health issues and the nutritional enhancement of food products in industry.

This is an interdisciplinary, science-based program. Students of Nutrition Science will complete extensive coursework within the departments of Chemistry, Biology, Mathematics, and Food Science.

Nutrition Science graduates may also be employed as teachers or in research laboratories, following additional preparation at the graduate level. The specialization in Nutrition Science does not prepare students for dietetics registration.

FRESHMAN YEAR
First Semester
Course No. Course Title Credits
BY 1113 Biology I ........................................... 4
CH 1103 General Chemistry I........................... 4
CH 1103L General Chemistry I Lab ................. 1
EN 1101 English I ........................................ 3
FS 1130 Food Culture & Cuisine .................... 5
LA 1120 Skills for College Success ................. 1
PE 1109 Physical Education I ........................ 1
Total ........................................................ 17

Second Semester
BY 1214 Biology II ....................................... 3
CH 1203 General Chemistry II ........................ 3
CH 1203L General Chemistry II Lab .............. 1
EN 1201 English II ...................................... 3
FS 2110 Meal Menu Planning ......................... 3
MP 1102 College Algebra ................................ 3
PE 1209 Physical Education II ..................... 1
Total ........................................................ 17

SOPHOMORE YEAR
First Semester
Course No. Course Title Credits
CH 2120 Inorganic Chemistry I .................... 4
FS 1203 Technology & Food System .............. 3
FS 2212 Sanitation Management .................. 3
EN 2028 Introduction to Literature .............. 3
Total ........................................................ 13

Second Semester
FS 3120 Introduction to Nutrition ............... 3
CH 2203 Biochemistry ................................ 4
IT 1011 Information Technology Concepts ....... 1.5
IT 1012 Computer Applications .................. 1.5
LA 2005 Speech .......................................... 3
MP 1203 Elementary Functions ................... 3
Total ........................................................ 16

JUNIOR YEAR
First Semester
Course No. Course Title Credits
BY 2223 Comparative Anatomy .................... 4
FS 3110 Macronutrients Vitamins and Minerals 3
LA 1060 Intro to Fine Arts .......................... 3
CH 2220 Organic Chemistry II ..................... 4
FS 4112 Food Preservation .......................... 3
Total ........................................................ 17

Second Semester
FS 3218 Food Microbiology ....................... 4
BY 4132 Human Physiology ......................... 4
LA 2040 History Of western Civilization II .... 3
XXX Free Elective ....................................... 3
Total ........................................................ 14

SENIOR YEAR
First Semester
Course No. Course Title Credits
FS 3211 Food Chemistry ............................. 4
FS 4126 Food Analysis ................................. 3
LA 3032 Modern American History & Government 3
LA 4203 Psychology/Philosophy/Sociology ...... 3
Total ........................................................ 13

Second Semester
FS 4223 Senior Seminar ............................. 1
FS 4200 Medical Nutrition ......................... 3
LA 4037 Non-Western Societies .................... 3
BA 2008 Macroeconomics ............................ 3
XXX Free elective ....................................... 3
Total ........................................................ 13

Restaurant and Foodservice Management Major
The Restaurant and Foodservice Management major prepares the graduate to assume a management position in the rapidly growing foodservice industry. Restaurants, hotels, health care facilities, schools, airlines, institutional dining rooms, and catering operations are among the employers of graduates in this field. This program provides a background in food purchasing, quantity food preparation, business law, human resource management, marketing and finance. This is ideal for the business-minded student interested in the food industry. Many courses are taught from an entrepreneurial perspective, and are ideal for students planning to open their own businesses in the food industry (restaurant or food production). Only about an hour from Philadelphia and two hours from New York City, Delaware Valley
College is easily accessible to all major components of the hospitality industry. Opportunities for internships and practical work experience are readily available.

**FRESHMAN YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 1001</td>
<td>Chemistry Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CH 1001L</td>
<td>Chemistry Fundamentals Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>FS 1123</td>
<td>Introduction to Foodservice Systems</td>
<td>3</td>
</tr>
<tr>
<td>FS 1130</td>
<td>Food, Culture and Cuisine</td>
<td>3</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
<td></td>
</tr>
<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 1005</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>FS 1205</td>
<td>Principles of Professional Cooking</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
</tr>
<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
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</tr>
<tr>
<td>MP 1204</td>
<td>Calculus I or</td>
<td></td>
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<tr>
<td>MP 1205</td>
<td>Finite Mathematics</td>
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<tr>
<td>PE 1209</td>
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**SOPHOMORE YEAR**

**First Semester**

<table>
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<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
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</tr>
<tr>
<td>BA 2161</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>BA 2225</td>
<td>Accounting Fundamentals or</td>
<td>3</td>
</tr>
<tr>
<td>BA 2123</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BY 1115</td>
<td>Natural Science I</td>
<td>3</td>
</tr>
<tr>
<td>FS 2212</td>
<td>Sanitation Management</td>
<td>3</td>
</tr>
<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
<td>1</td>
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<td>Total</td>
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**Second Semester**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 2210</td>
<td>Microeconomics</td>
<td>3</td>
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<tr>
<td>BA 2017</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
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<tr>
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**JUNIOR YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FS 3120</td>
<td>Introduction to Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>FS 3227</td>
<td>Foodservice Accounting and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cost Control</td>
<td></td>
</tr>
<tr>
<td>FS 4119</td>
<td>Food Distribution Systems</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities Area</td>
<td>3</td>
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<tr>
<td></td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS 3226</td>
<td>Service Systems Management</td>
<td>3</td>
</tr>
<tr>
<td>FS 4229</td>
<td>Foodservice Marketing Strategy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities Area</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Social Sciences Area</td>
<td>3</td>
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<tr>
<td></td>
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**SENIOR YEAR**

**First Semester**

<table>
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<th>Course No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BA 3027</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>FS 3225</td>
<td>Purchasing, Storage, and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Handling of Foods</td>
<td></td>
</tr>
<tr>
<td>FS 4131</td>
<td>Foodservice Facilities and Equipment</td>
<td>3</td>
</tr>
<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective</td>
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<tr>
<td>Total</td>
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**Second Semester**

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<th>Course No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>FS 4222</td>
<td>Quantity Food Production</td>
<td>3</td>
</tr>
<tr>
<td>FS 4223</td>
<td>Seminar (Food Science)</td>
<td>1</td>
</tr>
<tr>
<td>FS 4232</td>
<td>Legal Aspects of Foodservice Mgr</td>
<td>3</td>
</tr>
<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective</td>
<td>4</td>
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<tr>
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</table>

**Social Science Area: select one of the following:**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 4203</td>
<td>Social Psychology and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human Interaction</td>
<td></td>
</tr>
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</table>

**Humanities Area: select two courses from the following:**

<table>
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<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
</tr>
</tbody>
</table>
Undergraduate Programs

**Biotechnology Minor**  
(for Food Science and Food Technology Specializations)

A biotechnology minor is available for students in the Food Science and Food Technology specializations. It consists of the following courses:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 2003</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BT 3000</td>
<td>Introduction to Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>FS 3000</td>
<td>Selected Topics I and</td>
<td>1</td>
</tr>
<tr>
<td>FS 4000</td>
<td>Selected Topics II or</td>
<td>1</td>
</tr>
<tr>
<td>CH 3001</td>
<td>Introductory Biomedical Instrumental Methods</td>
<td>3</td>
</tr>
<tr>
<td>FS 4004</td>
<td>Industrial Fermantations</td>
<td>3</td>
</tr>
<tr>
<td>BY 4155</td>
<td>Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15-16</strong></td>
</tr>
</tbody>
</table>

**LIBERAL ARTS**

**Faculty:**  
Jack W. Schmidt, Chairperson  
Allison A. Buskirk-Cohen  
Tanya H. Casas  
Audrey Ervin  
David A. Snyder  
Shih-chich Su  
Richard C. Ziemer

Delaware Valley College has long subscribed to the belief that a college education should emphasize the development of communication skills and a critical understanding of our social, economic, political, and cultural heritage. The Liberal Arts curriculum at Delaware Valley College exposes students to the richness, diversity and complexity of human history, promotes an increased self-awareness and concern for the role of the individual in society. The curriculum also develops students’ ability to communicate effectively, and encourages artistic expression. Our courses encompass the fields of history, psychology, sociology, philosophy, speech, foreign languages, music and art. These courses constitute a major portion of the College’s Core Curriculum and also provide content area courses for Social Studies Education majors.

**MATHEMATICS AND PHYSICS**

**Faculty:**  
Karen G. McPherson, Chairperson  
Imad Benjelloun  
Svetlana Shkitko  
Michael N. Tabachnick  
Ruth Trubnik  
Jeffrey A. Young  
Jimmy Mopecha

Mathematics is a language common to many different areas of human endeavor. Applied mathematics, in particular, is used in professions as diverse as actuarial science, operations research, management science, decision analysis, engineering physics, biometrics, econometrics and education. The Mathematics Department offers a broad range of courses. At the freshman level, the core courses are designed to increase students’ mathematical literacy while providing a background in the basic areas of mathematics. The upper level courses offer the specialized knowledge and skills necessary to prepare students for careers in science, business or education.

A minor in mathematics may be obtained by completing a minimum of 15 credit hours of coursework in mathematics beyond any mathematics courses required by a student’s major. The program of a student who minors in mathematics must in any case include at least 2 semesters of Calculus.

**Natural Resources and Biosystems Management**

**Faculty:**  
Steven S. DeBroux, Co-Chairperson  
Michael J. Fleischacker, Co-Chairperson  
Richard Cowbig  
Howard Eyre  
Lawrence D. Hepner, Jr.  
Douglas T. Linde  
Mingwang Liu  
John D. Martin  
Barbara D. Muse  
Ronald R. Muse  
Jacqueline A. Ricotta

The impact of humans on the planet is becoming increasingly evident. Now as never before, we are using the resources of our planet to provide more food, more clean water, more energy, and aesthetically pleasing living environments for an ever increasing population. Students within this department acquire
the knowledge and skills that will enable them to be responsible productive citizens of the earth. Biosystems Management deals with the interaction of humans and natural systems to develop functional connections for food production, water use, waste management, fuel generation, aesthetics and other uses of natural resources to meet human needs in a sustainable fashion.

Within Natural Resources and Biosystems Management, the areas of study are:

• Crop Science
• Environmental Science
• Turf Management
• Horticulture with Specialization:
  • Commercial Crop Production and Marketing*
  • Hydroponic Crop Science*
  • Plant Science and Biotechnology*
• Environmental Design
• Floriculture and Nursery Production and Marketing
• Landscape Contracting and Management
• Sustainable Agriculture Systems*

*Denotes an area of specialization

CROP SCIENCE, ENVIRONMENTAL SCIENCE AND TURF MANAGEMENT MAJORS

The Crop Science major prepares students for science-based technical courses in agricultural production or work in associated agricultural industries. Agriculture is one of the largest sectors of the national economy and positions are numerous. Students interested in the biological and chemical sciences will find challenges in biotechnology as they look forward to a career in improving the quality and quantity of our food supply.

The Environmental Science major focus is on the environmental issues facing society today and the knowledge and training necessary to deal with these complex issues. Computers and geographic information systems aid in analysis and visual display of information. Interdisciplinary courses from the Chemistry and Biology Departments strengthen the Environmental Science portion of the curriculum.

The Turf Management major prepares students for careers in the golf course industry, sports turf industry, and lawn care industry. Courses that provide technical competence plus business and management expertise are key components of the curriculum. An active turf club provides professional contacts and experiences outside the classroom.

Students in the three majors take advantage of our 500-acre living laboratory containing turf and crop demonstration plots, putting green, sports fields, wetlands, forested land, streams, and agricultural land. Undergraduate students participate in ongoing faculty research.

Effective utilization of elective credits provides the opportunity to minor in a subject area outside the department.

There are a wide variety of career opportunities. Graduates find opportunities for employment in both the public and private sectors. In private industry, they serve as consultants on environmental problems involving land use, waste disposal and other soil and water contamination problems. In the crop industry, they serve as consultants and field representatives for fertilizer, insecticide, herbicide, seed and equipment companies. In the turf industry, graduates serve as golf course superintendents, sports field managers, and lawn care specialists. Trained Agronomists manage farm production operations or work in production and marketing for agricultural industries. Federal, state and local governments offer job opportunities in soil and water conservation, and in the area of environmental protection. Others enter graduate programs available throughout the country.

The total number of credits required for graduation with majors in Crop Science, Environmental Science, and Turf Management is 127, which includes 4 credits earned for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
• Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
• Students must have completed 27 credits to enroll in Experiential Learning Activities.
• All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.
## Undergraduate Programs

### RECOMMENDED COURSE SEQUENCES

#### Crop Science Major

#### FRESHMAN YEAR

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAES 1120</td>
<td>Sustainability: Saving the Earth and Feeding the People</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103L</td>
<td>General Chemistry I Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>LA XXXX</td>
<td>Experiential Learning</td>
<td>1</td>
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<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
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<td>MP 1203</td>
<td>Elementary Functions</td>
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<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
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**Total** ........................................... 15

#### Second Semester

<table>
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<tbody>
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<td>PS 4211</td>
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<tr>
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<tr>
<td>CH 1203L</td>
<td>General Chemistry II Lab</td>
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</tr>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
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<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
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</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
<td>3-4</td>
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<tr>
<td>PE 1209</td>
<td>Calculus I</td>
<td>3-4</td>
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<tr>
<td>PE 1209</td>
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**Total** ........................................... 18-19

#### Summer 2014

<table>
<thead>
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<td>LA XXXX</td>
<td>Experiential Learning opportunity</td>
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#### SOPHOMORE YEAR

**First Semester**

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<tbody>
<tr>
<td>LAES 2004</td>
<td>Soils</td>
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</tr>
<tr>
<td>BY 1116</td>
<td>Biological Science I</td>
<td>3</td>
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<tr>
<td>CH 2003</td>
<td>Princ. of Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CH 2003L</td>
<td>Princ. of Organic Chemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature(Environmental Literature)</td>
<td>3</td>
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<tr>
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**Total** ........................................... 16

#### Second Semester

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**Spring B (March-May)**

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**Total** ........................................... 17

#### JUNIOR YEAR

**First Semester**

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**Total** ........................................... 18

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**Total** ........................................... 16

#### SENIOR YEAR

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**Total** ........................................... 18
Social Science Area: select one of the following:
LA 2012 Introduction to Sociology ................. 3
LA 2036 Introduction to Psychology ................. 3
LA 4203 Social Psychology and Human Interaction ........................................... 3

Humanities Area: select two courses from the following:

Crop Science Electives
Take 12 credits from the following courses to fulfill the Crop Science requirements:
Cours
Credit
Probe

AB 2225 Agricultural Economics ........................................... 3
AB 4113 Farm Management ........................................... 3

Course No. Course Title and Credits

BAES 1120 Sustainability: Saving the Earth .......................
PS 2007 Feed Grains and Forages ........................................... 3
PS 2013 Agricultural Machinery ........................................... 3
LAES 3103 Soil Judging ........................................... 1
LAES 3104 Field Soil Morphology ........................................... 3
LAES 3105 Soil Conservation ........................................... 3
PS 3108 Irrigation Technology ........................................... 3
PS 3127 Agricultural Entomology ........................................... 3
AE 3210 Global Crop Ecology ........................................... 3

LAES 3216 Soil Classification ........................................... 3
LAES 4025 Climatology ........................................... 3
PS 4218 Seed Science ........................................... 3
BY 2004 Genetics Laboratory ........................................... 1
BY 3002 General Microbiology ........................................... 4
BY 3007 Entomology ........................................... 3
BY 3203 Taxonomy of Vascular Plants ....................
BY 4155 Molecular Biology ........................................... 3

CH 2203 Biochemistry (3) and
CH 2203L Biochemistry Lab (1) ........................................... 4

FS 1130 Food, Culture and Cuisine ........................................... 3
PS 2235 Princ. of Sustainable Agriculture ........................................... 3
PS 2240 Organic Crop Science ........................................... 3
PS 3240 Integrated Pest Management ........................................... 3
PS 4005 Plant Pathology ........................................... 3
PS 4132 Principles of Plant Protection ........................................... 3

LA 2040 Modern History of Western Societies ........................................... 3
LA 2042 Introduction to Philosophy ........................................... 3
LA 2138 History of Western Civilization I ........................................... 3
LA 3032 American History and Government since 1877 ........................................... 3
LA 4127 United States Foreign Policy ........................................... 3
PS 4204 Plant Pest Management ........................................... 3

NOTE: Some of these courses require prerequisites, which may be counted as Electives.

Environmental Science Major

FRESHMAN YEAR

First Semester

PS 4211 Seminar (Agronomy) ........................................... 1
CH 1103 General Chemistry I ........................................... 3
CH 1103L General Chemistry I Lab ........................................... 1
EN 1101 English I ........................................... 3
IT 1011 Information Technology Concepts ........................................... 1.5
IT 1012 Computer Applications ........................................... 1.5
LA 1020 Skills for College Success ........................................... 1
MP 1102 College Algebra or
MP 1203 Elementary Functions ........................................... 3
PE 1109 Physical Education I ........................................... 1
Total ........................................... 18

Second Semester

PS 4211 Seminar (Agronomy) ........................................... 1
CH 1203 General Chemistry II ........................................... 3
CH 1203L General Chemistry II Lab ........................................... 1
EN 1201 English II ........................................... 3
MP 1203 Elementary Functions or
MP 1204 Calculus I ........................................... 3-4
LA 2005 Speech ........................................... 3
PE 1209 Physical Education II ........................................... 1
Total ........................................... 15-16

SOPHOMORE YEAR

First Semester

Course No. Course Title and Credits

LAES 2004 Soils ........................................... 3
LAES 2017 Topographical Surveying ........................................... 3
BY 1116 Biological Science I ........................................... 3
CH 2003 Princ. of Organic Chemistry ........................................... 3
CH 2003L Princ. of Organic Chemistry Lab ........................................... 1
Elective ........................................... 3
Total ........................................... 16

Second Semester

PS 2209 Soil Fertility ........................................... 3
BY 1217 Biological Science II ........................................... 3
**Undergraduate Programs**

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<td>BY 2003</td>
<td>Genetics</td>
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<td>Herbaceous Plant Materials II</td>
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**JUNIOR YEAR**

**First Semester**

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**SENIOR YEAR First Semester**

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**Turf Management Major**

**FRESHMAN YEAR**

**First Semester**

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**Second Semester**

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**Environmental Science Electives**

Take 12 credits from the following courses to fulfill the requirements:

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**Environmental Science requirements:**

**Credits**

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**NOTE:** Some of these courses require prerequisites, which may be counted as electives.
### SOPHOMORE YEAR First Semester

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### JUNIOR YEAR First Semester

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### SENIOR YEAR First Semester

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<td>Introduction to the Fine Arts</td>
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</tr>
<tr>
<td></td>
<td>Major Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

Social Science Area: select one of the following:

* LA 2012 Introduction to Sociology .......... 3
* LA 2036 Introduction to Psychology .......... 3
* LA 4203 Social Psychology and Human Interaction .......... 3

**Humanities Area: select two courses from the following:**

* LA 2040 Modern History of Western Societies .. 3
* LA 2042 Introduction to Philosophy .......... 3
* LA 2138 History of Western Civilization I ....... 3
* LA 3032 American History and Government since 1877 .......... 3
* LA 4127 United States Foreign Policy .......... 3
Undergraduate Programs

**Turf Management Electives**
Take 12 credits from the following courses to fulfill the Turf Management requirements:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAES 3105</td>
<td>Soil Conservation........................................ 3</td>
</tr>
<tr>
<td>PS 3108</td>
<td>Irrigation Technology.................................. 3</td>
</tr>
<tr>
<td>PS 4116</td>
<td>Weed Science........................................... 3</td>
</tr>
<tr>
<td>LAES 4025</td>
<td>Climatology......................................... 3</td>
</tr>
<tr>
<td>PS 4222</td>
<td>Golf Course Design and Construction.................. 3</td>
</tr>
<tr>
<td>BA 3027</td>
<td>Human Resource Management.......................... 3</td>
</tr>
<tr>
<td>PS 4005</td>
<td>Plant Pathology......................................... 3</td>
</tr>
<tr>
<td>LAES 2015</td>
<td>Landscape Techniques.......................... 3</td>
</tr>
</tbody>
</table>

**NOTE:** Some of these courses require prerequisites, which may be counted as electives.

---

**Biotechnology Minor (for Plant Science Majors)**
Students majoring in the Plant Science area (Crop Science, Environmental Science, Turf Management, Horticulture, Environmental Design, Floriculture and Nursery Production and Marketing, and Landscape Contracting and Management) may enroll in an interdisciplinary minor made up of the following recommended courses. Substitutions may be arranged in advance with permission of the student’s major department chair.

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE 3000</td>
<td>Selected Topics</td>
<td>1</td>
</tr>
<tr>
<td>BT 3000</td>
<td>*Introduction to Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BY 4155</td>
<td>*Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CH 2203</td>
<td>*Biochemistry and</td>
<td>3</td>
</tr>
<tr>
<td>CH 2203L</td>
<td>*Biochemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>MP 3231</td>
<td>*Statistics for Science</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

* Requires prerequisite.

---

**Crop Science, Environmental Science, and Turf Management Minors**
A student majoring in another department’s program may earn a minor in Crop Science, Environmental Science, or Turf Management by successfully completing 15 credits approved by the department chair.
HORTICULTURE

Horticulture is one of seven majors that are found within Natural Resources and Biosystems Management. Horticulture is one of the most successful areas of study at Delaware Valley College, having a national and international reputation. A degree in Horticulture will lead to an exciting and challenging career that is dynamic and rewarding. Some graduates serve in government positions, at agricultural experiment stations and in private industry, while others pursue graduate education.

The Horticulture program includes a broad spectrum of courses in plant science—organics, hydroponics, sustainable horticulture, biotechnology, botany, plant propagation, plant physiology and plant health management. The curriculum also provides an opportunity to specialize in one of four areas: Commercial Crop Production and Marketing, Plant Science and Biotechnology, Crop Science, and Sustainable Agriculture Systems.

Learning takes place in the classroom and in the outdoor living laboratory. These settings provide experiential “hands-on” learning in planting crops and carrying them through to harvest and marketing. In support of those educational activities, the Horticulture area has a plant cell and tissue culture laboratory, hydroponic greenhouse, high tunnel, production greenhouse, trial gardens, environmental monitoring equipment, a 2-acre certified organic plot and 35 acres for the production of fruits and vegetables.

The production of healthy and nutritious food is a necessity of life. Horticulture has a global impact in serving and sustaining humanity while protecting the environment.

The total number of credits required for graduation with a major in Horticulture is 128, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCE

FRESHMAN YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BY 1116</td>
<td>Biological Science I</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CH 1103L</td>
<td>General Chemistry I Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
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<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
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<tr>
<td>MP 1203</td>
<td>Elementary Functions</td>
<td>3</td>
</tr>
<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
<td>1</td>
</tr>
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Second Semester

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BY 1217</td>
<td>Biological Science II</td>
<td>3</td>
</tr>
<tr>
<td>CH 1203</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CH 1203L</td>
<td>General Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 1201</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
<td></td>
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<td>MP 1204</td>
<td>Calculus I</td>
<td>3-4</td>
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<tr>
<td>PE 1209</td>
<td>Physical Education II</td>
<td>1</td>
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SOPHOMORE YEAR

First Semester

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<tbody>
<tr>
<td>BY 3007</td>
<td>Entomology</td>
<td>3</td>
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<tr>
<td>CH 2003</td>
<td>Princ. of Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CH 2003L</td>
<td>Princ. of Organic Chemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>EN 2028</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
</tr>
<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>Major Course</td>
<td>3</td>
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Second Semester

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<thead>
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<tr>
<td>LA 2004</td>
<td>Soils</td>
<td>3</td>
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<tr>
<td>BA 2008</td>
<td>Macroeconomics</td>
<td>3</td>
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<tr>
<td>PS 2101</td>
<td>Botany of Vascular Plants</td>
<td>3</td>
</tr>
<tr>
<td>LA 2005</td>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>Major Course or Elective</td>
<td>3</td>
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<tr>
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<td>2</td>
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### Undergraduate Programs

#### JUNIOR YEAR

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<tbody>
<tr>
<td><strong>Course No.</strong></td>
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<tr>
<td>BY 2003</td>
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<tr>
<td>PS 3128</td>
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<td>PS 3005</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>PS 2005</td>
</tr>
<tr>
<td>PS 3229</td>
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</tr>
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<td><strong>Total</strong></td>
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</table>

#### SENOIR YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
</tr>
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<tbody>
<tr>
<td><strong>Course No.</strong></td>
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<tr>
<td>PS 4005</td>
</tr>
<tr>
<td>HT 4105</td>
</tr>
<tr>
<td>LA 4037</td>
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<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>PS 4204</td>
</tr>
<tr>
<td>LA 1060</td>
</tr>
<tr>
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</tr>
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<td><strong>Total</strong></td>
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</tbody>
</table>

**Social Science Area: select one of the following:**

<table>
<thead>
<tr>
<th><strong>Course No.</strong></th>
<th><strong>Course Title</strong></th>
<th><strong>Credits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>LA 4203</td>
<td>Social Psychology and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human Interaction</td>
<td>3</td>
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</table>

**Humanities Area: select two courses from the following:**

<table>
<thead>
<tr>
<th><strong>Course No.</strong></th>
<th><strong>Course Title</strong></th>
<th><strong>Credits</strong></th>
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</thead>
<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
</tr>
<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
</tr>
<tr>
<td>LA 3032</td>
<td>American History and Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
<td>3</td>
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</table>

### Courses required for Commercial Crop Production and Marketing

<table>
<thead>
<tr>
<th><strong>Course</strong></th>
<th><strong>Title</strong></th>
<th><strong>Credits</strong></th>
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</thead>
<tbody>
<tr>
<td>PS 2112</td>
<td>Commercial Fruit Production</td>
<td>3</td>
</tr>
<tr>
<td>PS 2211</td>
<td>Commercial Vegetable Production</td>
<td>3</td>
</tr>
<tr>
<td>HT 2335</td>
<td>Principles of Sustainable Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>PS 3204</td>
<td>Small Fruit Culture</td>
<td>3</td>
</tr>
<tr>
<td>PS 3240</td>
<td>Integrated Pest Management</td>
<td>3</td>
</tr>
<tr>
<td>PS 4106</td>
<td>Marketing Horticultural Products</td>
<td>2</td>
</tr>
<tr>
<td>PS 4202</td>
<td>Advanced Pomology</td>
<td>3</td>
</tr>
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<td><strong>Total</strong></td>
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### Courses required for Plant Science and Biotechnology

<table>
<thead>
<tr>
<th><strong>Course</strong></th>
<th><strong>Title</strong></th>
<th><strong>Credits</strong></th>
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<tbody>
<tr>
<td>BY 3002</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>CH 2203</td>
<td>Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CH 2203L</td>
<td>Biochemistry Lab</td>
<td>1</td>
</tr>
<tr>
<td>PS 2112</td>
<td>Commercial Fruit Production</td>
<td></td>
</tr>
<tr>
<td>PS 2211</td>
<td>Commercial Vegetable Production</td>
<td>3</td>
</tr>
<tr>
<td>PS 3025</td>
<td>Plant Cell and Tissue Culture</td>
<td>2</td>
</tr>
<tr>
<td>PS 4225</td>
<td>Plant Disease Diagnosis</td>
<td>3</td>
</tr>
<tr>
<td>MP 3231</td>
<td>Statistics for Science</td>
<td>3</td>
</tr>
<tr>
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</table>

### Courses required for Hydroponic Crop Science

<table>
<thead>
<tr>
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<th><strong>Title</strong></th>
<th><strong>Credits</strong></th>
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</thead>
<tbody>
<tr>
<td>BA 2225</td>
<td>Accounting Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>BA 3141</td>
<td>Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td>BY 2010</td>
<td>Introduction to Aquaculture</td>
<td>3</td>
</tr>
<tr>
<td>PS 2211</td>
<td>Commercial Vegetable Production</td>
<td>3</td>
</tr>
<tr>
<td>PS 3231</td>
<td>Hydroponics</td>
<td>3</td>
</tr>
<tr>
<td>PS 4106</td>
<td>Marketing Horticultural Products</td>
<td>2</td>
</tr>
<tr>
<td>PS 4209</td>
<td>Greenhouse Management</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

### Courses required for Sustainable Agriculture Systems

<table>
<thead>
<tr>
<th><strong>Course</strong></th>
<th><strong>Title</strong></th>
<th><strong>Credits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>LAES 1120</td>
<td>Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>AS 1006</td>
<td>Intro to Animal Science</td>
<td>3</td>
</tr>
<tr>
<td>AB 2225</td>
<td>Ag Economics</td>
<td>3</td>
</tr>
<tr>
<td>FS 3120</td>
<td>Intro to Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>FS 2212</td>
<td>Sanitation Management</td>
<td>3</td>
</tr>
<tr>
<td>PS 2235</td>
<td>Principles of Sustainable Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>PS 2240</td>
<td>Organic Crop Science</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td></td>
</tr>
</tbody>
</table>
Majors in Environmental Design; Floriculture and Nursery Production; and Landscape Contracting and Management work closely with industry leaders and organizations to continuously fine-tune their programs to address the future needs of students and industry. To help ensure this, an industry advisory group, consisting of individuals representing the broad spectrum of each major, meets periodically to review programs and suggest improvements.

Majors in Environmental Design; Floriculture and Nursery Production; and Landscape Contracting and Management open many career opportunities for the graduate. Each is a career with a future helping to shape a better tomorrow. Our unique Experiential Learning Program, which enables students to actually experience their professions, combined with the DeVal hands-on approach, gives our graduates an employment edge. Graduates in the three majors have found positions as: landscapers, landscape designers, garden center managers, assistant growers, floral designers, floral shop managers, and greenhouse managers, to name a few.

A Bachelor of Science degree with majors in Environmental Design; Floriculture and Nursery Production; and Landscape Contracting and Management also paves the way to graduate school and continued education leading to careers in landscape architecture, research, biotechnology, plant breeding, high school and college teaching, and many areas of plant science.

The total number of credits required for graduation with majors in Environmental Design; Floriculture and Nursery Production; and Landscape Contracting and Management is 128, which includes 4 credits for completion of the Experiential Learning Program.

The Experiential Learning Program (ExLP) at Delaware Valley College is a graduation requirement for all full-time undergraduate students. Students can choose from multiple experiential learning activities and will earn 4 credits for the ExLP depending on their major’s program requirements.
Undergraduate Programs

Minimum requirements:
- Full-time undergraduate students must complete a minimum of two experiential learning activities with at least one for academic credit.
- Students must have completed 27 credits to enroll in Experiential Learning Activities.
- All students must complete an introductory course prior to enrolling in any Experiential Learning Activities.

Students must consult with their Department Chair for specific major requirements to complete the Experiential Learning Program.

RECOMMENDED COURSE SEQUENCES

Landscape Architecture
The Environmental Design major was developed for students planning careers in landscape design, design/build, and other design-oriented professions, all with an ecological emphasis. This major can serve as a pre-MLA (Master of Landscape Architecture) program. The MLA is the preferred degree for landscape architecture. To receive transfer credit for design studios, a portfolio must be evaluated.

FRESHMAN YEAR

First Semester

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY 1116</td>
<td>Biological Science I</td>
<td>3</td>
</tr>
<tr>
<td>EN 1101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>IT 1011</td>
<td>Information Technology Concepts</td>
<td>1.5</td>
</tr>
<tr>
<td>IT 1012</td>
<td>Computer Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>LA 1020</td>
<td>Skills for College Success</td>
<td>1</td>
</tr>
<tr>
<td>MP 1102</td>
<td>College Algebra or</td>
<td></td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions</td>
<td>3</td>
</tr>
<tr>
<td>LAES 2220</td>
<td>Woody Plant Identification I</td>
<td>2</td>
</tr>
<tr>
<td>LAES 1125</td>
<td>Introduction to Design</td>
<td>1</td>
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<tr>
<td>PE 1109</td>
<td>Physical Education I</td>
<td>1</td>
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Second Semester

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>MP 1203</td>
<td>Elementary Functions or</td>
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<td>MP 1204</td>
<td>Calculus I</td>
<td>3-4</td>
</tr>
<tr>
<td>LAES 2015</td>
<td>Landscape Techniques</td>
<td>3</td>
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<tr>
<td>LAES 2118</td>
<td>Woody Plant Identification II</td>
<td>2</td>
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<tr>
<td>PE 1209</td>
<td>Physical Education II</td>
<td>1</td>
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<tr>
<td>IT 3220</td>
<td>Computer-Aided Design</td>
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SOPHOMORE YEAR

First Semester

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<td>Chemistry Fundamentals</td>
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<td>CH 1001L</td>
<td>Chemistry Fundamentals Lab</td>
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<td>LAES 3117</td>
<td>Herbaceous Plant Materials I</td>
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<td>LAES 2133</td>
<td>Design Studio I: Design Process</td>
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Second Semester

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<td>Introduction to Literature</td>
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<td>LAES 2247</td>
<td>Design Studio II: Site Planning</td>
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<td>History of Landscape Architecture</td>
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<td>Herbaceous Plant Materials II</td>
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<td>LAES 2242</td>
<td>Site Engineering II</td>
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JUNIOR YEAR

First Semester

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<td>BY 2235</td>
<td>Plant Communities</td>
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<td>PS 2101</td>
<td>Botany of Vascular Plants</td>
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Second Semester

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<td>LAES 3220</td>
<td>Watershed Management</td>
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<td>LAES 3221</td>
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SENIOR YEAR

First Semester

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<td>LA 4037</td>
<td>Non-Western Societies</td>
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<tr>
<td>LAES 4008</td>
<td>Seminar (Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Environmental Design)</td>
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<tr>
<td>LAES 4125</td>
<td>Design Studio V: Natural Systems</td>
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Second Semester

BA 2008 Macroeconomics............................. 3
LAES 4230 Landscape Contracting & Bidding........ 3
LAES 4237 Design Studio VI: Senior Project.......... 3
LAES 4290 Professional Practice Seminar............. 1
Humanities Area ........................................ 3
Elective .................................................... 2
Total .................................................................. 15

Second Semester

CH 1203 General Chemistry II.......................... 3
CH 1203L General Chemistry II Lab................... 1
EN 1201 English II ........................................ 3
MP 1203 Elementary Functions or
MP 1204 Calculus I ...................................... 3-4
PS 2014 Floriculture Techniques or
LAES 2015 Landscape Techniques ........................ 3
PE 1209 Physical Education II .......................... 1
Total .................................................................. 14-15

SOPHOMORE YEAR
First Semester

Course No.  Course Title  Credits
BA 2008  Macroeconomics............................. 3
EN 2028  Introduction to Literature.................. 3
PS 2101  Botany of Vascular Plants .................. 3
LAES 2220 Woody Plant Identification I ................ 2
PE 1109  Physical Education I .......................... 1
Humanities Area ............................................ 3
Total .................................................................. 15

Second Semester

LAES 2004 Soils ............................................. 3
BY 2003  Genetics ........................................... 3
IT 1011  Information Technology Concepts........... 1.5
IT 1012  Computer Applications ........................ 1.5
LA 2005  Speech ............................................. 3
LAES 2118 Woody Plant Identification II ............... 2
Elective or Major Elective ................................. 3
Total .................................................................. 17

JUNIOR YEAR
First Semester

Course No.  Course Title  Credits
PS 2005  Plant Physiology............................... 3
PS 4106  Marketing Horticultural Products .......... 2
PS 3106  Floral Crop Production I ..................... 2
PS 3005  Plant Propagation ............................... 3
LAES 3117 Herbaceous Plant Materials II ............. 2
Humanities Area ............................................ 3
Total .................................................................. 15

Second Semester

BY 3007  Entomology ................................. 3
PS 3208  Floral Crop Production II ................... 2
LAES 3217 Herbaceous Plant Materials II .......... 2
LAES 3232 Introductory Floral Design or
PS 4206  Nursery Management ......................... 3
Elective or Major Elective ................................. 6
Total .................................................................. 16

Floriculture and Nursery Production Major

The Floriculture and Nursery Production major was developed for students whose career goals include one or more of the following: floral or nursery marketing, garden center management, floral design and decorating, greenhouse and/or nursery management and production, interiorscaping, mass merchandising of ornamental products, and all areas of floral and nursery business. This is a genuine seed to sale program.

FRESHMAN YEAR
First Semester

Course No.  Course Title  Credits
BY 1116  Biological Science I ......................... 3
CH 1103  General Chemistry I ......................... 3
CH 1103L General Chemistry I Lab ................... 1
EN 1101  English I ........................................ 3
LA 1020  Skills for College Success ................... 1
MP 1102  College Algebra or
MP 1203  Elementary Functions ...................... 3
PS 2014  Floriculture Techniques or
LAES 2015 Landscape Techniques ................... 3
Total .................................................................. 17

Second Semester

BY 3007  Entomology ................................. 3
PS 3208  Floral Crop Production II ................... 2
LAES 3217 Herbaceous Plant Materials II .......... 2
LAES 3232 Introductory Floral Design or
PS 4206  Nursery Management ......................... 3
Elective or Major Elective ................................. 6
Total .................................................................. 16
Undergraduate Programs

**SENIOR YEAR**

**First Semester**

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<th>Course Title</th>
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<tbody>
<tr>
<td>PS 4005</td>
<td>Plant Pathology</td>
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<tr>
<td>LA 4037</td>
<td>Non-Western Societies</td>
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<td>Electives or Major Electives</td>
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**Second Semester**

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<tr>
<td>LAES 4008</td>
<td>Seminar (Ornamental Horticulture and Environmental Design)</td>
<td>1</td>
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<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
<td>3</td>
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<td></td>
<td>Social Sciences Area</td>
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<td>Electives or Major Electives</td>
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**Social Science Area: select one of the following:**

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<tr>
<td>LA 2012</td>
<td>Introduction to Sociology</td>
<td>3</td>
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<tr>
<td>LA 2036</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>LA 4203</td>
<td>Social Psychology and Human Interaction</td>
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**Humanities Area: select two courses from the following:**

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<thead>
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<tbody>
<tr>
<td>LA 2040</td>
<td>Modern History of Western Societies</td>
<td>3</td>
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<tr>
<td>LA 2042</td>
<td>Introduction to Philosophy</td>
<td>3</td>
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<tr>
<td>LA 2138</td>
<td>History of Western Civilization I</td>
<td>3</td>
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<tr>
<td>LA 3032</td>
<td>American History and Government since 1877</td>
<td>3</td>
</tr>
<tr>
<td>LA 4127</td>
<td>United States Foreign Policy</td>
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**Floriculture and Nursery Production Electives**

Take 12 credits from the following courses to fulfill the Floriculture and Nursery Production and Marketing requirements:

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>3</td>
<td>AE 3106 Turf and Grounds Machinery Mgmt</td>
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<tr>
<td>3</td>
<td>PS 3114 Introduction to Turf Mgt</td>
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<td>3</td>
<td>PS 3202 Plant Genetics</td>
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<td>3</td>
<td>PS 3230 Turf Cultural Systems</td>
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<td>PS 4116 Weed Science</td>
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<td>3</td>
<td>BY 2235 Plant Communities</td>
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<tr>
<td>3</td>
<td>IT 3220 Computer Aided Design</td>
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<tr>
<td>3</td>
<td>PS 2240 Organic Food &amp; Fiber</td>
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<td>3</td>
<td>PS 3025 Plant Cell Tissue Culture**</td>
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<td>PS 3231 Hydroponics***</td>
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<td>3</td>
<td>PS 3240 Integrated Pest Management</td>
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<td>3</td>
<td>PS 4132 Principles of Plant Protection</td>
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<tr>
<td>3</td>
<td>PS 4225 Plant Disease Diagnosis</td>
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<td>OH 1125 Intro to Design</td>
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<td>LAES 3109 Interior Plant ID, Culture and Use</td>
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<tr>
<td>3</td>
<td>LAES 3147 Today’s Sustainable Homestead</td>
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<td>LAES 3210 Advanced Woody Plant Materials***</td>
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<td>PS 4206 Nursery Management**</td>
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<td>PS 4209 Greenhouse Management</td>
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<td>OH 2133 Design Studio I</td>
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<td>LAES 3210 Interior Plantscaping**</td>
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<td>OH 2247 Design Studio II</td>
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<td>2</td>
<td>LAES 3240 Advanced Woody Plant Materials***</td>
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* Offered in Fall Semester of odd numbered years.
** Offered in Fall Semester of even numbered years.
*** Offered in Spring Semester of even numbered years.
**** Offered in Spring Semester of odd numbered years.

**Landscape Contracting and Management Major**

The Landscape Contracting and Management major was developed for students desiring a career in the allied nursery professions such as nursery management, production or marketing, landscape contracting, construction and design/build, garden center management, landscape management (golf courses, parks, residential, and others), arboriculture, urban forestry, landscape/nursery sales, and more.

**FRESHMAN YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
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<tr>
<td>BY 1116</td>
<td>Biological Science I</td>
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<tr>
<td>CH 1103</td>
<td>General Chemistry I</td>
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<td>CH 1103L</td>
<td>General Chemistry I Lab</td>
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<td>LA 1020</td>
<td>Skills for College Success</td>
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**Second Semester**

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<td>PE 1209</td>
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## Undergraduate Programs

### SOPHOMORE YEAR

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<td>BY 2003</td>
<td>Genetics</td>
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<td>IT 1012</td>
<td>Computer Applications</td>
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<td>LAES 2118</td>
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### JUNIOR YEAR

#### First Semester

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<td>Plant Propagation</td>
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<td>LAES 3117</td>
<td>Herbaceous Plant Materials I</td>
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#### Second Semester

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<th>Course Title</th>
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<tr>
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<td>Design Studio II</td>
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<td>LAES 3217</td>
<td>Herbaceous Plant Materials II</td>
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### SENIOR YEAR

#### First Semester

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<th>Course Title</th>
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<td>Non-Western Societies</td>
<td>3</td>
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<td>OH 3124</td>
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<th>Course Title</th>
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<tr>
<td>LA 1060</td>
<td>Introduction to the Fine Arts</td>
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<tr>
<td>LAES 4008</td>
<td>Seminar (Ornamental Horticulture and Environmental Design)</td>
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<tr>
<td>LAES 4230</td>
<td>Landscape Contracting and Bidding</td>
<td>3</td>
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<td></td>
<td>Electives or Major Electives</td>
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#### Social Science Area: select one of the following:

- LA 2012 Introduction to Sociology .......... 3
- LA 2036 Introduction to Psychology .......... 3
- LA 4203 Social Psychology and Human Interaction .......... 3

#### Humanities Area: select two courses from the following:

- LA 2040 Modern History of Western Societies .. 3
- LA 2042 Introduction to Philosophy .......... 3
- LA 2138 History of Western Civilization I ... 3
- LA 3032 American History and Government since 1877 .......... 3
- LA 4127 United States Foreign Policy .......... 3

### Landscape Contracting and Management Electives

Take 9 credits from the following courses to fulfill the Landscape Contracting and Management requirements:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AE 3106</td>
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<td>3</td>
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<tr>
<td>PS 3108</td>
<td>Irrigation Technology</td>
<td>3</td>
</tr>
<tr>
<td>PS 3114</td>
<td>Introduction to Turf Management</td>
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<td>PS 3202</td>
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<td>PS 3230</td>
<td>Turf Cultural Systems</td>
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<td>PS 4116</td>
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<td>PS 4132</td>
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<td>LAES 3109</td>
<td>Interior Plant ID, Culture and Use</td>
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<td>LAES 3210</td>
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<td>LAES 3215</td>
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<td>LAES 3225</td>
<td>Arboriculture</td>
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<td>LAES 4125</td>
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<td>LAES 4290</td>
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### Undergraduate Programs

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<td>LAES 3240</td>
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<td>LAES 3221</td>
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<td>PS 4206</td>
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* *Offered in Fall Semester of odd numbered years.*

** **Offered in Fall Semester of even numbered years.*

*** ***Offered in Spring Semester of even numbered years.*

**** ****Offered in Spring Semester of odd numbered years.*
Graduate Course Descriptions

MASTER OF BUSINESS ADMINISTRATION

GB 6010
Managerial Accounting for Decision Makers
A study of interpretation and the use of accounting data for management planning, decision making and control. Topics include product costing, cost allocation, budgeting, variance analysis and performance evaluation methods.

GB 6020
Advanced Computer Applications
Applications of computer technology to analyze and solve business issues. Advanced applications with Microsoft software packages, spreadsheets, database management. Topics include programming languages, algorithm development and societal impact.

GB 6030
Financial Management
Examine the fundamental principles of corporate financial management and capital markets. Topics include asset pricing methods, risk management, equity financing, debt financing, dividend policy and the relationship of finance with other functions within the firm, including practical and theoretical methods of financial analysis as part of a system of management decision.

GB 6040
Marketing Management
A study on business-to-business buyer behavior, marketing segmentation and selection, product planning, pricing, distribution, promotion, buyer-seller interaction, negotiations, competitive bidding, and ethical issues. In addition, social media will be reviewed in the context of business enterprise sustainability.

GB 6050
Managerial Economics
Examine the influence of economic behavior, government and other factors on the business environment. Models of aggregate supply and demand theories of consumption and investment, money supply and demand, inflation, rational expectations, stabilization policy, financial markets and international finance will be studied.

GB 6060
Human Resources Management
This course identifies the role of the human resource manager. The course examines, from a strategic approach, how the human resource functions interact with the EEO laws, job analysis, competency models, recruiting, selection, training, performance appraisal and management, job design, compensation, benefits, and labor relations. The intent of this course is to enable the student to apply human resources management techniques to the business industry.

GB 6070
Operations Management
A study of the theory and practices of the operations function and its application to productivity in the business areas. Focus is on the quantitative techniques for problem solving and decision making in a variety of strategic and tactical areas of operations management, including total quality management; process design and control, capacity planning, location strategy, materials requirement planning, inventory control, and project management.

GB 6108
Compensation and Benefits
Application of compensation principles to organizations’ strategies. Focus on managing employee compensation in contemporary organizations. The major objectives are to examine the current state of compensation decision making, to examine how recent theories and research inform compensation decisions and to offer an opportunity to develop competencies in making compensation decisions.
Graduate Course Descriptions

GB 6110 
*Strategic Management of Business Enterprises* 
This course explores the integration of the functional areas of business at the corporate level. Heavy emphasis is on environmental analysis, goal setting, assessing core competencies, choosing a strategic direction, and organizational implementation and control in the context of a respective business operation.

GB 6111 
*Current Issues in Food and Agribusiness* 
Analysis of current critical practice and research issues in food and agribusiness, agri-food systems, food systems, global, competitiveness, sustainable agriculture, agribusiness ethics, new food and agribusiness ventures, cooperatives, farm management firms, agribusiness multinationals, innovation change, etc. The course will use case study analysis and problem solving to analyze the efforts of critical practices on the food and agribusiness industry.

GB 6112 
*Food and Agribusiness Marketing* 
An analysis of agricultural marketing systems focusing on their structure, pricing and coordination mechanisms, and performance. Case studies will be used involving decision making, using marketing tools from previous courses.

GB 6113 
*Management of Food and Agribusiness Delivery Systems* 
This course covers the economically efficient distribution of goods and services from their points of valve -creation to the customers. Topics will include strategic decisions such as aggregate distribution plans and warehouse location, as well as operational decisions including the delivery routes and dispatching.

GB 6114 
*Food and Agribusiness Price Analysis* 
A study of the applications of price and demand theories to agricultural market analysis. Topics include agricultural product supply and input demand, uncertainty and risk, expectations, and supply dynamics.

GB 6115 
*Topics of International Food and Agribusiness* 
An analysis of government policies and programs which develop agriculture, conserve agricultural resources, address consumer food concerns, stabilize prices and increase income levels. The influence of macro-policy, world economy and international trade on U. S. agriculture are also discussed.

GB 6122 
*Entrepreneurship* 
This course examines the nature of entrepreneurship. This course will focus on all the aspects of starting a new business. Topics include attributes of entrepreneurship and entrepreneurial careers, evaluating opportunities, writing business plans and financing the new venture.

GB 6161 
*Global Human Resources and Diversity* 
This course is intended to familiarize the students with the latest global trends and human resource management and multinational corporations with differing cultures, HR systems and policies. Management across borders requires global managerial staffing and cross-cultural decision making.

GB 6210 
*Contemporary Business Issues* 
This course is designed to provide a forum for decision, reflection, and examination of contemporary business issues. Global business, legal systems, and social issues, quality, and the internet are a few examples of the topical areas that are covered in this course.

GB 6211 
*Business Ethics* 
This course explores the ethical gray areas of contemporary business practices and develops skills in moral judgment dialogical framework for ethical decision-making. Emphasis will be placed on the student’s self-assessment of core values, experiences and assumptions.

GB 6212 
*Leadership* 
Leadership is influencing people by providing purpose, direction and motivation, while operating to accomplish the mission and improving the organization. The goal of this course is to help students develop their own leadership skills. This course examines the role of leaders, leadership, and management, power and influence, leadership styles, cultural dimensions of leadership, and leadership and strategic effectiveness.
GB 6213
International Business and Economics
International Business and Economics reflects the changes in trade law, including the international aspects of intellectual property, and other contemporary cases reflecting the ongoing evolution of the world economy. This course includes new U.S. case law, and discusses new international regimes such as the anti-bribery convention and the Financial Action Task Force. The coverage of the emerging jurisprudence of NAFTA and the WTO is also included.

GB 6214
Graduate Study Tour
The course offers an in-depth, inter-country examination of major business centers and industries throughout the world including the United States. The study tour includes numerous corporate and institutional visits allowing for firsthand exploration of business issues. Cultural, political, legal, regulatory, and social issues are also examined. The study tour travel component is one week.

GB 6215
Corporate Governance
Corporate Governance as a subject matter recognizes that good governance practices are essential in raising capital in the competitive global environment. This course focuses on understanding how differences in capital markets, ownership structures, and legal traditions affect the optimal design of financial contracts. Moreover, this course will examine potential conflicts between shareholders and other corporate constituents. This course will explore and evaluate the legal, economic, and financial framework of corporate governance and discuss the reasons for the recent failures of corporate governance.

GB 6216
Global Executive Leadership
This course uses strategy as a unifying theme to explore the global economy and the impact of managerial decisions. By examining comparative management issues thoroughly, this course discusses the strengths and weaknesses of competitors and how to adapt organizational practices. Also covered are: the key topics of formation and implementation of strategies in the global environment, the building of strategic alliances, negotiation and cross-cultural communication, international human resource management, and business ethics.

GB 6217
Transportation and Distribution
This course will offer a broad overview of transportation and distribution systems including the activities of transportation and supply chain systems, such as transportation network design, scheduling, routing, contracting, and pricing.

GB 6219
Entrepreneurial Finance
This course will detail relevant matters in the creation and financing of an entrepreneurial venture. The course will focus on all financial aspects facing the entrepreneur in today’s economic environment. Topics include attributes and sources of capital to finance entrepreneurial ventures ranging from “friends, family and fools,” angel investors, venture capital, debt financing and grant funding.

GB 6225
Supply Chain Management
This course is an introduction to the supply chain concept and will explore the management of supply chains to improve an organization’s overall supply efficiency. Topics covered include core logistics functions, cost integration, and relationships with suppliers, customers, and other firm functions such as manufacturing and finance.
Graduate Course Descriptions

GB 6227  
Global Supply Chain Management  
As companies recognize that managing of their businesses through functional silos is inappropriate in a challenging and complex global marketplace, there is an urgent need for a decision-making framework. This course attempts to provide such a framework by integrating operations and supply chain concepts to address the critical issue of managing flow of products, services, and information. This course will provide an overview of the concepts and decision processes in effectively managing the flow of goods, services and information in a global environment.

GB 6230  
Family as Entrepreneurs  
The objective of the course is to familiarize students with the unique issues faced by owners of entrepreneurial and family businesses. Examples of topics covered include: selection of business form, tax planning, financing and cash flow planning. Special problems of family businesses include integrating family members into the business, motivating and retaining non-family employees, and business succession strategies. These issues will be viewed from a multi-disciplinary perspective that includes legal, tax and behavioral considerations.

GB 6231  
International Business for Entrepreneurs  
Entrepreneurship in the 21st century is evolving. Because of global changes in technology, communications, and capital markets, today’s innovative start-ups are building successful companies in countries around the globe, in many instances with investors, vendors, customers, and employees located thousands of miles away. The challenges these leading-edge companies face, particularly in emerging markets, are some of the most sophisticated issues both for businesses and governments alike.

GB 6239  
Portfolio Management  
Focuses on current portfolio practice and recent theoretical developments. Deals with characteristics of individual securities and portfolios, criteria and models for alternative portfolio composition, criteria for evaluation and measurement of performance, and the impact of government regulation. Evaluation of current theory, its significance for financial management decision making, and consideration of relevant empirical evidence are covered.

GB 6244  
Strategic Procurement  
Competition is no longer company versus company; it is supply chain versus supply chain. Companies are counting on their suppliers to lower costs, improve quality, and develop innovations. The success of a firm and its ability to satisfy customer expectations are influenced greatly by the capabilities and performance of its suppliers. The objectives of this course are to understand the relationship between suppliers and customer, determine which elements in the relationship are critical, examine how relationships vary among industries and products, and develop and implement effective supplier relationships. Using this approach, companies can reduce enterprise spending, consolidate and prioritize suppliers, reduce supplier risk, and align procurement strategies with corporate goals.

GB 6277  
Mergers and Acquisitions  
An analysis of the acquisition by one firm of all or some of the assets of another firm and its impact on both the companies involved and on society. Topics include a discussion of the types of combinations, the motivations of the participants, the financial analysis required to carry out merger or acquisition activities, negotiation strategies, and the tax and accounting options that are available to the parties.

GB 6299  
Social Entrepreneurship  
Social Entrepreneurship involves recognizing opportunities, combining and mobilizing resources, triggering positive changes in various domains, and building sustainability. It aims at social impact, but does not exclude economic wealth creation. Social Entrepreneurship is about using entrepreneurial skills to craft innovative responses to social problems.

GB 6309  
Management Information Systems in Supply Chain Management  
A comprehensive study of the concepts, processes, and strategies used in the development and management of global supply chains. Supply-chain management (SCM) is a systems approach to managing the
entire flow of information, materials, and services from raw material suppliers through factories and warehouses to the final end-customer. Specific topics include: global supply chain management, procurement, electronic commerce, information technologies, and logistics activities. SCM represents a philosophy of doing business that stresses processes and integration. This course will be taught through the use of textbook materials, outside readings, and case analysis.

GB 6310 Auditing
The objectives of this course are to provide the student with detailed concepts and the current practice of financial statement and corporate auditing, and to improve analytical and communication skills through a variety of in-class activities and a comprehensive auditing case project environment.

GB 6320 Commercial Law for Accountants
This course emphasizes the most current commercial law topics required for accountants in both practice and preparation for advanced licensing. Topics include: common law contracts; Article 2 of the UCC Sales; Article 9 of the UCC Secured Transactions; federal securities law and basic debtor creditor law.

GB 6324 Executive Compensation
We now live in a “winner take all” economic environment where the dispersion of pay and other rewards between the “winners,” who have marketable skills, and the others, whose skills are not in demand, is growing farther apart. Executives, managers, technologists and others with rare and hard to replace skills are being rewarded like “one of a kind” athletes and media stars in the labor market. This trend of high pay for high potential employees is the most developed in the United States, but other countries who compete with the U.S. for talent are also adjusting their pay policies to cope with this world-wide phenomenon. This course will explore this trend from economic, management, ethical and legal perspectives.

GB 6330 Financial Reporting and Analysis
This course adopts a user’s perspective of financial statements rather than a preparer’s perspective. Financial statement data will be analyzed and then used in decision making situations such as equity valuation, credit extension, and maximization of shareholders’ wealth. This course serves as a bridge between accounting and finance, integrating the concepts of these disciplines. This course is designed to provide the student with: 1) the ability to analyze financial statements, 2) an understanding of the incentives of companies to “manage” earnings through their choices of accounting methods, which are somewhat flexible within GAAP, 3) an understanding of the limitations to the usefulness of financial statements, and 4) despite these limitations, an understanding of the value of financial statements in decision making situations such as stock price evaluation, loan approvals, and maximizing shareholder wealth. We accomplish this through a body of knowledge developed by research in finance, accounting, and economics.

GB 6340 Advanced Accounting Theory
The primary objective of this course is to develop an understanding of the theoretical foundation of GAAP as it relates to business combinations and to become proficient in the worksheet techniques involving consolidated financial statements. Topics include partnerships, segments, government accounting and foreign currency transactions. Students will study the theory and apply it to contemporary practices within organizations.

GB 6341 Law and Ethics for Supply Chain Management
This course exposes students to fundamental issues and current best practices in managing legal/ethical compliance and corporate social responsibility in the supply chain process. Course topics cover both domestic and international business issues, including child labor, environmental sustainability, anti-corruption, and human rights. Special attention is given to preparing law and management students to understand and manage the demands on U.S. and international corporations making complex business decisions in the face of increasing expectations for transparency and accountability.
GB 6345

This course examines the current financial theory and practice as it applies to the multinational enterprise. Topics include foreign exchange markets and forecasting, foreign exchange risk management, the international debt crisis, multinational working capital management, and capital budgeting. Eurocurrencies and foreign security markets are also discussed.

GB 6360

Legal Issues in Human Resource Management

One of the human resource professional’s roles is to help ensure the organization’s compliance with federal and state labor and employment laws and to recognize when the organization needs advice from legal counsel. This course will help you recognize legal issues and recommend policies and procedures that can minimize exposure to lawsuits. It will help the student become better informed about how his/her role and responsibilities can impact the organization’s bottom line.

GB 6411

Financial Markets

This course will serve as an introduction to the financial system and its relationship to the financing of domestic and international business activity. Financial market components such as financial instruments, institutions, flow of funds, market efficiency, interest rate determination and term structure, exchange rates, and the balance of payments are analyzed. The governmental impact on financial markets, manifested through monetary and fiscal policy and regulation, is also covered. The emphasis is on the significance of these elements for conducting the financial affairs of businesses.

GB 6425

Speculative Markets

This course introduces the student to the world of speculative markets. Toward this end, students will study the key issues in options and futures pricing and learn how to employ these assets to maximize investor utility. An examination of controversial issues in this area will be conducted.

GB 7110

Executive Capstone Seminar

This course reflects the composite of student learning and focuses on critical analysis of case studies in strategic management with an emphasis on integrative decision-making. Focuses on strategy formulation, implementation, and evaluation and control in today’s organization.

GB 7015

Supply Chain Capstone

This course covers the major issues both domestically and globally in supply chain management including definition of a supply chain, the role of inventory, advanced production-inventory models, supply contracts, and information sharing, vendor-managed inventories and other distribution strategies, third-party logistics providers, managing product variety, information technology and supply chain management, international issues.

GB 7120

Entrepreneurship Capstone

Intended as an all-encompassing business course from the entrepreneurial perspective. Integration of business background acquired from accounting, marketing, strategic planning and implementation. Discussion will develop a business strategy/plan or simulate business situations.

GB 7125

Strategic Human Resource Management Capstone

This course integrates strategic human resource management and planning. Applicable theories and methods of strategic, operational, and tactical planning and their relationship to HR management are covered, as well as the multiple roles HR plays in assisting organizations to gain and sustain competitive advantages in a fast-paced environment.
GRADUATE EDUCATION

GE 6027
Reading and Writing Across the Curriculum
This course emphasizes the interdisciplinary approach to all curriculum areas and their related importance to the Reading and Writing process. Students will explore the interconnections of language and literacy to build a knowledge base and understanding of how children learn to read and write in the elementary stages and progress into independent readers and writers in the upper grades. The rationale for this course is two-fold: 1) learning the language arts is important because the elements are powerful tools for learners to create and share personal meaning, and 2) teaching the language arts is critical because the components represent powerful potentials for learners to understand and transform their social worlds. Course content includes a comprehensive approach for educators who are seeking innovative and practical methods targeting best practices for teaching reading and writing across the curriculum spectrum. Students will develop the necessary competencies to understand and implement highly effective strategies that have been thoroughly researched in educational literature pertaining to present day classroom teachers.

GE 6030
Theory and Application of Educational Administration
A comprehensive and historical overview of the field of educational administration and general supervision are presented within this course. An examination of the tasks, processes, role development, models of behavior, communication and techniques of educational administration, designed to assist the prospective school administrator or supervisor in their respective leadership role, is the course’s primary focus.

GE 6035
Teaching and Supervising Diverse Student Populations
This course is designed to enhance instructional skills essential to working with Special Needs populations, Talented and Gifted learners, English Language learners, varying cultures and unique student populations based on the emerging aspects of a diverse society. This course is structured to present the learner with the essential knowledge base and accompanying skills needed to successfully teach school students who have connections with topics related to Special Education, Talented & Gifted Education, the English Language Learners, Bi-Lingual Education, Economically Disadvantaged, Gender Issues, and Racial Diversity by understanding their relationship to student achievement and school climate. Graduate students will study the history, programs and legislation of each program as they relate to school and its daily operation. State requirements will be examined as will program requirements falling under the NCLB legislation. Program design will be presented as will its impact upon the school and the process of meeting the educational needs of students. Case studies and practical application of program specifications will be utilized in the study of this course.

GE 6055
Human Development, Communication and Learning
This course is a comprehensive approach that explores the major theories of learning by tracing their historical development and considers how they relate to modern educational practice. The course describes learning from early childhood through adulthood using the concept of lifelong learning as the intended goal. Major learning theories are applied to the development, implementation and evaluation of program growth as it applies to schools. A companion focus of this course includes individual and group behaviors, communication theory, decision-making, conflict resolution and organizational dynamics as they relate to promoting educational change, staff development, innovation and general school improvement.

GE 6060
Organizational Development, Change Theory and Staff Development
An examination and study of individual and group behaviors as they relate to structuring and managing educational organizations. The student will focus on issues and challenges of organizational dynamics, leadership, system theories, governance and decision-making, communication, change, problem-solving, conflict management and information systems. The concept of staff development will be presented as essential to the forward progress of the organization, in the school setting and as part of the school improvement processes.

GE 6065
Leadership and Management of Special Education Programs
This course examines research and practice related to the development and administration of Special Education programs. It will provide a common language and knowledge of the leadership competencies.
Graduate Course Descriptions

needed as well as the theory development as it relates to individuals and organizations. The student will analyze existing approaches in schools/organizations with a special emphasis on leadership, decision-making, motivation and creating change. The student will also become familiar with the types and levels of support to address the varying needs of children with disabilities.

**GE 6070**
*Instructional Leadership and Supervision*
Roles of contemporary administrative leadership and supervision, with respect to educational program design and management, quality assessment, interpersonal relations, staff effectiveness and the leadership role and process are examined and studied. Through the process of case studies, this course will focus on the skills of leadership decision-making that will help meet the challenges that schools encounter at all levels of leadership.

**GE 6080**
*Foundations of Instructional Technology for Teaching and Learning*
This course will provide a hands-on approach to the selected methods of instructional technology within the classroom. Students will engage in computer work and use instructional software to facilitate the learning process. Students will examine and study various methods of instructional technology for classroom teaching and learning. This course will focus on popular technology related issues in current educational settings. Students will explore Web and computer-based instructional design software. Students will examine the integration of educational technology into classroom settings through job experiences, Web-based resources, video case studies, and in-class discussions. The goal of the course is to help students achieve a greater understanding of issues and techniques related to the integration of educational technology in K-12 educational settings.

**GE 6115**
*Principles, Methods, Development, and Assessment of Curriculum*
This course examines how curriculum is developed, as well as, the approach to design and implementation. Strategies for collaboration with peer educators and colleagues toward the development and modification, scope and sequence, pacing, spiraling, integration, graphic organization, and mapping will all be an integral part of this course. This course is geared towards classroom teachers who are interested in understanding major American curriculum movements and their underlying philosophies. Coverage spans all major curriculum processes such as development, classroom use, and evaluation by emphasizing the importance of a clearly defined purpose of education as a first step in curriculum development or revision, and as a necessity for classroom use and evaluation.

**GE 6130**
*School and Community Relations*
The focus of this course is an investigation and study of the principles, skills, tasks, practices and communication ability of the school administrator to help maintain open communication between the school and the community. This course is designed to help administrators manage information about their schools and to receive or disseminate it properly. The study of various media and constituents, as well as a variety of experiences relating to the public relations function of the school and district, is treated as a function of administrative leadership.

**GE 6136**
*Educational Trends and Development*
This course will focus on the major trends in education, as well as, the successes, best practices and the failures of the educational system. The goal of this course is to help students develop into teachers who become reflective practitioners who are well aware of issues pertaining to the educational profession. The course will explore the social, cultural, political, historical, and philosophical contexts of schools, and use the perspective gained as context to consider present day educational issues. Educational issues are pressing concerns in our society. The course will help students develop an understanding of the background of today’s public debates around schooling and will introduce ways in which educational thought and research address big topics. It introduces the students to the various issues affecting teachers. Its primary focus will be on contemporary issues teachers and administrators face in today’s schools. Throughout the course, several aspects of the teaching profession will be incorporated from the diversity of students in the classroom, to school organization and governance, to teaching standards and expectations. This course provides a foundation for understanding the educational profession while staying abreast of current educational trends and changes.

**GE 6140**
*School Personnel Administration*
A broad, in-depth review of human resources in educational administration is the focus of this course. The quality of a school system’s human resources are given special consideration through the presentation
of how members are recruited, selected, inducted, developed, appraised, compensated and protected through justice and bargaining processes. The function of the human resources program as staff developer for programs such as EEOC, affirmative action and the American with Disabilities Act will be the focus of this course.

GE 6155

**Design, Development and Assessment of Instruction**

This course is designed to develop a rationale and specific procedures for designing instruction that leads to positive outcomes. The course blends current instructional design trends with the latest cognitive psychological research on teaching, testing and assessment. Topics to be considered include current methods of instruction, design and development of teaching, planning tasks, decision-making, testing and assessment and ethical issues that face the evaluator. Sample evaluation criteria will be provided along with real-life examples and a wealth of ideas for implementing the instructional design/assessment process.

GE 6178

**The Special Needs Student**

This course will reflect the education standards for special education promulgated by the Pennsylvania Department of Education. Students will learn how to best service students with cognitive, behavioral, and/or physical disabilities. The history and legal aspects of Special Education will be a focus of this course. This course is designed to further develop the attitudes, knowledge, and conceptual and technical skills required by teachers to help them identify the educational goals of students and to select or design and implement relevant, meaningful, and beneficial instructional strategies for effective learning by students with special needs. With a continued increase in the special needs population, educators are legally responsible for understanding and carrying out the duties for all special needs students. This course will inform and lend itself to strengthen the skills of teachers to assure they are meeting the elements prescribed for each individual student. This course prepares teachers to become critical thinking professionals who will be able to demonstrate knowledge and awareness of special populations of children with exceptional needs by modeling best teaching practices.

GE 6220

**School Law**

This course focuses on teachers, their legal authority in the classroom, and the essential knowledge of school law needed for public school educators. School law provides an application of facts, attitudes, and skills necessary for effective performances in specific teaching, supervising, school service, or administrative roles. The course includes an analysis of selected general legal principles, cases, and statute laws. Topics will include copyright and software licensing, privacy and confidentiality, censorship, acceptable use of policies, local and State regulations, the legislative process, school governances, church and state, civil rights, student and parent rights and responsibilities, teacher rights and responsibilities, collective negotiations, tort, contracts, legal research as well as general knowledge of teacher boundaries in the legal sense.

GE 6225

**Special Education Law**

Special Education Law is a core course required of all students participating in a certification program for Supervisors of Special Education. This course will provide an intense review of the regulations and major court decisions under the Individuals with Disabilities Education Act (IDEA). Special attention will be given to the Pennsylvania regulations and cases in its jurisdiction. It will also include attention to the corresponding legal developments under Section 504 of the Rehabilitation Act and the American Disabilities Act (ADA). Students will become versed in the procedures leading to the evaluation, identification and program development (IEP process) for children found eligible to receive special education and the provision of a free and appropriate public education (FAPE).

GE 6240

**School Finance and Accounting**

This course presents a broad overview and treatment of school finance, school finance reform, school accounting and school resource management Budget development and administration processes are given special attention through the study of funding sources, school accounting systems and practices and the concepts of General Accounting Principles (GAP). Students will also explore school resource management as it impacts the economics of school program.
Graduate Course Descriptions

**GE 6244**

*Learning as a Process*

This course will provide an overview of the establishment of human development and the relationship to learning over one's life span. A careful analysis delving into a range of cognitive learning theories, practices of effecting learning, steps of the assessment process, and appropriate goal setting for specific life learning stages will be the focus of this course. The course will focus on the concepts and principles that are important to educational practitioners by revealing practical implications of developmental theory and research by providing concrete applications for those who teach and work with children and adolescents.

**GE 6247**

*Action Research I*

This course will be the first of two required courses in Action Research. Students will engage in the process of reflection, inquiry, and action in their own professional context. This course will assist the students in the development and planning phases of Chapters 1 and 2 of the action research project. Action research is an interactive inquiry process that balances problem solving actions implemented in a collaborative context with data-driven collaborative analysis or research to understand underlying causes enabling future predictions about organizational change (Reason & Bradbury, 2001). The various roles and skills necessary to be an effective action researcher in the field of education will be discussed alongside of understanding proper research methodologies regarding the population, sample size, data analyses, results, conclusions, limitations, and future recommendations of the research study which will comprise the final chapters of the action research project. Topics include conducting an actual study, employing quantitative or qualitative measures to analyze the data points, reporting results, testing if one's hypotheses were correct, and providing a summary of the process by drawing conclusions from the research. The major assignment for the course will be the completion of Chapters 3, 4, and 5 undertaken in an educational setting in which the student is engaged in professional practice.

**GE 7020**

*Field Experience: Educational Leadership*

The Delaware Valley College 360/300 (Pennsylvania/New Jersey) hour field experience is designed to provide the student with significant opportunities in the workplace to synthesize and apply the knowledge obtained through coursework, and to develop and practice the skills associated with being a competent administrator. The administrative field experience needs to afford the student with sound experiences in accordance with the state competencies established for principal certification.

**GE 6350**

*Action Research II*

This seminar will focus on the research design, methods, tools and measurements of the action research project. Chapters 3 – 5 of the student's actions research project will be completed during this course. This course will be the second required course in Action Research. It will focus on the research design, methods, tools, and measurements of the action research project. The course will assist the students in the development and planning phases of Chapters 3, 4, and 5 of the action research project. Action research is an interactive inquiry process that balances problem solving actions implemented in a collaborative context with data-driven collaborative analysis or research to understand underlying causes enabling future predictions about organizational change (Reason & Bradbury, 2001). The various roles and skills necessary to be an effective action researcher in the field of education will be discussed alongside of understanding proper research methodologies regarding the population, sample size, data analyses, results, conclusions, limitations, and future recommendations of the research study which will comprise the final chapters of the action research project. Topics include conducting an actual study, employing quantitative or qualitative measures to analyze the data points, reporting results, testing if one's hypotheses were correct, and providing a summary of the process by drawing conclusions from the research. The major assignment for the course will be the completion of Chapters 3, 4, and 5 undertaken in an educational setting in which the student is engaged in professional practice.
Undergraduate Course Descriptions

AGRIBUSINESS

AB 2225
Agricultural Economics
The purpose of the course is to provide a basic understanding of microeconomic principles relating to the production, processing, distribution and utilization of agricultural commodities. The course includes basic concepts relating to the management of agribusiness enterprises and agricultural resources allocation. 3 hours Lecture and Discussion — 3 credits

AB 3115, 3116, 3117
National Agri-Marketing
A team training experience structured to develop creativity, communication and presentation abilities as well as interpersonal skills. Students work throughout the year preparing a marketing plan, conducting market research and developing financial projections, then present their work during the National Agri-Marketing Association Conference in April. A GPA of 2.2 must be maintained. May be repeated for a maximum of 3 credits. 1 to 4 hours Participation — 1 credit per year

AB 3126
Agricultural Marketing
The course provides students with a comprehensive view of the marketing of agricultural commodities, foods, fibers, and agricultural supplies. Concepts relating to preparation for careers in agri-marketing are emphasized. Basic principles of advertising and retailing are included. Prerequisite: Agricultural Economics. 3 hours Lecture and Discussion — 3 credits

AB 4113
Farm Management
A study of the efficient management and operation of the farm for profit. Farm planning, record keeping, budgeting, finances, partnership agreements, pricing, marketing and other physical, economic and social factors affecting the farm business are considered. Prerequisites: Agricultural Economics and Accounting I and II for Agribusiness Majors, or Accounting Fundamentals for Non-Agribusiness Majors, or with permission of instructor. 3 hours Lecture and Discussion — 3 credits

AB 4242
Food and Agricultural Policy
Develops a basic understanding of the role of government in the development of domestic farm policy, policies affecting food and consumers, also international trade in food and agricultural products. Emphasis is placed on contemporary issues, which include: the structure of agriculture, nutrition policies, food safety, resource preservation and utilization, and price support programs. Prerequisites include: Agricultural Economics, Agricultural Marketing, and Junior or Senior status. 3 hours Lecture and Discussion — 3 credits

AB 4243
Agribusiness Management
Agribusiness Management skills are developed through coursework and association with professionals in marketing, distribution, sales, production and international business. Emphasis is placed on developing decision-making abilities, communication skills, and interpersonal competence. Prerequisites: Agricultural Economics, Agricultural Marketing, and Junior or Senior status. 3 hours Lecture and Discussion — 3 credits

SR 4041
Student Research
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for student research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20th and for registration in the spring semester, a proposal should be submitted no later than Nov. 20th. Once approved, registration is through the student’s
Undergraduate Course Descriptions

departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

**Natural Resources and Biosystems Management**

**Crop Science Major**
**Environmental Science Major**
**Turf Management Major**

**LAES**

1120  
**Sustainability: Saving the Earth and Feeding the People**
Environmental issues facing the rural and urban environment are discussed. Special emphasis is placed on the concept of sustainability and food. Addressing environmental issues requires interaction between technical, economic, and social forces. This course will ask the student to consider these forces on a local and global basis as well as the knowledge required to make informed decisions. The course explores the concept of sustainability, its meaning, its application, and its impact on the way we live. 3 hours Lecture — 3 credits

**LAES**

2004  
**Soils**
An introductory course in soils exploring the concepts and terminology of soil development, soil formation and composition, and the physical, chemical and biological properties and processes in soils. Soil classification, soil conservation, and nutrient systems are also introduced. Chemical and physical properties as they relate to environmental concerns are reviewed. Laboratory demonstrations and exercises parallel selected portions of the lecture material. Prerequisite: General Chemistry or permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits.

**PS 2007**

**Feed Grains and Forages**
This course covers the establishment, production, harvesting, uses and management of the main feed grains and forage crops with special emphasis on the crops grown in the northeastern region of the United States. Prerequisites: General Chemistry II or Biological Science II. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2013**

**Agricultural Machinery**
This course covers the use, care, operation and adjustment of the most common equipment and machinery used in agriculture. Special emphasis is placed on the actual operation of equipment. This course may be applied toward secondary teaching certification in vocational agriculture. 2 hours Lecture and 3 hours Laboratory — 3 credits

**LAES**

2017  
**Topographical Surveying**
This course includes land surveying principles, use of survey instruments, field methods, data collection, and an introduction to Geographical Information Systems. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2100**

**Agricultural Building Practices and Materials**
This course stresses construction practices and skills particularly applicable to agriculture. Included are reading and interpreting building plans, estimating and selecting materials, hand and power tool use, carpentry, plumbing, electrical and masonry skills, and agricultural construction projects. This course may be applied toward secondary teaching certification in vocational agriculture. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2201**

**Agricultural Engines and Power Application**
This course focuses on the study of gasoline and diesel internal combustion engines and two and four-stroke cycle small engines with emphasis upon agricultural applications. This course may be applied toward secondary teaching certification in vocational agriculture. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2202**

**Field Crops I**
Agronomic crops are those that produce fiber, vegetable oils, animal feed, processed human foods, and industrial raw materials. This course provides students with an overview of the production, regionalism, and uses of agronomic crops, particularly those grown in North America. All steps in the production of crops are covered, however, spring-season management practices are emphasized. Previous farm experience is NOT necessary for this course. Crop science majors must take Field Crops I during the spring immediately before taking Field Crops II (offered every other year). Prerequisite: Natural
Science I and Chemistry Fundamentals or Biological Science I. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2209**

**Soil Fertility and Fertilizers**
The role of essential elements in plant nutrition is discussed as well as practical applications in the area of soil deficiencies. Emphasis is placed on fertilizer types, usage, and applications for various agronomic and horticulture crops. In the laboratory, emphasis is placed on instrumentation and methodology for solving soil fertility problems. Prerequisite: Soils. 2 hours Lecture and 3 hours Laboratory — 3 credits

**AE 3000, 4000**

**Selected Topics I and II**
Special projects designed to meet individual needs of students in the specialized fields of agriculture. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the department chairperson. May be repeated for a total of 6 credits. 3 hours of student/faculty instruction per week per credit — 1-3 credit(s) each

**PS 3102**

**Field Crops II**
This course covers in detail the production practices of some of our major crops. Students learn to evaluate management techniques based on their economic and environmentally sound potential. As this is a fall course, the focus is on fall-season production activities. Students use field plots to evaluate how different management decisions made in the previous spring affect the crop in the fall. Farm experience is NOT required. Crop Science majors must take Field Crops I during the spring immediately before taking Field Crops II, which is offered every other year. Prerequisites: Field Crops I, or Feed Grains and Forages. 2 hours Lecture and 3 hours Laboratory — 3 credits

**LAES 3103**

**Soil Judging**
Enrollment in Soil Judging is limited in number and is open to full-time students only. A wide range of soils are evaluated, classified and interpreted based upon morphology, soil profile and site characteristics. An intercollegiate Soil Judging Team is selected from students taking the course and some travel is required. The Soil Judging Team competes in the Northeast Regional Contest and may qualify for the National Collegiate Soils Contest. Prerequisite: Soils. 3 hours Laboratory — 1 credit

**LAES 3104**

**Field Soil Morphology**
The examination of soils in the field is treated for the purpose of their classification, recognition and understanding of their parent materials, physical and chemical properties, and to understand their relationship to topography. Prerequisite: Soils. 2 hours Lecture and 3 hours Laboratory — 3 credits

**LAES 3105**

**Soil Conservation**
The need for soil and water conservation is stressed as it relates to rural and urban situations. The main causes of soil and water losses are evaluated and protective measures are discussed and designed. The laboratory deals with the practical application of designs discussed in lectures. On-site layouts for several conservation projects are required. Several field trips are taken during the semester. Prerequisites: Soils and College Algebra. Recommended: Topographical Surveying and GIS. 2 hours Lecture and 3 hours Laboratory — 3 credits

**LAES 3107**

**Environmental Geology**
This course is designed to acquaint the students with basic processes and relationships in physical geology. Landscape evolution, rock and mineral types, mountain building, and glaciation are among the topics discussed. Laboratory work centers on recognition and interpretation of landscape features shown on topographic maps and aerial photographs. Field trips are conducted to illustrate material. 3 hours Lecture and Discussion — 3 credits

**PS 3108**

**Irrigation Technology**
This course introduces basic irrigation techniques and planning, design and maintenance of irrigation systems. The interdependent relationships of soil, plants and water are stressed. Field trips, guest lectures, and a class project are highlights of the course. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 3114**

**Introduction to Turf Management**
The course covers the basic principles of turfgrass culture. Laboratories emphasize practical aspects of turfgrass identification, fertilization, pest control and maintenance by mowing, aerifying, renovating, and
Undergraduate Course Descriptions

other practices. Several field trips are taken to golf
courses and sod farms in Bucks County and the vicinity. 2 hours Lecture and 3 hours Laboratory—3 credits

**PS 3115**  
**Turf Pest Management**  
This course covers identification and various control measures of turfgrass pests including weeds, insects, and diseases. Emphasis is on integrated pest management systems. Prerequisite: Introduction to Turf Management 3 hours Lecture—3 credits

**LAES**  
**3125**  
**Principles of Ecology**  
This course is intended to provide Continuing Education students who are enrolled in the Environmental Studies Certificate Program with a basic understanding of the concepts and principles of the science of ecology. It is strongly recommended that this be the initial course taken by students in the aforementioned program. There are no prerequisites and it is not to be substituted for the 4 credit Ecology course offered by the Biology Department. 3 hours Lecture—3 credits

**PS 3127**  
**Agricultural Entomology**  
Many biologists believe that the number of insect species globally is in the millions. Fortunately, only a very small number of them have a significant economic impact on agriculture. However, left unmanaged, those few species can cause tremendous loss to agricultural production. In this course, students learn to identify many of the agriculturally important insects of the eastern United States. Students learn their life-cycles, weaknesses, and host crop species. Students learn the principles of the insect-host-management complex. Prerequisite: Biological Science II. 2 hours Lecture and 3 hours Laboratory—3 credits

**LAES**  
**3140**  
**Environmental Impacts**  
This course examines current practices and policies within our society and their effect on air, land and water quality. Alternative methods are proposed and analyzed, including the role of individuals and governments in curtailing activities which are destructive to the environment. Presentations, discussion and case studies are offered by environmental specialists and administrators from the private and public sector, as well as government legislators and representatives of local, state and federal regulatory agencies. 3 hours Lecture and Discussion—3 credits

**PS 3202**  
**Plant Breeding**  
Humans have been genetically improving plants since the beginning of plant agriculture. In this course the roles of genetics and the environment on plants’ appearance and behavior are studied. Students learn several techniques used by plant breeders and the seed industry in producing new cultivars. Discussions include benefits and hazards of plant breeding and biotechnology, the importance of protecting sources of genetic diversity, and some legal issues involving plant breeding. Prerequisites: Botany of Vascular Plants and Genetics (concurrently), 2 hours Lecture and 3 hours Laboratory—3 credits

**AE 3210**  
**Global Crop Ecology**  
Why do farmers grow what they grow where they grow it? How might a good growing season in a country like Brazil be a cause of concern for a soybean producer in the United States? If rice is so important to the Asian diet, why is China the greatest producer of wheat? Students investigate how different soils, climates, economic conditions, and cultures determine the dominant crop species of various regions of the world. Discussion of modern land-use policy and international trade agreements are included. Prerequisites: Field Crops I or Soils. 3 hours Lecture—3 credits

**LAES**  
**3216**  
**Soil Classification**  
Fundamental concepts of soil formation and classification are reviewed with special emphasis placed on field investigations. Soil survey interpretations and land use concepts are related to the properties of the soil. Environmental considerations in land use planning are emphasized. Pre-requisite: Environmental Geology or Permission of Instructor. 2 hours Lecture and 3 hours Laboratory—3 credits

**LAES**  
**3220**  
**Watershed Management**  
The objectives of this course are to (1) provide a basic understanding of hydrologic processes, (2) understand the effects of urbanization and industrialization on water resources, (3) examine ways to properly use and maintain water resources, and (4) provide some practical experience working with environmental problems concerning water resources and hydrological processes. Prerequisites: College Algebra and Soils. Recommended: Topographical Surveying and GIS. 2 hours Lecture and 3 hours Laboratory—3 credits
Undergraduate Course Descriptions

**PS 3230**
*Turf Cultural Systems*
This course covers the primary and supplementary turfgrass maintenance practices and their interrelationships. Turfgrass establishment, fertility, soil modification, mowing, top dressing, irrigation and their interrelationships will be discussed. Highlights include field trips, guest speakers, and the development of a cultural management plan by each student. Prerequisites: Soils and Introduction to Turf Management. 2 hours Lecture and 3 hours Laboratory—3 credits

**LAES 3250**
*Introduction to Environmental Remediation*
This course is an introduction to the process of assessing and remediating the hazards posed by environmental contamination. 3 hours lecture — 3 credits

**PS 3649**
*Soils and Agricultural Waste Management*
The course is designed to introduce the student to fundamental concepts and processes pertaining to waste management and land application of livestock and food processing wastes. Special emphasis is placed on the nutrient value of treated wastes and recycling these materials into the soil. Consideration is given to the agricultural aspects of waste management and the environmental impacts involved. 3 hours Lecture — 3 credits

**LAES 4010**
*Soil and Environmental Planning*
The role of soils in the environmental planning process is examined. Interactions of soils and wastes, health and regulatory aspects, land waste utilization and disposal methods are reviewed. Environmental impact assessment methods are examined. Prerequisites: General Chemistry I and II, Soils or permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits

**LAES 4015**
*Regional Land Use Planning*
The course is designed to introduce students to the concepts of planning for regional systems. Planning as a rationalized decision-making process is examined. Regional systems are discussed in a wide context, including social, economic, and environmental aspects. 3 hours Lecture and Discussion—3 credits

**LAES 4016**
*Hydrogeology*
The course is designed to acquaint the student with groundwater supplies, movement, quality, and methods of measurement. Prerequisites: General Chemistry I and II, Hydrology or permission of Instructor. 3 hours Lecture and Discussion—3 credits

**LAES 4025**
*Climatology*
This course investigates some of the physical causes of weather phenomena, thus, students gain an ability to make weather predictions. Students use their knowledge of weather to understand why different types of climates occur in different regions of the world. With an understanding about a region's climate, students investigate how climate affects human activities, such as agriculture, building design, management of water and energy, and health policy. Prerequisite: General Chemistry II. 3 hours Lecture—3 credits

**AE 4041**
*Senior Research*
Selected seniors engage in supervised investigations involving library work and laboratory or field experiments related to agronomy. Prerequisite: Permission of Department Chairperson. 1-3 credits

**LAES 4043**
*Applied Toxicology and Risk Assessment*
Knowledge of toxicology and application of principles in the assessment of environmental risks is central to environmental regulation and protection. This course covers the fundamentals of toxicology and the risk assessment process as they relate to regulation of commonly used and encountered chemicals. 3 hours Lecture and Discussion—3 credits

**PS 4116**
*Weed Science*
In this course, emphasis is given to the biology of weed plants and weedy species, with a strong emphasis on weed identification. Students study the interactions between desired plants and weed plants as well as the reactions of weed plants to various environmental conditions and management practices. Much of the course outlines the many methods used, including non-chemical methods, to reduce the harmful effects of weed plants. With a goal toward minimal environmental impact and maximum economic benefit, students will learn how to properly mix, apply, and discard herbicides. Prerequisite:
Botany of Vascular Plants. 2 hours Lecture and 3 hours Laboratory — 3 credits
Undergraduate Course Descriptions

LAES
4131
Auto CAD
This course teaches how to use AutoCAD, a computer-aided design tool, in the production of landscape and drafting designs. The student will learn the basics of creating a design using the computer and many of the advanced features a CAD program makes available. 3 hours Lecture and Practicum — 3 credits

PS 4211
Seminar (Agronomy)
In this course all students majoring in Crop Science, Turf Management, and Environmental Science meet to hear oral presentations developed and delivered by senior students in those majors. Students must take this one-credit course three times; twice as an audience member and once as a presenter during the senior year. The student receives credit for each instance totaling three credits. 1 hour lecture and discussion — 1 credit

PS 4218
Seed Science
This course investigates how seeds are produced, harvested, cleaned, stored, and marketed. Several case studies will be investigated. Discussions about the role of biotechnology, state and federal regulations, international trade agreements, and environmental protection will be included. Prerequisite: Field Crops 1 or Soils. 3 hours Lecture and Discussion — 3 credits

PS 4222
Golf Course Design and Construction
This course covers the basic principles, practices, and procedures of golf course design and construction. Highlights include a field trip to local golf courses and a design project. 3 hours Lecture and Discussion — 3 credits

PS 4230
Case Studies in Turf Management
In this advanced course students will improve their competence and confidence in solving problems in turf management. Students will be presented with actual turf management problems from a wide array of turfgrass systems and they will develop, describe, and defend their solutions both orally and in writing. Prerequisites: Introduction to Turf Management, Turfgrass Cultural Systems, and Turfgrass Pest Management, or permission of instructor. 3 hours Lecture and Discussion — 3 credits

SR 4041
Student Research
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for student research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on the number of credits registered for this course — 1-3 credits

ANIMAL BIOTECHNOLOGY AND CONSERVATION

SA 1105
Introduction to Animal Management
This course emphasizes animal care and management in relation to animal characteristics, control, handling, restraint, animal facility design, and legal compliance. Students will become acquainted with a variety of animals, their origin, characteristics, and usage. Basic technologies will be introduced in the laboratory component of the course. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 2001
People and Animals
The student will learn about the relationship between people and animals through domestication, religion, culture, farming, research and pets. The role of pets in the family will be examined. The role of animals in human health and the effect of humans on animals will also be discussed. 3 hours Lecture and Discussion — 3 credits

SA 2101
Animal Assisted Activities and Therapy
The course explores the use of AAA and AAT in different fields including education, psychology and physical therapy. By exploring the different areas, students will learn how to develop, present and
implement an AAA/AAT program and gain an understanding of the responsibilities that go along with such programs. Prerequisite: People and Animals. 3 hours Lecture and Discussion — 3 credits

SA 2110
Introduction to Zoo Keeping
This course will explore the major aspects of caring for captive wildlife and responsible collection management. We will emphasize both the limitations and positive impact zoos have on conservation. Topics covered will include, but are not limited to, responsible stewardship, population management, captive breeding, reintroduction, nutrition and feeding, health, reproduction, observation, and the design and care of exhibits. 3 hours Lecture and Discussion — 3 credits

SA 2113
Wild Animals in Captivity
Wildlife care and management is a scientific discipline requiring specialized training. This course emphasizes the development of care and management procedures in captive wildlife. Restricted to Zoo Science majors. Prerequisite: Introduction to Zookeeping. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 2218
Animal Training and Enrichment
Operant conditioning and basic principles of animal psychology are explored. Students will learn how to use these principles to train both domestic and wild animals and to improve their psychological well-being in captivity. Major components of enrichment will be reviewed with respect to the principles of animal management. This course provides the hands-on experience needed to apply behavioral techniques to the management of captive populations. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 2220
Animal Record Keeping Systems
This course introduces students to data collection, record keeping, studbook analysis, and the specialized software used by zoos for animal information systems and collection management. Students will learn to complete accurate records for daily husbandry, medical care, species inventory and shipping and use computer technology to access data, transform that data into information, and communicate that information to others. Prerequisites: Information Technology Concepts and Computer Applications. 2 hours Lecture and Discussion — 2 credits

Undergraduate Course Descriptions

SA 3000, 4000
Selected Topics I and II
Special projects are designed to meet individual needs of students in their respective fields. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the Department Chairperson. A maximum of two credits will be accepted toward graduation. 3 hours student/faculty instruction per week — 1 credit each

SA 3032
Herpetology
This course explores the major aspects of the biology of amphibians and reptiles. The structure and function of these animals as individuals, populations, and biotic communities are examined. Aspects to be covered include the general anatomy of the “herptiles” and the evolution and taxonomy of modern reptiles and amphibians. A review of biodiversity and systematics is incorporated within the course. Prerequisites: Biological Science I and II and Anatomy and Physiology of Animals. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 3034
Mammalogy
This course presents a broad overview of the field of mammalogy, including the evolution, structure, diversity, taxonomy, biogeography, and behavioral ecology of mammals. The laboratory component of the course emphasizes physical structure and development, field methods, and systematics, with an emphasis on local mammalian fauna. Prerequisites: Biological Science I and II and Anatomy and Physiology of Animals; students will be required to complete field work during evenings or weekends and prepare study skins. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 3050
Animals in the Public Eye
Students in the Animal Biotechnology & Conservation Department will be faced with the responsibility of presenting the general public and school groups with accurate and understandable information on a daily basis. This information is most likely to be imparted through animal or artifact demonstrations in informal educational settings through one-on-one discussions (talking to the public), and small group presentations (keeper presentations, State Fairs). In addition, they will likely be called upon to represent their institutions to the media during their careers. The course will provide experiential learning and will include animal/artifact presentations. 3 hours lecture—3 credits
Undergraduate Course Descriptions

**SA 3112**  
*Wildlife Management*  
The process of managing wildlife presents a broad array of problems, from the protection of endangered species to the control or elimination of pests. This course applies major ecological concepts to the practice of wildlife management. In lecture, we will examine how ecological principles can be used to devise viable management strategies. The laboratory will be devoted largely to field methods for studying wildlife and current issues facing wildlife managers. Students are required to attend outside field trips. Prerequisites: Ecology; Biological Science I and II or Biology I and II. 2 hours Lecture and 3 hours Laboratory — 3 credits

**SA 3115**  
*Zoo Internship I: Animal Care*  
This internship will allow students to work with keepers at one of several partner organizations to develop hands-on skills, including proper care, handling, restraint and behavioral observation of wild animals. The internship experience will culminate in a final project to be identified by the institution. Enrollment is limited to students in the Zoo Science major. Students must provide their own transportation to the zoo or aquarium. Prerequisites: Introduction to Zoo Keeping and Wild Animals in Captivity — 2 credits

**SA 3124**  
*Animal Behavior*  
An introduction to the analysis of animal behavior, emphasizing an evolutionary approach. Animal behavior is investigated, through both the ecological processes that have driven the evolution of behavior and the physiological mechanisms that allow behaviors to be performed. A major objective of the laboratory will be to foster a strong sense of how science proceeds. Students are encouraged to ask their own questions and design their own experiments, and will work in groups to determine goals, set predictions, create appropriate tests, and analyze results. Prerequisites: Required: Biological Science I and II or Biology I and II. Recommended: Ecology. 2 hours Lecture and 3 hours Laboratory — 3 credits

**SA 3133**  
*Aquatic Animal Science*  
An examination of the history of animal keeping and present-day ornamental aquatic animal husbandry industries. The biological processes occurring in the aquarium environment are explored. Students will learn the proper set-up and maintenance of home aquaria, and the theory and application of aquarium science in the design, set-up, and maintenance of aquarium systems. Topics will include but are not limited to the chemical, physical and biological environment, water quality, filtration, lighting, health and nutrition, and species compatibility. Lab will require the set-up and maintenance of a freshwater aquarium. 2 hours Lecture and 3 hours Laboratory — 3 credits

**SA 3216**  
*Zoo Internship II: Public Education*  
This internship will allow students to work with the educational staff at one of several partner organizations. Students will assist in teaching special classes to students from primary and secondary schools as part of the zoo’s docent program or outreach efforts. They may also work with scouting programs, seniors, or other groups visiting the zoo for educational functions. The internship experience will culminate in a final project developed in partnership with the education staff at the zoo or aquarium. Enrollment is limited to students in the Zoo Science major. Students must provide their own transportation to the Zoo. Prerequisites: Introduction to Zoo Keeping, Wild Animals in Captivity — 2 credits

**SA 3475**  
*Companion Animals*  
This course examines the different species of companion animals with emphasis on behavior, nutrition, health concerns, physiology and animal care. The historical uses and domestication of various species are discussed along with keeping nondomesticated species as pets. Animal use in society is also discussed, including overpopulation, humane treatment, and animals for assistance purposes. 3 hours Lecture — 3 credits

**SA 4XXX**  
*Wildlife Law & Policy*  
Please see department for additional information.

**SA 4016**  
*Senior Seminar*  
This course is a study of recent research within the field of animal biotechnology and conservation on topics selected by students with special emphasis on oral presentations. 1 hour Lecture and Discussion — 1 credit

**SA 4033**  
*Wildlife Conservation*  
This course will explore issues related to the management of rare and endangered animals and their habitats. Population ecology, small population genetics, protected area design, population and habitat viability, ex situ conservation, population restoration, sociology of wildlife management, and endangered species policy will
all be examined during the course. 3 hours Lecture — 3 credits.
Undergraduate Course Descriptions

SA 4050
Canine Behavior and Training
This course provides a historical, scientific, psychological and developmental look at humankind’s best friend, the dog. Topics include, but are not limited to: specific breed types including selective breeding for behavioral traits, neuroendocrine and genetic basis of behavior; canine training and education; competitive activities; and current issues. 3 hours Lecture — 3 credits.

SA 4051
Current Topics
This research and discussion course emphasizes topics of current interest to the field of animal science and conservation. It may be repeated for a maximum of 2 credits. Prerequisite: permission of the instructor. 1 hour Lecture and Discussion — 1 credit.

SA 4123
Wildlife Health and Disease
The management of wildlife species requires careful training in the prevention of disease outbreaks and cross-species contamination. This course addresses both the development and spread of disease in exotic collections and managing the risk of zoonotic diseases. Animal disease and wildlife and clinical pathology are examined as they apply to the management of wildlife. Prerequisites: Anatomy and Physiology. 2 hours Lecture and 3 hours Laboratory — 3 credits.

SA 4124
Pathology and Diseases of Small Animals
This is an advanced course addressing the development of disease and the effect the process induces on tissues, organs, and the body. The course will also examine specific diseases or disease conditions of small animals. Prerequisites: Anatomy and Physiology, Senior Status, or permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits.

SA 4129
Clinical Pathology
This subspecialty of pathology is concerned with the theoretical and technical aspects (methods or procedures) of hematology, chemistry, immunology, parasitology, microbiology and biophysics as they pertain to the diagnosis of disease and the care of animal patients. This course stresses deductive reasoning. Prerequisites: Pathology and Diseases of Small Animals and Anatomy and Physiology of Animals. 2 hours Lecture and 3 hours Laboratory — 3 credits.

SA 4222
Reproduction of Small Animals
This course examines the special problems encountered in small animal reproduction. Extensive laboratory experience emphasizes manipulation of the reproductive system, application of techniques utilizing hormones, fertilization, fetal development and in vitro manipulation of murine gametes and embryos. Prerequisites: Anatomy and Physiology of Animals or permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits.

SA 4224
Nutrition for Wildlife
This course examines the special nutritional problems posed by wild animals. Zoos contain hundreds of species, each representing a digestive strategy for a specific ecological niche. Students will combine information on natural history, historical records, and domestic animal models to design feeding programs for captive wildlife. Prerequisites: Principles of Organic Chemistry or Organic Chemistry 1. 2 hours Lecture and 3 hours Laboratory — 3 credits.

SA 4225
Small Animal Research Techniques
Students are introduced to all phases of research from literature search, to planning and performing experiments, to the writing of a research paper. Further experience is gained in anesthesia, surgical techniques, and animal models of human disease. Transgenic technology is discussed and techniques are introduced. Techniques that reduce the number of animals used in research are stressed. Prerequisites: Anatomy and Physiology of Animals or Comparative Anatomy and Comparative Physiology, or permission of Instructor. Recommended: Reproduction of Small Animals. 2 hours Lecture and 3 hours Laboratory — 3 credits.

SR 4041
Student Research
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any fund-
ing requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on the number of credits registered for this course — 1-3 credits

**ANIMAL SCIENCE**

**AS 1000**
*Survey of Animal Agriculture*
Animal Science students, matriculating from approved high school Vo-Ag programs, may receive 3 elective credits at the end of their freshman year at Delaware Valley College. Contact the Animal Science Department for application procedures. — 3 credits

**AS 1006**
*Introduction to Animal Science*
This course examines the management and production practices for dairy, beef, horses, sheep, swine, and poultry. The associated laboratories acquaint the student with working procedures in common practice. 2 hours Lecture and 3 hours Laboratory — 3 credits

**AS 1045**
*Livestock Industries and Careers*
This course emphasizes the variety of production systems and careers in the beef cattle, sheep, swine, poultry, and horse industries, providing the basis for the student’s selection of production courses in the senior year. 2 hours Lecture — 2 credits

**AS 1101**
*Stable Management*
An introductory level course that emphasizes the management and practical care of equine facilities and horses. Requires participation outside of scheduled class hours. 3 hours Lecture and 2 hours Laboratory — 3 credits

**AS 2116**
*Livestock Evaluation*
This course emphasizes the factors that contribute to livestock utility. The relationship between the live animal and the carcass is covered as well as an introduction to livestock judging and oral reason presentation. The various systems of production, testing and grading are also studied. 2 hours Lecture and 3 hours Laboratory — 3 credits

**Undergraduate Course Descriptions**

**AS 2219**
*Horse Breeding Management*
A course designed to acquaint the student with the operation of a horse breeding farm. Teasing, breeding, foaling, mare and stallion care, and foal care are emphasized. Students manage the College’s breeding facility. Requires participation outside of scheduled class hours. Prerequisite: Stable Management. 2 hours Lecture and 3 hours Laboratory — 3 credits

**AS 3000, 4000**
*Selected Topics I and II*
Special projects designed to meet individual needs of students in the specialized fields of agriculture. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the Department Chairperson. May be repeated to a maximum of 2 credits. 3 hrs of student/faculty instruction per week — 1 credit each.

**AS 3123**
*Animal Husbandry Techniques*
The course presents an overview of the techniques associated with handling, restraint, injections, and identification of livestock. Additional management techniques are performed on college livestock as livestock production schedules require. 1 hour Lecture and 3 hours Laboratory — 2 credits

**AS 3209**
*Advanced Selection of Livestock*
This course is designed to instruct the student in the comprehensive judging and selection of livestock, as well as live animal pricing and grading. The student will also receive an in-depth study of reasons, preparation and presentation. Prerequisite: Livestock Evaluation or Permission of Instructor. 3 hours Laboratory — 1 credit

**AS 3150**
*Behavior and Management of Alternative Agricultural Animals*
This course acquaints students with alternative agricultural animals that are raised for meat, fiber, leather and/or companionship. Students study the behaviors and uses of these animals as well as general anatomy and physiology, nutrition, medical care and related routine husbandry practices, with comparisons made to similar domestic animals. Animals to be discussed will include camelids, raptors, birds, bison as well as unusual breeds and types of domestic animals such as sheep, cattle, swine, goats and equids. 3 hours Lecture — 3 credits.
Undergraduate Course Descriptions

**AS 3210**  
*Mare and Foal Management*  
An advanced course involving the care and management of breeding, pregnant and foaling mares. Care of newborn foals during the first few weeks of life is emphasized. Required management participation involves time commitments in addition to regularly scheduled class hours. Prerequisite: Horse Breeding Management. Restricted to Equine Science and Management Specialization. 2 hours Lecture and 3 hours Laboratory — 3 credits.

**AS 4014**  
*Beef Science*  
This course provides an in-depth review of the beef industry and includes cow-calf, stocker, and feedlot production. Included is a study of the theory and practice of feeding, breeding and overall management of beef cattle. Prerequisites: Animal Feeding and Nutrition, Physiology of Reproduction and Dairy and Livestock Genetics. Requires participation outside of scheduled class hours. 2 hours Lecture and 3 hours Laboratory — 3 credits.

**AS 4016**  
*Seminar (Animal Science)*  
The study of recent research and development in the field of Animal Science with special emphasis on oral presentations. Prerequisite: Senior status required, Speech. 1 hour of Lecture and Discussion — 1 credit.

**AS 4027**  
*Sheep Science*  
This is a comprehensive introduction to the feeding, breeding, housing, care and management of sheep. While the lectures focus on current practices employed in both large and small operations, the laboratories offer opportunities to apply management practices and to visit a variety of commercial operations in the area. Requires participation outside of scheduled class hours. Prerequisites: Animal Feeding and Nutrition and Dairy and Livestock Genetics. 2 hours Lecture and 3 hours Laboratory — 3 credits.

**AS 4028**  
*Swine Science*  
This course provides a thorough introduction to all aspects of swine production and management. The lectures cover current practices regarding nutrition, breeding, housing, and health care, while laboratories provide opportunities to apply management techniques. Requires participation outside of scheduled class hours. Prerequisites: Dairy and Livestock Genetics and Animal Feeding and Nutrition. 2 hours Lecture and 3 hours Laboratory — 3 credits.

**AS 4029**  
*Poultry Science*  
This course is a broad study covering the breeds and varieties of poultry used commercially for meat and eggs. It includes the production methods, management practices, marketing procedures, processing systems and techniques commonly current in the poultry industry. Requires participation outside of scheduled class hours. 2 hours Lecture and 3 hours Laboratory — 3 credits.

**AS 4051**  
*Current Topics*  
This is a research and discussion course that emphasizes topics of current interest to the animal and dairy industries. May be repeated to a maximum of 2 credits. 1 hour Lecture and Discussion — 1 credit.

**AS 4106**  
*Principles of Animal Nutrition*  
A study of the principles and fundamentals of nutrition in livestock. Emphasis is placed on comparative relationships of good nutrients to metabolic processes in domestic animals and on current research and development in the field of animal nutrition. Prerequisite: Principles of Organic Chemistry or Organic Chemistry I. Permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits.

**AS 4111**  
*Yearling Horse Sale Management*  
An advanced course involving the management of yearling horses including sales preparation, development of a consignment, sales advertising, videotaping sales horses, and working a yearling sale. Prerequisite: Horse Breeding Management. Restricted to Equine Science & Management specialization. Requires participation outside of scheduled class hours — 2 credits.

**AS 4130**  
*Advanced Livestock Judging*  
This course provides intensive training in selection of livestock using subjective and objective measurements as well as the use of oral reasons to explain and defend decisions. An intercollegiate Livestock Judging Team will be selected from students taking this course. Due to considerable travel and time required, enrollment is limited and a 2.2 academic average is required. This course begins one week prior to
the start of the fall semester. Prerequisite: Advanced Selection of Livestock. 3 hours Laboratory — 1 credit

**AS 4214**  
**Animal Diseases**  
A study of prevention, recognition, and treatment of diseases in animals, with emphasis on domestic livestock and consequences of disease to production agriculture and human health. Prerequisites or corequisite: Anatomy and Physiology of Animals. 3 hours Lecture — 3 credits

**AS 4250**  
**Stallion Management**  
An upper division course for persons interested in the management of stallions. Emphasis is placed on management of stallions in commercial breeding situations involving semen collection and the shipment of cooled semen. Three hours per week of discussion and practicum. Practicum involves collection, evaluation, and shipment of semen. Prerequisite: Horse Breeding Management. Restricted to Equine Science and Management Specialization. Requires participation outside of scheduled class hours. 3 hours Lecture and Participation — 3 credits

**AS 4316**  
**Management and Care of the Equine Neonate**  
An advanced course involving routine care and management of the newborn foal during the first year of life including diseases affecting the neonate, nutrition and feeding of the growing horse, vaccination and deworming programs as well as management of high-risk foals, orphan foals and high-risk dams. Prerequisite: Horse Breeding Management. Restricted to Equine Science and Management specialization. Requires participation outside of scheduled class hours. 2 hours Lecture — 2 credits

**AS 5000**  
**Hartpury Exchange**  
A semester exchange with the Hartpury College in Gloucestershire, Great Britain for qualified students in the Animal Science program. Students pursue coursework in Animal Science and Livestock Production from the British perspective. Spring semester of junior year. Prerequisites: minimum of a 3.0 GPA and permission of the Animal Science Department Chairperson.

**SR 4041**  
**Student Research**  
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for student research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s department chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

**BIOLOGY**

**BY 1113, 1214**  
**Biology I and II**  
An introduction to Biology. These two courses emphasize the organization, structure and basic principles governing the lives of all organisms at the molecular, cellular, tissue and organ system, organism and population levels. The courses are a continuum and are to be taken in sequence. Biology II continues with organismal diversity organ systems of animals and plants, nervous and circulatory systems, reproduction, development, behavior and ecology. The laboratory involves a dynamic study of these principles with the use of living materials as much as is feasible. Biology I is a prerequisite for Biology II. This is the introductory biology sequence required for biology majors. 3 hours lecture and 3 hours laboratory-4 credits

**BY 1115, 1216**  
**Natural Science I and II**  
Natural Science I introduces some of the basic physical and chemical principles that affect our world and then concentrates on the biological principles that pertain to living things in general and human beings in particular. The concepts build from the cellular level to the systems level and then to the organism as a whole. Natural Science II is a continuation of Natural Science I and begins with a study of basic ecological concepts. It builds to an examination of the roles humans have played in creating some of the problems we face today as well as the roles we may play to help alleviate them. Topics include population growth, energy sources, and air, water, solid waste, and toxic waste pollution. Natural Science I (or permission of the Department Chairperson) is a prerequisite for Natural Science II. Not available to biology
Undergraduate Course Descriptions

majors and does not substitute for an introductory biology course. 3 hours Lecture each — 3 credits each

**BY 1116, 1217**

**Biological Science I and II**

An introduction to the study of life featuring: molecular and cellular biology; genetics; metabolism; survey of the animal kingdom; animal organ systems and embryology; survey of the botanical kingdoms; seed plant structure, function, and development; behavior; evolution; and ecology. Biological Science I is a prerequisite for Biological Science II. This is the introductory biology sequence for majors other than Biology majors. Permission of the department chairperson is required for biology majors. 2 hours Lecture and 3 hours Laboratory each — 3 credits each

**BY 2001**

**Botany**

Plant structure, function, and development are studied in this course, followed by a survey of the botanical kingdoms, stressing reproductive cycles and evolution. Laboratory slides and specimens are complemented by field work. Prerequisite: Biology II or Biological Science II. 3 hours Lecture and 3 hour Laboratory — 4 credits

**BY 2003**

**Genetics**

This course includes a study of Mendelian principles, population genetics, and the modern molecular concepts of the gene and its action. An emphasis is placed upon relating modern developments in this science to basic principles as well as applying those principles in the analysis of genetic data derived from selective breeding experiments, pedigree analyses, population studies, and studies of the molecular system that stores, transmits, and translates inherited information. Prerequisite: Biology I or Biological Science I. 3 hours Lecture — 3 credits

**BY 2004**

**Genetics Laboratory**

An introduction to classical and current molecular genetics techniques for studying reproduction and inheritance patterns in living organisms. Designed to provide the “hands-on” experience to facilitate understanding of genetic phenomena. The format is flexible to allow adequate time for the needs of the organisms and procedures. Required of biology majors. Can be scheduled anytime concurrent with or after passing Genetics. 3 hours Laboratory — 1 credit

**BY 2010**

**Introduction to Aquaculture**

An introduction to the science of aquaculture. The course reviews the history of the science and examines both warm and cold water species. Different rearing systems are studied for the various species. Production, nutrition, diseases, and marketing are also examined. Prerequisite: high school biology and chemistry required, Introductory College Biology and Chemistry preferred. 3 hours lecture — 3 credits

**BY 2108**

**Ecology**

A study of the characteristics of populations and how populations of different organisms are integrated to form natural communities. Emphasis is placed on freshwater and terrestrial ecology. The laboratory is concerned with methods used to collect and evaluate ecological data. Prerequisite: Biology II or Biological Science II. 3 hours Lecture and 3 hours Laboratory — 4 credits

**BY 2223**

**Comparative Anatomy**

This course presents a comparative study of the structure and evolution of vertebrate organ systems. The laboratory involves a detailed anatomical study of the lamprey, shark, perch, necturus, frog, turtle, pigeon, and cat. Prerequisite: Biology II or Biological Science II. 3 hours Lecture and 3 hours Laboratory — 4 credits

**BY 2235**

**Plant Communities**

A study of the components, structure, integration, interactions, habitats and requirements of native plant communities with emphasis on those of the Mid-Atlantic region. Laboratory includes identification and vegetation analysis of local plant communities. Prerequisite: Botany or Botany of Vascular Plants. Offered in the Spring Semester of odd-numbered years. 2 hours Lecture and 3 hours Laboratory — 3 credits

**BY 2240**

**Ornithology**

A review of the biology of birds, including their evolutionary history, anatomy, physiology, and, especially, their behavior. Special attention will be paid to the plight of endangered species and related conservation measures. Students will learn to identify many of the common bird species of eastern North America through slides and frequent bird walks on or near the campus. There will be up to two Saturday field trips. In addition to the textbook and field guide, binoculars will be required. 3 hours Lecture and 3 hours
Laboratory — 3 credits
Undergraduate Course Descriptions

**BY 3002**
**General Microbiology**
An introduction to microorganisms, including their classification, life processes, and ecology. Emphasis is placed on the procaryotic forms of life such as the bacteria. The laboratory involves the study of representative microorganisms as well as the demonstration and use of microbiological techniques. Prerequisites: One semester of Organic Chemistry and Biochemistry; Biology II or Biological Science II. 3 hours Lecture and 3 hours Laboratory — 4 credits

**BY 3007**
**Entomology**
An introduction to the study of insects, focusing on their uniqueness and importance to the terrestrial biosphere. Topics include systematics, morphology, physiology, and ecology with an emphasis on adaptation. The laboratory work includes the creation of a collection of locally occurring insects and their relatives. Prerequisite: Biology I or Biological Science I. 2 hours Lecture and 3 hours Laboratory — 3 credits

**BY 3008**
**Introduction to Earth and Space Science**
This course develops an appreciation and understanding of the scope and organization of the solar system, Milky Way galaxy and the Universe. The study includes geological, oceanic and meteorological phenomena that continue to shape the planet Earth and maintain it as a habitat for life. Prerequisites: Chemistry II and Biology II or Biological Science II. 2 hours Lecture and 3 hours Laboratory — 3 credits

**BY 3105**
**Introduction to the Biology and Ecology of Algae**
This course investigates the classification, physiology and ecology of the major algal groups. It includes practical experience with isolation of specimens from their natural habitats, culture, identification, and microscopic examination. Prerequisite: Botany. 2 hours Lecture and 3 hours Laboratory — 3 credits

**BY 3106**
**Introduction to the Biology and Ecology of Fungi**
An investigation of fungal organization, classification, culture, physiology, ecology and biotic associations. This course provides practical experience with the culture, growth, reproduction and microscopic examination of fungi. Prerequisite: Botany. 2 hours Lecture and 3 hours Laboratory — 3 credits

**BY 3123**
**Invertebrate Zoology**
A study of the invertebrates with emphasis on their adaptations relating to morphology, physiology, behavior, and life history. The systematic relationships among these animals based on evolution is stressed. A collection of locally occurring invertebrates is required for the laboratory. Prerequisite: Biology II or Biological Science II. 3 hours Lecture and 3 hours Laboratory — 4 credits

**BY 3126**
**Limnology**
This course is designed to acquaint the student with the basic biological and physical principles of limnology. Field investigations take advantage of the varied freshwater environments in the area. Plankton and benthos samples, various chemical parameters and physical data are taken in the field, evaluated in the laboratory and discussed in class to help demonstrate these principles. Thus, the student is not only exposed to theory, but also to the practical aspects of field data collection and evaluation. Prerequisite: Biology II or Biological Science II. 3 hours Lecture and 3 hours Lab — 4 credits

**BY 3203**
**Taxonomy of Vascular Plants**
An introduction to the systematics of vascular plants and principles of identification, nomenclature, and classification. Special emphasis is placed upon relationships among principal orders, families and genera. Prerequisite: Botany. Offered in the Spring Semester of odd numbered years. 2 hours Lecture and 3 hours Laboratory — 3 credits

**BY 3208**
**Vertebrate Embryology**
This course covers basic development principles, emphasizing frog and chick embryos and their comparison with amphioxus and mammals. Laboratory involves a three-dimensional microscopic study of frog and chick embryos. Prerequisites: Biology II or Biological Science II and (or concurrent with) Comparative Anatomy. Offered in the Spring Semester of even-numbered years. 3 hours Lecture and 3 hours Laboratory — 4 credits
BY 3221

**Apiculture**
A study of the biology and the keeping of the honey bee. Many pertinent aspects of beekeeping, including establishment of colonies, seasonal management, bee diseases, and queen rearing are discussed in lecture and practiced in the laboratory. The College apiary and extraction facilities are utilized as an integral part of the course. Prerequisite: Biology II or Biological Science II. Offered in the Spring Semester of odd-numbered years. 2 hours Lecture and 3 hours Laboratory — 3 credits

BY 3229

**Immunology**
A comprehensive study of the current underlying principles of immunology (which includes an appreciation of the contributions made by genetics, cellular and molecular biology), with special emphasis placed on human and murine systems. This course is especially designed to explore both classical and modern methods of investigation and analysis, and their direct application in the examination of the step-by-step development of both humoral and cell-mediated immunity. Prerequisite: Genetics. Offered in the fall Semester of odd numbered years. 3 hours Lecture and 3 hours Laboratory — 4 credits

BY 3250

**Tropical Ecology**
A study of tropical ecosystems, biodiversity and conservation. The course includes both a lecture and field excursion component. In lecture, students learn the basics of Neotropical animals, plants, and ecosystems. Students travel to Costa Rica over spring break for 10 days. Time is spent visiting tropical lowland rain forest, lower montane rain forest, cloud forest, upper montane oak forest, elfin forest, and paramo. In many cases, both secondary and primary forests are included. Offered in the spring semester. Prerequisite: Ecology. 3 hours Lecture and 1 hour Lab — 4 credits

BY 4110

**Seminar (Biology)**
Topics of contemporary biological interest are presented and discussed by the students. Students are encouraged to use the principles learned in previous courses as a basis for critical discussion. Required of senior Biology majors. 1 hour Discussion — 1 credit

BY 4132

**Human Physiology**
In this course the systems of the human body are examined at the cellular, tissue, and organ levels from a functional perspective. General physiological principles and relationships, rather than clinical aspects of physiology, are emphasized. With the exception of exercises on neurophysiology and muscle physiology, students serve as experimental subjects in the laboratory. Prerequisite: Biology II or Biological Science II and Comparative Anatomy. 3 hours Lecture and 3 hours Lab — 4 credits

BY 4152, 4253

**Selected Topics I and II**
Special projects are undertaken to meet individual needs of students in the biological field of major interest, as arranged with a member of the departmental faculty and with the approval of chairperson of the department. Electives for Biology juniors and seniors. 3 hours scientific effort and conference each — 1 credit

BY 4155

**Molecular Biology**
A review of macromolecular structure followed by detailed study of genetic control mechanisms and recent developments in recombinant DNA technology. The laboratory includes experience with bacterial and viral populations and molecular immunology as well as several exercises on the chemistry of DNA. Prerequisite: General Microbiology. 3 hours Lecture and 3 hours Laboratory — 4 credits

BY 4156

**Eukaryotic Cell Biology**
This course emphasizes the molecular basis of cell structure and function in relation to cell, organ, and organism physiology in health and disease with a focus on vertebrate animals. The molecular basis of protein function is explored and the biophysical basis of cellular reactions is developed. Subcellular and extracellular macromolecular structure and dynamics are investigated in relation to their physiological function. Signaling pathways are investigated and explored in relation to the role in development, health and disease. Students who successfully complete this course will be well prepared for Professional or Graduate School or careers in the Biomedical Sciences. Pre-requisites: Biology II or Biological Sciences II and Genetics. Offered annually in the Fall Semester. 2 hours Lecture and 3 hours Laboratory.- 3 credits
Undergraduate Course Descriptions

**BY 4206**  
**Determinative Microbiology**  
An advanced study of microorganisms, with an emphasis on the characteristics of bacteria. The laboratory provides instruction in the techniques of microbial isolation, cultivation and identification. Prerequisite: General Microbiology. Offered in the Spring Semester of even-numbered years. 3 hours Lecture and 3 hours Lab — 4 credits

**BY 4250**  
**Virology**  
This course will introduce students to the field of virology. Upon completion of the course, the student should have a basic understanding of the general structure and molecular biology of viruses, the classification of viruses, the interaction of viruses with their host cells and viral diseases. Prerequisites: Genetics and General Microbiology. Offered in the Spring Semester of odd-numbered years. 3 hours Lecture and 3 hours Laboratory — 4 credits

**BY 4257**  
**Comparative Physiology**  
This course features an examination of physiological and associated anatomical adaptations in selected invertebrates and vertebrates living in a variety of aquatic and terrestrial environments. Prerequisite: Biology II or Biological Science II. Offered in the Spring Semester of odd-numbered years. 3 hours Lecture and 3 hours Laboratory — 4 credits

**BY 4258**  
**Histology**  
This course emphasizes the microanatomical study of mammalian organ systems with a focus on humans. The structure and function of cellular and tissue components is a primary focus and their relationship to organ and organ system function is explored. The laboratory activities include histochemical staining of tissues, and the examination of subcellular, cellular and tissue structures in relation to physiological function in health and disease. Students who successfully complete this course will be well prepared for Professional and Graduate School or careers in the Biomedical Sciences. Pre-requisites: Comparative Anatomy or Animal Anatomy and Physiology of Animals. Offered annually in the Spring Semester. 3 hours Lecture and 3 hours Laboratory — 4 credits

**Specialized Methods and Techniques**  
Each major department offers a series of courses designed to acquaint the student with various applications of the professional specialty. In the Biology program, this requirement is fulfilled by satisfactory completion of one of the following Biology electives: Botany, Comparative Anatomy, or Genetics Laboratory.

**SR 4041**  
**Student Research**  
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for student research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee mem-
bers will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

**BIOTECHNOLOGY**

**BT 3000**  
*Introduction to Biotechnology*  
An interdisciplinary course designed to provide increased familiarity with the concepts, objectives, techniques, ethical and regulatory considerations in the developing areas of biotechnology. Topics include: molecular genetics, bacteria, viruses, and applications in biological, medical, food, plant and animal sciences. Prerequisites: Biology II, or Biological Science II, and Biochemistry. Meets the requirements for certification in Education, General Science and Biology minors. Does not substitute for Molecular Biology. Offered in Fall Semester. 3 hours Lecture and Discussion — 3 credits

**BT 3001**  
*Introduction to Biotechnology Laboratory*  
This is a one-credit laboratory course offered in conjunction with BT 3000. Laboratory sessions provide students with hands-on experiences with commonly used methods and procedures in biotechnology. This experience is designed to improve employment opportunities for the students and to enhance their understanding of the lecture material. Prerequisites: BT 3000 Introduction to Biotechnology taken previously or concurrently. Spring semester. 3 hours Laboratory — 1 credit

**SR 4041**  
*Student Research*  
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for student research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student
Undergraduate Course Descriptions

Presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

**BUSINESS ADMINISTRATION**

**BA 1005 Introduction to Business**
This course is designed to give the student a basic overview of the organization and management of the enterprise. The course includes a study of the characteristics of economic systems; the nature and functions of management; and the basic organizational functions of finance, marketing, operations, and human resources. 3 hours Lecture and Discussion — 3 credits

**BA 1010 Management Concepts**
An introductory course in the study of business management and the various managerial skills necessary to make the decision-making process work. The course will focus on the different aspects of the business environment and concentration on the basic skills required of managers. 3 hours Lecture and Discussion — 3 credits

**BA 2008 Macroeconomics**
This course provides students with a background to understand the nature, forces, behaviors and institutions that comprise the U.S. economic system. The student is introduced to economic thinking, concepts, principles, laws and models found in the field of macroeconomics. Students explore macroeconomics through topics and their related issues. Some topics studied are: economic systems, market systems, demand and supply, functions of private and public sectors in the U.S. economy, National Income Accounting, Business Cycle: unemployment, inflation, and growth, Employment Theory, Fiscal Policy, money and banking and monetarism. 3 hours Lecture and Discussion — 3 credits

**BA 2017 Principles of Marketing**
The course focuses on management of the marketing functions, including marketing research, product planning, distribution channels, pricing, promotion, personal selling and advertising. New techniques and trends in marketing, as well as governmental rules and regulations will be examined. Emphasis is on consumer and industrial markets. Prerequisite: Junior Status. 3 hours Lecture and Discussion — 3 credits

**BA 2123, 2224 Principles of Accounting I and II**
These two courses in principles of accounting present accounting principles and practices at the basic level. Sole proprietorship, the accounting cycle, journals, internal control, receivables, inventories, vouchers, depreciation and financial statements are among the topics covered in the first part. To emphasize the role of accounting in decision making, a practice set is included in Accounting I. For Accounting II, corporations, partnerships, cost accounting, budgeting, statement analysis, fund flow analysis, and taxes are among the topics covered. Students review business financial statements and analyze reports. Ethics — the professional standards of conduct are emphasized in both courses. The importance of proper ethical conduct by all businessmen and women, in particular, accountants, makes the business system work. The introduction of International Accounting Standards is discussed. Prerequisite: Principles of Accounting I is a prerequisite for Principles of Accounting II. 3 hours Lecture and Discussion each — 3 credits each

**BA 2161, 2261 Business Law I and II**
The first course introduces the student to the legal and social environment of business, contracts, personal property and bailments, sales and personal property. The second course stresses commercial paper, debtor – creditor relations, risk management, agency and employment, legal forms of business organization, real property and estates. Prerequisite: Business Law I is a prerequisite for Business Law II, or permission of the instructor. 3 hours Lecture and Discussion each — 3 credits each

**BA 2210 Microeconomics**
The emphasis of this course is on understanding decisions that individuals and businesses make in the modern economy. An analysis of different market structures is explored using such tools as economic cost and profit, and marginal analysis. Additionally, a detailed look at the government’s interactive role with the economy is explored. 3 hours Lecture and Discussion — 3 credits
Accounting Fundamentals
This course presents accounting fundamentals at the basic level. It is designed to meet the needs of non-business majors who require an understanding of accounting practices. Topics covered include: the accounting cycle, journals, receivables, inventories, depreciation and financial statements. Discussions will also introduce partnerships and corporations. One of the objectives of this course is to provide the “Big Picture” while meeting the objective of a first course in accounting identified by the Accounting Education Change Commission. The importance of ethical conduct is discussed and problems are included to have students make judgments of ethical conduct. This course is not available to students in the Business Administration Degree Program. 3 hours Lecture and Discussion — 3 credits

BA 3008
Organizational Theory and Development
Advanced in-depth study of the theories, developments and designs of organization. The effects of the internal and external environments on the organization, its systems and the manner in which it conducts its business are explained, in the continual evolution of its structure. Prerequisite: Introduction to Business and Junior Status. 3 hours Lecture and Discussion — 3 credits

BA 3016
Consumer Behavior
A study of the components that influence the consumer decision-making process including an analysis of the marketing process based on an approach that considers the economic, psychological and sociological aspects of consumer behavior. Prerequisites: Principles of Marketing and junior Status. 3 hours Lecture — 3 credits

BA 3020
History of Sports
This course identifies key historical figures in the history of American sports. It recognizes the diversity of American cultural motivations and social interests and how they connect to the development of recreational activities. It also identifies and describes changes leading to the development of modern professional sports. 3 hours Lecture and Discussion — 3 credits

E-Commerce
This course explores contemporary issues of E-Commerce/Business to Business, and also instructs students on the use of web development tools. This course is a balance between business concepts and computer applications. Prerequisites: Microcomputer Applications and Junior status. 3 hours Lecture — 3 credits

BA 3027
Human Resource Management
This course is a study of the environment of the human resource (personnel) function, its legal aspects, planning and recruiting, training and career development, compensation systems, safety and health, motivation and communication, and labor/management relations. Prerequisite: Junior status. 3 hours Lecture and Discussion — 3 credits

BA 3028
Supervision and Management
This course is designed to enhance the supervision and management skills and competencies of the participant. The course provides the individual with knowledge, models, skills and understandings needed for effective supervision and management of the work environment and workforce. The supervisor’s role in the organization’s operation is the course’s focus. Prerequisite: Junior status. 3 hours Lecture and Discussion — 3 credits

BA 3034
Real Estate Fundamentals
The purpose of the course is to acquaint the student with the fundamentals of the real estate business. The course includes: the economics and social importance of real estate, the history of land tenure, the origin of land titles, and the concepts of real property. Instruction is given in the meaning of real estate law as it pertains to deeds and mortgages, interest in real estate and how title is transferred. Special emphasis is given to the preparation of the Pennsylvania Realtor’s Association’s standard Agreement of Sale form, and real estate financing and settlement charges. The student is further instructed in: real estate brokerage, listing, selling, the ethics of the real estate profession, and the rules and regulations of licenses and Agreements of Sale as prescribed by the Pennsylvania Real Estate Commission. Prerequisite: Junior Status. 3 hours Lecture — 3 credits
Undergraduate Course Descriptions

**BA 2023040**

*Finance for Entrepreneurs*

This is a study of the principles and practices of business finance as an entrepreneur. This course is intended to give the entrepreneur the financial skills necessary to build a business and to promote its profitable growth. Prerequisite: Finance. 3 hours Lecture and Discussion — 3 credits

**BA 3049**

*Financial Institutions*

This course ties together the concepts that were first learned in economics and finance. It focuses on the roles of various institutions (stock exchanges, insurance companies, banks, investment banks and brokerages) and the role of the Federal Reserve in creating money and managing the economy. The two newest trends of securitization and globalization are analyzed. Prerequisite: Macroeconomics and Finance. 3 hours Lecture and Discussion — 3 credits

**BA 3126**

*Fundamentals of Investing*

This course will introduce the student to various investing philosophies, types of investments, analytical tools for evaluating investments, and portfolio development. This course will develop these topics using the text, online financial sites, and simulated stock market activities. Prerequisite: Principles of Accounting II and Finance. 3 hours Lecture and Discussion — 3 credits

**BA 3127**

*Finance*

The focus of this course is to develop a working knowledge of financial statements, the cost of money, the trade-off between risk and return, the time value of money and the valuation techniques for stocks and bonds. The completion of this course will provide the student with a knowledge base to move on to more complex areas of finance, investments and financial planning. Prerequisites: Principles of Accounting II, Business Statistics and Junior status. 3 hours Lecture and Discussion — 3 credits

**BA 3128**

*E-Commerce/Business-to-Business*

This course’s objective is to provide the student the basic principles of electronic commerce. It focuses on the foundation of electronic commerce and how electronic commerce has affected the business environment. The student will learn applications and new technologies for business-to-business electronic commerce. Prerequisite: Familiarity with Windows

**BA 3023**

*Managing System.* 3 hours Lecture and Discussion — 3 credits

**BA 3129**

*Operations Management*

A study of the analyzing, planning, organizing, controlling and operating functions of the executive involved in the operations part of the business. Prerequisites: Microeconomics, Principles of Accounting, Business Statistics and Junior status. 3 hours Lecture and Discussion — 3 credits

**BA 3131**

*Sports Management and Leadership*

This course is designed to give the student a basic overall understanding of the information needs of the sports manager. This course includes a study of the evolution and scope of sport management, sports ethics, tort and civil liability, facilities management, sports marketing, and the basic techniques of sports economics, budgeting and financing. Prerequisites: Introduction to Business and Junior status. 3 hours Lecture and Discussion — 3 credits

**BA 3138, 3239**

*Intermediate Accounting I and II*

These two courses in intermediate accounting present accounting procedures and theories beyond the principles level. A review of the accounting cycle, preparation of financial statements, analysis of transactions, plant and equipment theory, assets and debits, capital stock and surplus, error correction, and financial statement analysis are among the topics presented in both parts. The new requirements under the Sarbanes-Oxley Act that will combat fraud and poor reporting practices are discussed. Ethics – the professional standards of conduct are emphasized in both courses. Prerequisites: Principles of Accounting II for Intermediate Accounting I, Intermediate Accounting I for Intermediate Accounting II. 3 hours Lecture and Discussion each — 3 credits each

**BA 3141**

*Small Business Management*

A practical, applied and conceptual approach to organizing and operating a small business. Course emphasis is on understanding business operations by working with exercises and problems that present themselves in small business operations. The student will present his/her business plan to the class. Prerequisite: Junior status. Suggested: Accounting Fundamentals and Microcomputer Applications. 3 hours Lecture, Discussion and Problem Solving — 3 credits
BA 3209
Auditing
This course presents a conceptual approach to auditing for those students planning to enter the public accounting field or who intend to work in private or commercial accounting. It outlines audit techniques, the philosophy and environment of auditing, the standards required, and the professional, ethical, and legal liability of the auditor. Prerequisites: Intermediate Accounting II and Junior status. 3 hours Lecture — 3 credits

BA 3218
Principles of Online Marketing
The course objective is to provide the student with the basic principles of Internet planning and marketing. Marketing plan implementation issues are discussed through the use of Internet research. A marketing plan presentation is required using the context of the entire course program. Prerequisite: Students must be familiar with the Windows Operating System and have some knowledge of marketing. 3 hours Lecture and Discussion — 3 credits

BA 3229
Organizational Behavior
This course is designed to introduce students to theories, concepts and exercises concerning individual and group behavior in an organizational context and environment. Topics included are motivation, group process and dynamics, interpersonal communications and influence, leadership and reward, and managing conflict and change. Classroom activities will exemplify the managerial setting and environment. Prerequisite: Human Resource Management or Management Concepts and Junior status. 3 hours Lecture and Discussion — 3 credits

BA 3232
Marketing Financial Services
This course explores the nature of service marketing and how it differs from product marketing. The concepts of tangibility, pricing, simultaneity, segmentation and planning will be covered. The make-up of the financial services industry will be reviewed. At the completion of this course, the student will be able to prepare a full marketing plan for a financial service business. Prerequisite: Principles of Marketing. 3 hours Lecture and Discussion — 3 credits

Sports Facility Planning and Management
A study of the planning and the managing of a sports facility; the promotion of the facility image, and the assessment of an actual event from event planning through to box office management. Prerequisite: Junior status. 3 hours Lecture and Discussion — 3 credits

BA 3235
Sports Law
This course gives the students an overall understanding into the field of the legal process within the sports enterprise, as it relates to contract, tort, constitutional, antitrust and labor laws. Topics covered include The NCAA, global amateur sports, women sports, player agents and criminal racial and social issues. Prerequisites: Business Law I and II and Junior status. 3 hours Lecture and Discussion — 3 credits

BA 3240
Risk Management and Insurance
Course covers the basic ideas, problems, and principles found in all types of modern insurance and other methods of handling risk. It emphasizes the fundamental unifying elements of risk and insurance. It focuses on critical thinking and problem solving as it pertains to the problem of risk and insurance. Prerequisite: Junior status. 3 hours Lecture and Discussion — 3 credits

BA 3360
Law for Entrepreneurs
This course introduces to business students the business law and government regulation of business fields that are critical to successful entrepreneurial endeavors. Prerequisites: Business Law I and Small Business Management. 3 hours Lecture and Discussion — 3 credits

BA 4016
Senior Special Topics
An independent study course for degree candidates with senior standing who wish, with the approval of the Department Chairperson, to investigate special business topics in depth. Prerequisite: Senior status — 1-3 credits

BA 4020
Fraud Examination
This course presents a broad overview of the nature and magnitude of fraud as it affects the global economy. Develop an understanding of the role of
Undergraduate Course Descriptions

**BA 3209** Accounting Profession in Preventing and Detecting Fraud
Understand the importance of ethics and values in combating fraud. Prerequisite: Senior Status. 3 hours Lecture and Discussion — 3 credits

**BA 4036** Federal Corporate Income Tax
This course is an introduction to federal taxation as it applies to corporations. The course will cover corporate formations, operations, capital structure, liquidation, pass-through entities such as partnerships and S corporations will be studied as compared to the traditional C corporate structure. Prerequisites: Principles of Accounting I and II, and Senior status. Offered in the Evening only. 3 hours Lecture and Discussion — 3 credits

**BA 4041** Marketing Research
Focus on the marketing research process as an aid in marketing decision making. Defining marketing problems, identifying marketing information needs, developing methods to gather information, and applying research results to marketing problems. Prerequisites: Principles of Marketing, Business Statistics I, and Senior status. 3 hours Lecture — 3 credits

**BA 4043** Professional Development Seminar
A weekly series of workshops presented by local employers to help students prepare for their transition from college to a career in business, education and government. The student will enhance their professional development skills which are necessary to be successful in today’s competitive workplace. Prerequisite: Senior status. 1 hour Lecture and Discussion — 1 credit

**BA 4044** Marketing Management
This course studies the strategies used by marketing managers to solve business problems. The course uses case studies and computer simulations as teaching tools. Students analyze constraints and opportunities and formulate marketing plans. Prerequisite: Principles of Marketing and Junior status. 3 hours Lecture and Discussion — 3 credits

**BA 4047** The Governance of Sports in a Global Community
This course provides an opportunity for advanced in-depth study of the governing organization of sports at all levels in the global community. Selected topics include: international sport governance, the Olympic movement, national sport policies, and the selection process at international sporting events. Prerequisite: Junior status. 3 hours Lecture and Discussion — 3 credits

**BA 4119** Estate Planning
This course introduces the student to the process of developing an estate plan. The course investigates why there is a need for estate planning, identifies possible goals of the plan and explains techniques commonly used to achieve these goals. The probate process, the Federal Unified Tax System, gift taxation, trusts, marital deductions, bypass planning, and postmortem planning techniques will be addressed. Prerequisite: Business Law I and II and Federal Income Tax. 3 hours Lecture and discussion — 3 credits

**BA 4132** Industrial Relations
A study of current labor/management relations, federal labor law, and a summary of labor history and labor economics. A simulation regarding collective bargaining is included. Prerequisite: Human Resource Management and Senior Status or permission of Instructor. 3 hours Lecture and Discussion — 3 credits

**BA 4144** Advanced Accounting
This course in Advanced Accounting presents techniques and theories beyond the intermediate level. Consolidations, governmental and not-for-profit accounting are among the topics discussed. Prerequisite: Intermediate Accounting II and Junior status. 3 hours Lecture and Discussion — 3 credits

**BA 4145** Sports Marketing and Media Relations
A study of the basic principle of marketing and how it applies to sports, leisure and recreation. Provides the student an overview of the mass media industry as they interface with the sport industry. Prerequisite: Principles of Marketing and Junior status. 3 hours Lecture and Discussion — 3 credits

**BA 4146** Sales
This course deals with the behavioral science approach to vendor/vendee relations. Problems concerning communication, organization, and moti-
BA 4233

Personal Finance

This course introduces the student to the concepts, tools, and applications of personal finance and investments. It assumes little or no prior knowledge of this subject matter. The course focuses on helping the student understand the process of financial planning and the logic that drives it. For many students, this course is their initial and only exposure to personal finance. Tools, techniques, and equations are easily forgotten, but logic and fundamental principles that drive their use, once understood, will stay. These principles become part of the student’s “Financial Personality” and are available to help the student deal effectively with an ever-changing financial environment. 3 hours Lecture and Discussion — 3 credits

BA 4285

Financial and Retirement Planning

This course introduces the student to the process of financial and retirement planning. The course looks into why there is a need for financial planning and explains the process, from the data gathering stage through to the monitoring of the final plan. The course focuses special attention on the retirement planning process including sources of retirement funds and evaluating the risk of clients outliving their resources. The course also explains the regulatory and ethical issues around financial planning. Prerequisite: Fundamentals of Investing and Risk Management and Insurance. 3 hours Lecture and discussion — 3 credits

BA 4236

Federal Income Tax

A study of the federal tax system, its history and significant federal legislation. The student reviews individual federal tax returns and tax planning procedures. The influence of taxes on business is also discussed. The student will prepare tax returns on a computer-based package. Prerequisites: Principles of Accounting I and II and Junior status. 3 hours Lecture and Discussion — 3 credits

BA 4239

International Trade

A study of the theory and practice of international trade and its application to current problems and policies, including such topics as tariffs, quotas, international payments, economic unions of foreign states, and foreign exchange. Prerequisite: Microeconomics, Principles of Marketing, Finance and Senior status and completion of all Business core courses or with permission of instructor. 3 hours Lecture and Discussion — 3 credits

BA 4241

Financing Sports Operations

A study of financial concepts and their application to the sports environment, including analysis of obtaining public funding through financing sports activities, selling and pricing of sports tickets, sale of licensed products and services, sale of concessions, and exploring types of sponsorship benefits. Prerequisites: Principles of Accounting I and II, Finance and Senior Status. 3 hours Lecture and Discussion — 3 credits

BA 4242

Cost Accounting

A study of the various factors in cost relationships that effectively aid management in the efficient operation of business enterprises. Budgets and cost reports for various levels of management. Prerequisites: Junior Status, Principles of Accounting I and II. 3 hours Lecture and Discussion — 3 credits

BA 4244

Management Seminar

Management Seminar is designed as an advanced capstone course for all business majors. This course represents an opportunity for all business majors to review, extend and apply all previous coursework completed in the business curriculum using strategic planning as a framework. This course will combine theory and practice, and will require active participation in a computer simulation game in which students will develop a cohesive strategy, formulate a business plan, “manage” a company, and report the results to a Board of Directors. Prerequisite: Senior Status. 3 hours Lecture and Discussion — 3 credits
Undergraduate Course Descriptions

**BA 4247**
Advertising
Planning, implementing, and evaluating advertising and sales promotion activities. Determining advertising objectives, selection of campaign themes and media, evaluating advertisements and campaigns, controlling advertising and promotion expenditures, the client-agency relationship, regulations and the social and economic effects of advertising. Prerequisite: Principles of Marketing. 3 hours Lecture and Discussion — 3 credits

**BA 4565**
Entrepreneurship in Practice
An advanced course in organizing and operating a small business. Case studies and real-world application of entrepreneurship will be examined and analyzed. Course emphasis is on the final development and refinement of the business plan. The student will present his/her fully developed business plan. Prerequisites: Entrepreneurship Finance and Law for the Entrepreneur. 3 hours Lecture and Discussion — 3 credits

**SR 4041**
Student Research
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for student research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project time line, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20th and for registration in the spring semester, a proposal should be submitted no later than Nov. 20th. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

**BA – XXXX**
International Business
International business consists of market and financial transactions between parties from more than one country. These transactions involve different currencies, and are conducted under varying legal, cultural and political situations. The economies of the world are increasingly dependent on one another. Most businesses have some international exposure through customers and/or suppliers. Large companies like Johnson & Johnson and Coca-Cola have more than 50% of their business occurring outside of the U.S. This course gives the student a basic understanding of how businesses operate globally and prepares the student for a business career with international exposures.

**BA XXXX**
Ethics in Business
Ethics are standards that people use to decide what is right and what is wrong. Businesses are run by people who may have standards that vary considerably both internally among its employees and externally compared to other businesses. Employees can face situations where their own moral standards seem to conflict with the company for which they work. This course is designed to help the student recognize the ethical issues in business situations and to develop a framework for making ethical choices.
Chemistry

CH 0011
Basic Chemistry
Non-credit preparation is provided for General Chemistry I and II. Energy, matter, and change, with appropriate problem-solving applications are emphasized. Formulas, equations, and descriptive chemistry are covered in the laboratory. 3 hours Lecture and 3 hours Laboratory — 0 credits

CH 1001
Chemistry Fundamentals
Basic chemical concepts are presented to non-science majors. The foundation of chemical knowledge is gained to enable the making of informed personal and professional decisions. Lecture topics include: structure, bonding and reactivity, water and solutions, bio-organic and environmental chemistries. This course does not satisfy the requirement for General Chemistry I. This course should be taken concurrently with the lab. 3 hours Lecture — 3 credits

CH 1001L
Chemistry Fundamentals Laboratory
Experiments are performed to provide familiarity with basic laboratory skills. This course is to be taken concurrently with or after having successfully completed the Chemistry Fundamentals lecture. 5 hours Laboratory — 1 credit

CH 1103
General Chemistry I
The basic principles of chemistry are introduced. Topics covered include atomic structure, periodic trends, molecular bonding and shapes, intermolecular forces, and properties of solutions. Also discussed are: ionic and covalent compounds, the mole concept, chemical equations, stoichiometry, major classes of chemical reactions, and thermochemistry. Prerequisites: high school chemistry. This course is to be taken concurrently with the General Chemistry I Laboratory. 3 hours Lecture and 1 hour Supplemental Instruction. — 3 credits
Undergraduate Course Descriptions

CH 1103L
General Chemistry I Laboratory
Experiments are performed to reinforce concepts discussed in lecture, as well as to develop basic laboratory skills. Topics covered include unit conversion and nomenclature, redox and precipitation reactions stoichiometry, calorimetry, titrations, and molecular structure. This course is to be taken concurrently with, or after having successfully completed, the General Chemistry I lecture. 3 hours Laboratory — 1 credit.

CH 1203
General Chemistry II
Chemical kinetics and equilibria, buffer solutions, thermodynamics, electrochemistry, coordination compounds, and nuclear chemistry are introduced. Prerequisites: General Chemistry I and General Chemistry I Laboratory. This course is to be taken concurrently with the General Chemistry II Laboratory. 3 hours Lecture and 1 hour Supplemental Instruction.— 3 credits

CH 1203L
General Chemistry II Laboratory
Experiments are performed to enhance and develop laboratory techniques as well as to carry out qualitative and quantitative analysis of ions. Chemical equilibrium is also covered. This course is to be taken concurrently with or after having successfully completed, the General Chemistry II lecture. 3 hours Laboratory — 1 credit.

CH 2003
Principles of Organic Chemistry
A survey of both aliphatic and aromatic classes of compounds, with their traditional subclasses, is provided. Basic reaction mechanisms are introduced and special topics, such as: fats and oils, detergents, carbohydrates, and proteins are covered briefly. Prerequisites: General Chemistry I and II Lecture and Laboratory. This course should be taken concurrently with the Principles of Organic Chemistry Laboratory. 3 hours Lecture — 3 credits

CH 2003L
Principles of Organic Chemistry Laboratory
Common techniques used for the separation, purification, and identification of organic compounds, including chromatographic techniques and infrared spectroscopy, are introduced. This course is to be taken concurrently with, or after having successfully completed, the Principles of Organic Chemistry lecture. 3 hours Laboratory — 1 credit

CH 2004
Fire Protection Chemistry
This course provides knowledge of the chemistry of materials and their physical properties, as these subjects relate to fire. 1 hour Lecture and Discussion — 1 credit

CH 2005
Chemistry of Hazardous Materials
The unique requirements in handling hazardous materials when encountered in a chemical emergency are addressed. 1 hour Lecture and Discussion — 1 credit

CH 2006
Safety in the Laboratory
The hazards associated with handling chemicals that have acute or chronic toxicities and/or physical hazards in the research laboratory setting are discussed. Emphasis is placed on minimizing exposure to hazards, preparing for emergencies and fostering a culture of safety. Prerequisites: General Chemistry II, Lecture and Laboratory. 1 hour Lecture and Discussion — 1 credit

CH 2007
Introduction to Forensic Science
Principle areas and applications of forensic science are introduced including biological, chemical and physical methods. Proper evidence handling is also discussed. Prerequisites: successful completion of at least one semester of college chemistry. 3 hours Lecture and 3 hours Laboratory — 4 credits

CH 2120
Organic Chemistry I
Basic concepts of bonding and acid-base theory, as these apply to organic compounds, are reviewed. Structure, properties, nomenclature, and chemistry of alkanes, alkyl halides, alkenes, alkynes and alcohols are covered in depth. Development of reaction mechanisms is discussed and mechanisms for substitutions, eliminations, and additions are studied as well as applied to the reactions of alkyl halides, alkenes, and alcohols. Prerequisites: General Chemistry II Lecture and Laboratory. This course should be taken concurrently with Organic Chemistry I Laboratory. 3 hours Lecture — 3 credits

CH 2120L
Organic Chemistry I Laboratory
Common techniques used for the separation, purification, and identification of organic compounds are introduced, including chromatographic techniques and infrared spectroscopy. Reactions of functional
groups covered in Organic Chemistry I are studied. Prerequisites: General Chemistry II Lecture and Laboratory. This course should be taken concurrently with Organic Chemistry I lecture. 3 hours Laboratory — 1 credit.

CH 2220
Organic Chemistry II
Structure, properties, nomenclature, and chemistry of aromatic compounds, ketones, aldehydes, carboxylic acids as well as their derivatives and the amines are introduced. Mechanisms of aromatic substitution, additions, reductions, and oxidations of carbonyl compounds, as well as the synthesis and reactions of the amines are studied. The role of organic compounds in biological systems is introduced throughout the course. Prerequisites: Organic Chemistry I Lecture and Laboratory. This course should be taken concurrently with the Organic Chemistry II Laboratory. 3 hours Lecture — 3 credits.

CH 2220L
Organic Chemistry II Laboratory
Reactions and mechanisms covered in Organic Chemistry II Lecture are studied. An introduction to qualitative organic analysis and to nuclear magnetic resonance spectroscopy is also included. Prerequisite: Organic Chemistry I Lecture and Laboratory. This course should be taken concurrently with the Organic Chemistry II Lecture. 3 hours Laboratory — 1 credit.

CH 2131
Descriptive Environmental Chemistry
The fundamental principles of chemistry will be used to gain an understanding of the source, fate and reactivity of compounds in natural and polluted environments. Environmental issues that will be discussed include climate change, air pollution, stratospheric ozone depletion, pollution and treatment of water sources, soil contamination and remediation, and the implications of pesticide use. Prerequisites: General Chemistry I and II Lecture and Laboratory. 1 hour Lecture and 2 hours Laboratory — 2 credits.

CH 2155-CH 2256
Selected Topics I and II
The student, with concurrence from the instructor, will investigate in depth a topic of his/her choice. Example topics include inorganic synthesis, organic synthesis, and chemical analysis. Elective for Chemistry sophomores, juniors, or seniors with permission of Department Chairperson. 3 hours Laboratory and Instruction — 1 credit.

CH 2201
Chemical Literature
Content and usage of various sources of chemical information are discussed. Emphasis is placed on locating specific facts online and performing literature searches. Regular library assignments are given. Prerequisite: At least sophomore standing. 1 hour Lecture — 1 credit.

CH 2203
Biochemistry
A systematic survey of the major biological molecules, including proteins, carbohydrates, lipids, and nucleic acids. General principles of biochemistry are introduced and the interplay of molecular structure and function is discussed. Topics may include: protein architecture, enzyme kinetics and mechanisms, membranes and transportation, molecular genetics, and the central metabolic pathways. Prerequisite: Principles of Organic Chemistry Lecture and Laboratory or Organic Chemistry I Lecture and Laboratory. 3 hours Lecture — 3 credits.

CH 2203L
Biochemistry Laboratory
Common techniques used for the separation, purification, identification, and analysis of biochemical compounds are introduced. Various types of chromatography, electrophoresis and spectroscopy are studied. Prerequisite: Organic Chemistry I Lecture and Laboratory or Principles of Organic Chemistry Lecture and Laboratory. This course is to be taken concurrently with or after having successfully completed the Biochemistry lecture. 3 hours Laboratory — 1 credit.

CH 3001
Introductory Biomedical Instrumental Methods
A survey is given, in both theory and practice, of various types of instrumentation used in the biomedical and pharmaceutical research fields. Laboratory work includes experience with spectroscopic, chromatographic, colorimetric, radiochemical, and radiographic equipment. Prerequisites: General Chemistry I, Lecture and Laboratory and II, Lecture and Laboratory. Organic Chemistry I Lecture and Laboratory and Biochemistry I Laboratory are also desirable. 2 hours Lecture and 3 hours Laboratory — 3 credits.
Undergraduate Course Descriptions

CH 3122
Radioisotope Techniques
Properties of radiation; elementary radioisotope calculations chemical, medical, and biological uses of radioisotopes are introduced. Prerequisite: Permission of Instructor. 3 hours Lecture and Discussion — 3 credits

CH 3125
Physical Chemistry I
Laws of thermodynamics; equations of state; thermochemistry; physical transformations; solutions and mixtures; chemical equilibrium; colligative properties; introductory statistical thermodynamics. Prerequisites: MP 2121 and MP 2123. Corequisite: CH 3125L. 3 hour Lecture and Discussion — 3 credits

CH 3125L
Physical Chemistry I Laboratory
Properties of gases; thermodynamic cycles; calorimetric techniques; simple and real solutions; phase diagrams; chemical equilibrium; colligative properties; surface and interfacial phenomena; voltammetry; statistical thermodynamics modeling. Corequisite: CH3125. 3 hours Laboratory — 1 credit.

CH 3130
Analytical Chemistry I
Gravimetric and volumetric methods of analysis are performed. Colorimetric, electroanalytical, and chromatographic techniques are also introduced. Prerequisites: General Chemistry I and II. 3 hours Lecture and 4 hours Laboratory — 4 credits

CH 3157
Advanced Inorganic Laboratory
Inorganic and organometallic compounds are prepared using a variety of synthetic techniques and apparatus not encountered in lower division laboratory courses. Emphasis is on coordination complexes of polydentate ligands, clusters and nanoparticles. Materials are characterized by NMR, mass spectrometry and UV-Vis spectroscopy and modeled with computational methods. Prerequisites: Organic Chemistry I and II Lecture and Laboratory, Advanced Inorganic Chemistry. 3 hours Laboratory — 2 credits

CH 3220
Advanced Organic Chemistry
Organic reaction mechanisms and their modification by inductive, resonance, and steric effects are covered in depth. Also discussed are: methods of determining reaction mechanism, stereochemistry, orbital symmetry relationships, and selected topics in synthesis. Prerequisites: Organic Chemistry II Lecture and Laboratory and Physical Chemistry II Lecture and Laboratory. 3 hours Lecture — 3 credits

CH 3223
Analytical Chemistry II
A survey is provided on the sources of chemical signals, their detection and amplification by instrumental methods. Laboratory work includes visible-ultraviolet and infrared spectroscopy, gas chromatography, polarography, potentiometry, coulometry, and liquid chromatography. Prerequisites: Analytical Chemistry I, and Physical Chemistry I or Permission of Instructor. 3 hours Lecture and 4 hours Laboratory — 4 credits

CH 3224
Physical Chemistry II
Transport processes; chemical kinetics; catalysis; nuclear chemistry; photochemistry; reaction mechanisms and dynamics; natural and synthetic polymers; materials science; nanomaterials and nanoscale phenomena. Prerequisites: MP 2223 and MP 2224. Corequisite: CH3224L. 3 hours Lecture and Discussion — 3 credits

CH 3224L
Physical Chemistry II Laboratory
Viscosity, diffusion, and effusion; electrokinetic phenomena; chemical kinetics; reaction catalysis; spectrophotometry; photochemical reactions; radioactive decay; macromolecules; semiconductors; self-assembled materials; solid-state chemistry; modeling of reactions. Corequisite: CH 3224. 3 hour Laboratory — 1 credit

CH 4025
Polymer Chemistry Introduction
A fundamental treatment of polymer science is provided. Topics covered include polymer structure, synthesis, molecular behavior, processing, environmental effects, and special materials, such as composites and biopolymers. Prerequisites: Organic Chemistry I and II. 3 hours Lecture — 3 credits
**IT 1012**

**CH 4020 Method and Development and Validation**
The development and validation of an analytical assay is essential to efficient time management and use of resources in the laboratory setting. Students will learn detailed experimental design procedures and best practices to ensure the use of the method and associated instrumentation. Skills learned in the course will be beneficial to students pursuing graduate school and careers in chemistry, especially in quality assurance and control. Prerequisite: Analytical Chemistry II. 2 hour lecture-2 credits.

**CH 4117 Organic Analysis**
The identification of organic compounds through the use of physical properties, chemical tests, spectroscopic analysis, and preparation of known derivatives is addressed. Infrared and NMR spectroscopy and gas chromatography are available for laboratory use. Prerequisites: Analytical Chemistry II and Organic Chemistry II Lecture and Laboratory or Permission of Instructor. 3 hours Lecture and 3 hours Laboratory — 4 credits.

**CH 4126 Advanced Inorganic Chemistry**
Present theories of chemical bonding are treated, including electrostatic, valence bond, molecular orbital and continuous solid models. From these theories the structures of inorganic substances are derived. Topics such as symmetry and point groups, nonaqueous solvent systems, secondary chemical forces, structure and properties of transition metal complexes are treated. Time permitting, a survey of organometallic chemistry is included. Prerequisite or concurrent: Physical Chemistry II Lecture and Laboratory. 3 hours Lecture — 3 credits.

**CH 4150 Separation Methods**
A development of methods for laboratory-scale separations driven by distribution equilibria or by external fields is introduced. The fundamental principles that govern separation at the molecular level are discussed. Also covered are the theory of chromatographic retention; instrumentation required for gas, liquid, and supercritical fluid chromatography; as well as electrophoretic techniques. The application of theory and instrumentation to the development of methods is stressed. Prerequisites: Biomedical Instrumentation or Instrumental Analysis. 1 hour lecture and 2 hours laboratory — 2 credits.

**IT 2218**

**CH 4201 Seminar (Chemistry)**
Focus is placed on student—led, in-depth discussions on specific chemical issues and questions. 1 hour Lecture and Discussion — 1 credit.

**CH 4205 Advanced Biochemistry**
A presentation of modern biochemical topics is provided, including the chemistry of cellular compounds, energy transformation in living organisms, synthesis of macromolecules. Prerequisite: Biochemistry Lecture and Laboratory. 3 hours Lecture and 3 hours Lab — 4 credits.

**CH 4241 Physical Chemistry III**
Quantum theory: atomic and molecular structure; molecular symmetry and group theory; rotational, vibrational, electronic and nuclear magnetic resonance spectroscopy; introductory statistical mechanics. Prerequisites: MP 2223 and MP 3124. Corequisite: CH 4241L. 3 hours Lecture — 3 credits.

**CH 4241L Physical Chemistry III Laboratory**
Quantum phenomena; infrared and Raman spectroscopy; ultraviolet-visible spectroscopy; nuclear magnetic resonance spectroscopy; light polarization and polarimetry; spectral predictions and assignments; molecular modeling; computational chemistry. Corequisite: CH 4241. 3 Hour laboratory- three credits.

**SR 4041 Student Research**
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s department chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits.
**COMPUTER AND BUSINESS INFORMATION SYSTEMS**

**IT 1011**  
*Information Technology Concepts*  
This course introduces many fundamental concepts of computers and information technology. Lectures and discussions include computer hardware and software, the Internet and the Web, data files and database, telecommunications and networks, and future technology trends. 1.5 hours Lecture and Discussion — 1.5 credits. Prerequisites: None. It is strongly recommended that this course be taken with Computer Applications.

*Computer Applications*  
This course introduces the basics of popular and useful computer applications. Emphasis is placed on a working knowledge of Windows operating system, word processing, spreadsheet, and presentation software at the introductory level. MS Windows and Office software are used for hands-on exercises. 1.5 hours Lecture and Hands-on — 1.5 credits. Prerequisites: None. It is strongly recommended that this course be taken with Information Technology Concepts.

**IT 1031**  
*Intermediate Computer Applications*  
This course extends computer applications into real-world projects. Emphasis is placed on developing a working knowledge of word processing, spreadsheet, and database management software at the intermediate level. MS Office software is used for hands-on exercises. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; successful performance on CBIS departmental diagnostic exam for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 2118**  
*Web Design*  
This course introduces the generally accepted web design principles that underlie the construction of web pages and applets. Students will create a variety of web pages using HTML, JavaScript, and web design application software. Students will also learn the fundamentals of XML data and integration. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 2216**  
*Introductory Programming*  
This course teaches the programming logic and the process of writing a computer program using C/ C++ programming language. Students will obtain an understanding of sequence, selection, repetition statements, files, arrays, functions, and subprograms. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.
Undergraduate Course Descriptions

**IT 1012 Advanced Programming**
This course is a continuation of the Web Design and Introductory Programming courses. Object-oriented program design with emphasis on the Java programming language will be taught. Additional topics include GUI controls, exceptions, threads, and applets. Prerequisites: Introductory Programming and Web Design. 3 hours Lecture and Hands-on — 3 credits.

**IT 3000, 4000 Selected Topics in IT**
These courses are designed to permit the timely introduction of new topics in areas of information technology. Prerequisite: Permission of the CBIS Department Chairperson. 1 to 3 hours Lecture and Discussion — 1 to 3 credits.

**IT 3103 Information Systems**
This course studies the characteristics and features of the major types of information systems, major components of information systems, and their applications in business. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Discussion — 3 credits.

**IT 3104 Database Management Concepts**
This course examines the purposes, advantages, issues, and problems associated with the use of a data base. The process of database design from information modeling to physical design is discussed with emphasis on conceptual and implementation design. Prerequisites: Intermediate Computer Applications and Data Structures and File Organization. 3 hours Lecture and Hands-on — 3 credits.

**IT 3117 Data Structures and File Organization**
This course introduces the concept of data types and data structures and discusses their importance in information technology. Several data structures such as arrays, lists, trees, and graphs and their implementations are discussed. Prerequisites: None. 3 hours Lecture and Discussion — 3 credits.
**IT 3202**  
*Office Automation*  
This course studies the impact of current technology on productivity in the modern office. Elements of office automation are reviewed with specific emphasis on document processing. Students will apply this emphasis to Educational Business applications. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 3203**  
*Hardware and Software*  
This course presents a detailed view of computer hardware structure and function, and discusses the principles governing operating systems. Topics include operating systems, computer repair, construction, and maintenance. Students will have hands-on exercises in building and maintaining a personal computer system. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 3205**  
*Geographic Information Systems*  
This course introduces the principles of a geographic information system with emphasis on the analysis of land use, population studies, and demographic distributions. Many applications in Environmental Science will be discussed. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 3220**  
*Computer-Aided Design*  
This course teaches how to use CAD (computer-aided design) software to do landscape and draft designs. Students will apply CAD software to Ornamental Horticulture applications. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; 1031 Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 3222**  
*Database Design*  
This course covers various aspects of physical design in the database development process. Topics include, but are not limited to: denormalization, development and utilization of database tables, queries, forms, and reports, with emphasis on the support of a Web site. Prerequisite: Database Management Concepts. 3 hours Lecture and Hands-on — 3 credits.

**IT 4028**  
*Visual Basic Programming*  
This course teaches the use of Visual Basic to create programs in Windows environment. Students learn how to produce graphical user interfaces in the object-oriented programming paradigm. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 4041**  
*Senior Research in IT*  
Selected seniors engage in supervised investigations of certain topics in information technology. Prerequisite: Permission of CBIS Department Chairperson. 1-3 hours of student/instructor interaction — 1 to 3 credits.

**IT 4042**  
*UNIX Based Operating System*  
This course teaches commands in UNIX based operating systems, shell programming tools for effective completion of system related tasks, and customization of a local environment or a whole system. UNIX and/or LINUX operating systems are explored through hands on exercises and comparison to the DOS and Windows operating systems. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.
Undergraduate Course Descriptions

**IT 4109**  
*Network Concepts*  
This course introduces concepts of telecommunications and computer networks. Topics include network history, communication mediums, network hardware and software, network standards (OSI model and Internet model), and various network topologies and structures. This course lays the groundwork for network design and administration (IT 4235). Prerequisite: Hardware and Software. 3 hours Lecture and Hands-on — 3 credits.

**IT 4110**  
*Computer Graphics*  
This course presents fundamental concepts in computer graphics. Emphasis is placed on current methods and techniques, such as presentation graphics, photo editors, and animators, to create graphical displays for print and the Web. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 4119**  
*Network Security*  
This course discusses the principles, techniques, and tools that are used to provide security for a local area network and/or website. Students will be able to recognize security risks, choose techniques that will minimize those risks, and use tools that will implement these techniques. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 4131**  
*Auto CAD*  
This course teaches how to use CAD (computer-aided design) software to do landscape and draft designs. Students will apply CAD software to Environmental Science applications. Prerequisites: Information Technology Concepts and Computer Applications for non-CBIS students; Intermediate Computer Applications for CBIS students. 3 hours Lecture and Hands-on — 3 credits.

**IT 4146**  
*Systems Analysis and Design*  
This course introduces the systems life cycle approach to solving business problems. Students gain a working knowledge of problem analysis, requirements discovery, entity-relationship diagram, data flow diagram, and physical design in the development of information systems. Prerequisite: Intermediate Computer Applications. 3 hours Lecture and Hands-on — 3 credits.

**IT 4208**  
*Senior Projects in IT*  
This course allows students to demonstrate their ability to gain and communicate new knowledge and techniques. Students explore contemporary topics of their interest in information technology that result in a research paper and a project involving an application in information technology. Prerequisite: Senior status and Permission of CBIS department chairperson. 3 hours Lecture and Hands-on — 3 credits.

**IT 4235**  
*Network Design and Administration*  
This course builds on the foundation established in IT 4109. Network design, configurations, administration, and applications are discussed. Students gain a working knowledge of the analysis, design, installation, and administration of computer networks. Prerequisite: Network Concepts. 3 hours Lecture and Hands-on — 3 credits.

**SR 4041**  
*Student Research*  
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits.
CRIMINAL JUSTICE ADMINISTRATION

CJ 1009
Introduction to Criminal Justice
An introductory course on the theory and practice of the criminal justice system, including law enforcement, corrections, and the courts. The course presents concepts, principles and models used in the criminal justice system. Career opportunities in Criminal Justice are discussed. 3 hours Lecture and Discussion — 3 credits

CJ 2015
American Police
The function of police, both historically and in a contemporary context, will be examined in regard to their function, their interaction with the public, as well as from individual and group police attitudes and practices. 3 hours Lecture and Discussion — 3 credits

CJ 2124
Criminology
This course utilizes criminological theory to provide the basis for examination of the nature of crime and deviance through presentations of factors that condition criminal and delinquent behavior, legal and social penalties, parole and probation, criminal justice and treatment. 3 hours Lecture and Discussion — 3 credits

CJ 2225
Juvenile Delinquency
This course explores the factors that condition juvenile delinquency, treatment of delinquency, the development of current public and private correctional facilities and community-based treatment, with emphasis on the juvenile justice system. 3 hours Lecture and Discussion — 3 credits

CJ 2230
Women, Crime, and the Criminal Justice System
A theoretical and practical perspective will be applied to help the student examine the relationship between women, crime, and the criminal justice system with emphasis on the three major areas of: women as offenders, victims, and professionals. 3 hours Lecture and Discussion — 3 credits

CJ 3112
Penology
This course provides an analysis and evaluation of contemporary correctional systems along with an historical overview of corrections. Topics include: theories of punishment, recent developments and research concerning the correctional institution and correctional treatment and counseling. 3 hours Lecture and Discussion — 3 credits

CJ 3140
Probation, Parole, and Community Corrections
Probation as a judicial process and parole as an executive function are examined. Innovative and progressive practices in federal, state and municipal systems are explored so that the student has working knowledge of the theory and practice in such community-based programs as work-release, half-way houses and contract program planning. The criminal’s attitude toward society and the rehabilitative process are studied. 3 hours Lecture and Discussion — 3 credits

CJ 3145
The Court Process
This course presents the rules of evidence particularly important in law enforcement at the court/trial level including such issues as the arresting of suspects, the searching of premises and persons, the interrogation of suspects, and the use of force as related to admissibility in court. 3 hours Lecture and Discussion — 3 credits

CJ 3150
Criminal Law
The substantive law relating to crimes is studied through an examination of the general principles of common and constitutional law. 3 hours Lecture and Discussion — 3 credits

CJ 3210
Criminal Procedure
This course will examine the many aspects of criminal procedure that are regulated by the U.S. Constitution, particularly the Bill of Rights, with emphasis on federal constitutional criminal procedure. Recent Supreme Court decisions are evaluated. 3 hours Lecture and Discussion — 3 credits

CJ 3230
International Crime and Terrorism
An examination and study of international crime and terrorism. Topics will include the origin and evolution of terrorism, identification of various reasons cited to “justify” terrorism, and tactics used in terrorist and international crime activities. Other relevant areas to be studied include the rise of religious fundamentalism, the role and impact of the media, and concerns associated with the use of weapons of mass destruction and/or the disruption of vital infrastructure.
Undergraduate Course Descriptions

components. Pertinent U.S. and international laws, policies and other measures to confront and combat terrorism will also be reviewed and discussed. The course will also provide an overview of transnational crime and its effects on the political, economic and social development of countries around the world. Some specific terrorist and criminal groups from the past and present will be explored to gain an understanding of their philosophies, objectives, tactics and targets. The course will also look forward in terms of what new terrorist groups, targets and countermeasures may exist in the future. 3 hours Lecture and Discussion — 3 credits

CJ 3240
Organized and White Collar Crime
An historical survey of organized and white collar crime in America up through contemporary developments. The course will include examination of illegal and unethical activities of people, businesses, and government whose acknowledged purpose is legitimate enterprise along with system responses to organized crime, remedial practices and control. 3 hours Lecture and Discussion — 3 credits

CJ 3250
Issues in Criminal Justice Administration and Management
The basic concepts of police, court, and correctional management, administration, planning, budgeting, coordination, and personnel effectiveness are examined. Interrelationships of roles and the impacts of role players in these systems are analyzed. Interface with the community is reviewed in detail. 3 hours Lecture and Discussion — 3 credits

CJ 4220
Criminalistics
The scientific aspects of the investigation of crimes are the focus of this course. The major emphasis is placed upon the collection, analysis, preservation and processing of evidence. Advanced work is undertaken concerning criminal investigation utilizing fingerprints, genetic fingerprinting, firearms, hair, fibers, blood tools, paint and other potential clues. 3 hours Lecture and Discussion — 3 credits

CJ 4240
Senior Seminar: Research Methods in Criminal Justice Administration
Utilizing the research methods and techniques employed in the criminal justice field, students examine current issues in criminal justice. Prerequisite: Senior status. 3 hours Discussion and Analysis — 3 credits

SR 4041
Student Research
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

DAIRY SCIENCE

DS 1065
Principles of Dairy Science
This course is a study of the extent and importance of the dairy industry in the U.S. It is designed to develop an understanding of the principles of nutrition, breeding, selection, records, and improvement programs employed by the dairy industry. Attention is also given to milk quality and the spectrum of dairy products. 2 hours Lecture and 3 hours Lab — 3 credits

DS 2213
Dairy Cattle Judging
The judging of dairy cattle for the purpose of understanding ideal dairy type and applying type as a measure of utility is considered. Introduction to oral reasons in defense of placing a class of dairy animals is discussed and how to deliver an effective set of oral reasons is presented. 3 hours Laboratory — 1 credit

DS 2230
Physiology of Lactation
This course is a study of the anatomy and physiology of the mammary gland. Special emphasis is placed on the hormonal control of mammary growth and on the initiation and maintenance of lactation. Consideration is also given to the biochemistry of milk secretion and factors affecting milk yield and composition. 3 hours Lecture — 3 credits
DS 3000, 4000
Selected Topics I and II
Special projects designed to meet individual needs of students in the specialized fields of agriculture. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the Department Chairperson. Total Selected Topics credit accepted toward graduation is limited to 2 credits. 3 hours of student/faculty instruction per week — 1 credit

DS 3010
Animal Feeding and Nutrition
A comprehensive study is presented of the principles of animal nutrition and how different kinds of feeds are used in the formulation of rations for farm animals. Attention is given to the methods that are used in feeding all large animals in relation to their different digestive systems. Major emphasis is placed on the practice of developing rations for farm animals. Prerequisite: Principles of Animal Nutrition or Permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits

DS 3029
Dairy and Livestock Genetics
The study of factors responsible for changes in the genetic composition of animal populations is presented. Using current concepts in genetics and statistics, the relationships of both heredity and environment to individual performance are considered. Various mating systems and their consequences on animal production are also studied. Prerequisite: Biological Science I and Introduction to Animal Science. 3 hours Lecture — 3 credits

DS 3118
Anatomy and Physiology of Animals
A comprehensive study of the functions of mammalian bodies with special emphasis on domestic animals. A detailed examination is provided concerning the principles of physiology at the cellular, tissue, and organ system levels. Emphasis is placed upon the correlation between anatomical structure and function. The laboratory centers on the practical application of the principles presented in the lecture. Prerequisites: Biology I and II or Biological Science I and II. 3 hours Lecture and three hours Laboratory — 4 credits

DS 4115
Seminar (Dairy Science)
A study of the technical and scientific literature in the field of Dairy Science with special emphasis on discussion of the literature reviewed. Prerequisite: Senior status. 1 hour Lecture and Discussion — 1 credit

DS 4116
Advanced Dairy Judging
This course provides intensive training in selection of dairy cattle using subjective and objective measurements as well as the use of oral reasons to explain and defend decisions. An Intercollegiate Dairy Judging Team is selected from students taking this course. Due to considerable travel and time required, enrollment is limited and a 2.0 academic average is required. This course begins one week prior to the start of the Fall Semester. Prerequisite: Dairy Cattle Judging and Permission of Instructor. 3 hours Lab — 1 credit

DS 4134
Physiology of Reproduction
This course covers the physiology of reproduction in farm animals. The sexual characteristics of the male and female, the physiology of the semen and ova, hormonal control of reproduction, and reproduction in each of the farm species are discussed. Prerequisite: Anatomy and Physiology of Animals or Equine Anatomy and Physiology. 2 hours Lecture and 3 hours Laboratory — 3 credits

DS 4235
Dairy Systems and Management
A comprehensive study of the business of dairy farming and the dairy industry, including pertinent economic, nutritional, and environmental problems. Prerequisite: Animal Feeding and Nutrition. 2 hours Lecture and 3 hours Laboratory — 3 credits

Specialized Methods and Techniques
Each major department offers a series of courses designed to acquaint the student with various applications of the professional specialty.

DS 3226
Dairy Husbandry Techniques I
This course covers the application of hormones, feed additives, chemicals and drugs in the feeding, breeding and management of dairy animals. The student works with various dairy improvement programs. Throughout the course, emphasis is placed on the general care and management of dairy animals. Co-requisite: Animal Feeding and Nutrition or Permission of Instructor. 1 hour Lecture and 3 hours Laboratory — 2 credits
Undergraduate Course Descriptions

**DS 4143**  
*Dairy Husbandry Techniques II*  
This course is a continuation of DS 3226 and incorporates the practical aspects of dairy cattle management, mastitis control, feeding and breeding. Students are involved in heat detection, feeding and milking as well as the study of Dairy Herd Improvement proceedings. Prerequisite: Dairy Husbandry Techniques I or Permission of Instructor.  
1 hour Lecture and 3 hours Laboratory — 2 credits

**SR 4041**  
*Student Research*  
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

**EDUCATION**

**ED 0016**  
*Learning Strategies*  
This course involves instruction and practice in techniques of time management, notetaking, reading for greater retention, test taking and memory. Students identify and use a range of campus and community resources, including the library. Effective listening techniques and communication skills are presented as well as ways to enhance creativity and stimulate critical thinking. Students explore their own styles of learning and personal value systems as they contribute to becoming successful students. 3 hours Lecture and Discussion — 3 institutional credits (Institutional credits will not be applied to either required or elective credits, but will be counted toward determining full-time status.)

**ED 0017**  
*CHOICES Seminar*  
CHOICES students will continue to integrate skills gained in Learning Strategies and apply them across the curriculum through structured activities. Students will continue to clarify academic career and personal goals as well as develop skills in rational analysis and critical thinking. The seminar will maintain focus on the students’ selection of a major and assist in the transition process. This course is limited to CHOICES students. 2 hours Lecture and Discussion — 2 institutional credits (Institutional credits will not be applied to either required or elective credits, but will be counted toward determining full-time status.)

**ED 1010**  
*American Education*  
This course examines American education with emphasis the history, aims, organization, and control of public schools. Emphasis is placed on the development of American educational ideas and institutions in a multicultural society. The course will address current topics in education, and should be taken as the first Education course. 3 hours Lecture, Discussion and 10 hours Field Experience/Observation — 3 credits

**ED 2030/LA 2230**  
*Educational Psychology*  
This course is a practical treatment of the theory and practice of psychology as it applies to teaching, learning, student development and the classroom environment. Topics include: growth and development, learning and achievement, motivation, learning disabilities and psychoeducational aspects of adolescents. This course should be taken as the second Education course. 3 hours Lecture, Discussion and 10 hours Field Experience/Observation — 3 credits
ED 2040
Field Experience/Pre-Student Teaching
Practical experiences in the classroom and the school prior to student teaching are designed to acquaint the student with classroom problems and school practices. Students have direct experience with pupils and educational professionals on a paraprofessional basis through organized activities. Minimum 30 clock hours. Prerequisites: ED 1010, ED 2030 and ED 2110. 1 hour Lecture, Discussion and Practicum — 1 credit

ED 2142
Instructional Methods and Assessment
This course is a study of teaching procedures and learning activities in the secondary school. Students will explore methodology for creating a learning situation, developing the subject matter and teaching field, using appropriate methods and techniques, and classroom management. Student will be guided in the analysis of specific content and techniques for teaching that content, and will critically examine lesson plans. Prerequisites: ED 1010 and ED 2030. 3 hours Lecture, Discussion, and 10 hours Field Experience/Observation — 3 credits

ED 2210
Literacy in the Content Area Classroom
This course addresses the theories and methods of literacy instruction in content area classrooms. Students will examine, develop and apply best practices in the skills of reading and writing in their content areas. The course prepares students to understand the demands of academic literacy in the secondary classroom. Reading assessments and literacy strategies are designed to increase adolescent vocabulary acquisition/learning and comprehension of content text. Prerequisites: ED 1010, 2030 and ED 2142. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

ED 3050
Animals in the Public Eye
Students in the Animal Biotechnology & Conservation Department will be faced with the responsibility of presenting the general public with accurate and understandable information on a daily basis. This information is most likely to be imparted through animal or artifact demonstrations in informal educational settings through one-on-one discussions (talking to the public), and small group presentations (keeper presentations, State Fairs). In addition, they are likely to be called upon to represent their institutions to the media during their careers. The course will provide experiential learning and will include animal/artifact presentations. 3 hours lecture-3 credits

ED 3230
ELL and the Multicultural Classroom
This course is an introduction to the fundamentals of English Language Learners’ language acquisition and the impact on content area learning. It will address linguistic and cultural backgrounds of ELLs and the strategies necessary for teaching content and assessing learning in the inclusive classroom. The course will emphasize components of curriculum content, teaching techniques, second language literacy, and the development and evaluation of teaching materials. It is also designed to introduce teachers to issues in cultural diversity by taking a comprehensive look at research, policy, and effective practices. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

ED 3327
Differentiated Instruction in the Inclusive Classroom
This course provides an overview of the identification of differentiating characteristics of exceptional adolescence. Theories and instructional strategies will be explored for the inclusive classroom. Legislative policies, nondiscriminatory assessment, individualized educational plans and parent involvement will also be addressed. The course will define the roles and responsibilities of the classroom teachers, special educators and other support personnel in relation to the delivery of instruction and special education services in the inclusive setting. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210 are required. ED 3230 is recommended. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

ED 4010
Student Teaching and Professional Seminar
Students will spend the semester in an approved secondary school under the direct supervision of a cooperating teacher. Students will meet regularly with their supervisor — 12 credits
Undergraduate Course Descriptions

Special Methods in the Content Areas

**ED 3011 Teaching Science: Methods and Experiences**
This course is a study of various methodologies and experiences unique to the teaching of science at the secondary level. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

**ED 3012 Teaching Mathematics: Methods and Experiences**
This course is a study of various methodologies and experiences unique to the teaching of mathematics at the secondary level. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

**ED 3013 Teaching English: Methods and Experiences**
This course is a study of various methodologies and experiences unique to the teaching of English at the secondary level. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

**ED 3014 Teaching Agriculture: Methods and Experiences**
This course is a study of various methodologies and experiences unique to the teaching of agriculture at the secondary level. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

**ED 3015 Teaching Business: Methods and Experiences**
This course is a study of various methodologies and experiences unique to the teaching of business at the secondary level. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

**ED 3016 Teaching Social Studies: Methods and Experiences**
This course is a study of various methodologies and experiences unique to the teaching of Social Studies at the secondary level. Prerequisites: ED 1010, ED 2030, ED 2142 and ED 2210. Students must have been formally accepted into the Certificate program. 3 hours Lecture, Discussion and minimum 10 hours Field Experience/Observation — 3 credits

**ED 3050/SA 3050 Animals in the Public Eye**
Students in the Animal Biotechnology & Conservation Department will be faced with the responsibility of presenting the general public with accurate and understandable information on a daily basis. This information is most likely to be imparted through animal or artifact demonstrations in informal educational settings through one-on-one discussions (talking to the public), and small group presentations (keeper presentations, State Fairs). In addition, they are likely to be called upon to represent their institutions to the media during their careers. The course will provide experiential learning and will include animal/artifact presentations. 3 hours lecture-3 credits

**SR 4041 Student Research**
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project time line, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20th and for registration in the spring semester, a proposal should be submitted no later than Nov. 20th. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits
ENGLISH

EN 0012
English Essentials
This course provides intensive training in grammar and syntax for students who require assistance in written expression. The course objectives include a review of the fundamentals of grammar and improvement of sentence structure. Students assigned to this course are required to take English I and II in addition. 3 hours Lecture and Discussion — 3 institutional credits (Institutional credit will not be applied to either required or elective credits, but will be counted toward determining full-time status.)

EN 1045
English as a Second Language
This course is open to students for whom English is a second language. Such students should take this course instead of Developmental English. It covers fundamentals of grammar, writing, and reading. 3 hours Lecture and Discussion — 3 institutional credits (Institutional credit will not be applied to either required or elective credits, but will be counted toward determining full-time status.)

EN 1101
English I
The first semester of English places emphasis on correct writing, the study of the practical elements of grammar and rhetoric, and the development of personal style and vocabulary. Frequent in-class and out-of-class themes are assigned. Prerequisite: Passage of English Essentials or the placement test, required for entering students. 3 hours Lecture and Discussion — 3 credits

EN 1111
Advanced English I
Literary interpretation, research, and writing are taught in this course. The essay and longer research paper are emphasized. The course replaces English I for certain advanced students. With permission of the Department Chairperson, students who complete this course may substitute another literature course for Introduction to Literature. Requirement: Placement score indicating advanced writing skills. 3 hours Lecture and Discussion — 3 credits

EN 1115
Introduction to Communication
This course explores the principles and contexts of human communication. It addresses the concepts of self, group, mass media, gender and intercultural communication. Students will study theory and analyze case studies to develop a working vocabulary for critical thinking about communication issues. 3 hours Lecture and Discussion — 3 credits

EN 1201
English II
The second semester of English addresses the skills and techniques of academic research. The focus is on writing research essays, with emphasis on analysis of text; developing the research question and thesis; evaluating and synthesizing appropriate sources, including electronic databases; using correct documentation format and avoiding plagiarism. 3 hours. Lecture and Discussion — 3 credits

EN 1211
Advanced English II
This course offers advanced approaches in literature and rhetoric for those students who took Advanced English I instead of English I. Prerequisite: Advanced English I. 3 hours Lecture and Discussion — 3 credits

EN 2005
History of the English Language
This course examines the external history of the English language - the political, social and technological forces that have shaped it, as well as the internal history - the effects of those forces on the sound system (phonology), structure (syntax) and vocabulary. Chronologically arranged texts from Old English to Present-Day English serve as sample material for the course. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

EN 2010
Linguistics
This course provides an overview of how humans acquire and use language. The components of language are examined, as well as the principles, concepts and models of language acquisition. Prerequisites: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

EN 2028
Introduction to Literature
This course presents selections from outstanding authors of world literature written after 1650. It is the required course in literature for the Core Curriculum. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits
Undergraduate Course Descriptions

**EN 2043**
*Semantics and Semiotics*
This course explores language forms and establishes the relationships between signs and symbols and what they represent. It covers the use and abuse of verbal and non-verbal language and applies semantic/semiotic principles to the language of politics, popular culture, advertising, and prejudice. The course objectives include familiarizing students with the nature of language meaning, alerting them to language abuses, and enhancing their communications skills. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

**EN 2129**
The Structure of English
The course provides intensive training in both grammar and methods of teaching grammar (particularly at the secondary level). The course objectives include: an introduction to traditional grammar terminology, sentence structure, various grammatical theories, and multiple approaches to grammar instruction for secondary school teachers and English majors. 3 hours Lecture and Discussion — 3 credits

**EN 2130**
*Introduction to the Novel*
Special attention is devoted to the development of the novel from the 18th century to the modern period. While the English novel will be emphasized, translations from other languages may be used. Major writers of the various periods, such as Fielding, Hardy, and Joyce will be highlighted. Prerequisites: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

**EN 2134**
*Literary Interpretation*
This course provides the English major with the vocabulary of literary criticism, with a basic understanding of generic forms, and with a specific knowledge of significant poems, stories, short novels, a novel and a play. Short papers and an essay final test are assigned to cover the required material. Prerequisite: English I. 3 hours Lecture and Discussion — 3 credits

**EN 2135**
*Classic and Medieval Literature*
This course will cover Western literature from its earliest literary works through the Greek and Roman eras, and the Medieval period up to the Renaissance. Students will become familiar with major writers through selected texts. In addition, they will be presented with the necessary philosophical, historical and mythological background. Students will demonstrate ability by reading, analyzing, discussing, and writing about the literature. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

**EN 2136**
*American Literature Before the Civil War*
This survey introduces students to selected American literary texts from 1614 to 1865. Works by Emerson, Hawthorne, Melville, Poe, Thoreau, Whitman, and other major figures are included. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

**EN 2138**
*World Literature*
This course will examine literary texts from around the world, with particular attention to the emergence of national and ethnic voices in the twentieth century. Students will become familiar with issues of modernism and postmodernism, and post-colonialism as reflected in literature from the areas of the course’s primary literary focus: Asia, Africa, and Latin America. Prerequisites: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

**EN 2139**
*Media Management*
This course is designed to provide the student a broad overview of the business of media and journalism. Media ethics and law will provide a theoretical framework for the course, which will use case studies to provide students with an understanding of the fundamental challenges facing media managers in the digital age. 3 hours Lecture and Discussion — 3 credits

**EN 2226**
*Professional Communication*
This course offers the elements of effective business communications and communication theory. In written assignments, exercises, and class discussion, students will analyze intended audience(s) of documents, write, research, and format letters, memos, and short reports, participate in collaborative team projects, and develop skills of oral communication. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

**EN 2238**
*American Literature after the Civil War*
This survey covers selected fiction, poetry, and drama from the Civil War to the present. Works by Twain, James, O’Neill, Eliot, Faulkner, Fitzgerald,
Hemingway, and other major figures are included. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

**EN 2240**

*Theory of Writing*

This course examines the ways persons learn to write and the problems which are encountered in the writing process. Students will explore their personal interests in writing as well as ways to teach writing. The course covers theories related to such topics as invention, writing-across-the-disciplines, writing portfolios, collaborative writing, computer-based writing instruction, the social construction of writing, and the rhetorical foundations of writing. 3 hours Lecture and Discussion — 3 credits

**EN 2241**

*New Media Publication and Design*

This course is an introduction to graphic design with a special emphasis on application to new media, such as web design and digital conversions. It is a portfolio course in which the students will be required to produce specific design projects that may be included in their job portfolios. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

**EN 2242**

*News Reporting and Writing*

This course is designed to introduce the student to writing for newspapers and magazines in both print and online format. Emphasis will be placed on cultivating story ideas, interviewing sources, quoting sources, and writing using Associated Press (AP) style. Students will learn the skills of basic news writing to include both hard news and feature stories and will appreciate the differences between writing for hardcopy and online publications. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

**EN 3008**

*Journalism*

This course helps prepare students to write for the various mass media including newspapers, magazines, advertising and public relations. Prerequisite: English I or Advanced English I. 3 hours Lecture and Discussion — 3 credits

**EN 3010**

*Adolescent and Young Adult Literature*

This course is an introduction to literature written for adolescents and young adults. It discusses the psychological needs of the young reader, addresses methods of evaluation and presentation, and familiarizes students with electronic resources in this field. Issues such as censorship, community standards, mass media and popular culture are also covered. Prerequisite: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

**EN 3017**

*The RamPages*

The RamPages is the College newspaper, and serves an important function by presenting interesting topics, exciting feature stories, and campus issues written by students in an atmosphere of editorial excellence. Students from all majors are encouraged to lead and contribute from their field of experience in the areas of editorial (feature stories, news, sports, op-ed, special sections), layout and design, advertising, sales, circulation, business administration, photography, and illustration. Students learn the different facets of putting together a print publication from blank page to finished product. RamPages is produced digitally in-house using Adobe PageMaker, Adobe Photoshop, and Microsoft Word and professionally printed with a local press — 1/2 credit, Pass/Fail

**EN 3020**

*Environmental Literature*

This course will study a variety of written works addressing the intricate and ever-changing relationship between humans and the natural world. Prerequisite: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

**EN 3027**

*The Cornucopia*

The Cornucopia is the College yearbook. Its object is to provide a lasting memento of the graduating students’ four years at the college. A copy of this publication is made available to all students who have attended the college that academic year. Time to be arranged by Department Chairperson — 1/2 credit, Pass/Fail

**EN 3030**

*Shakespeare*

The course attempts to take the student into depth on one author. It will look at the social background of Shakespeare’s time, his life, and his works. The course will also cover textual problems, methods of interpretation, and significant critical approaches. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits
Undergraduate Course Descriptions

EN 3031
Introduction to Film
The course will familiarize the student with film techniques and terminology. The history of film and
development of styles will be studied. The student will learn to demonstrate critical abilities in viewing,
discussion, and writing. Prerequisite: English I and II or Advanced English I and II. 2 hours Lecture and
Discussion and 2 hours Laboratory — 3 credits

EN 3037
The Gleaner
The Gleaner is DelVal’s literary and artistic journal. Students and faculty contribute poetry, short fiction,
photography, and art for publication. The Gleaner staff works closely with a professional printer and
gains hands-on instruction in layout and design techniques. The staff selects material, determines the best
layout, chooses student prize winners, and presents the journal and prizes at the annual Gleaner Gala. —
1/2 credit, Pass/Fail

EN 3040
Digital Photography and Editing
This course is designed to familiarize the student with the basic principles and techniques of digital photograph-
phy. Students will learn to use all of the features of a standard digital camera. Some of the areas of focus
will be: depth of field, lighting techniques, motion portraiture, composition, location analysis, and digital
image processing. Additionally, students will develop skills in digital photo editing and production for
projects with specific themes and applications. 3 hours — lecture and laboratory — 3 credits.

EN 3050
Contemporary Literature in English
In an effort to familiarize students with contemporary literature in English, texts will be studied from the
second half of the twentieth century and the beginning of the twenty-first. Works from Australia,
India, South Africa, the Caribbean, New Zealand, and Canada will be featured in addition to works from
America and England. Prerequisite: English I and II or Advanced English I and II. 3 hours lecture and
discussion — 3 credits

EN 3055
English Renaissance and Enlightenment Literature
The course emphasizes the inventiveness and human-
ism of the Renaissance period in dramatic and poetic
works. The shift to satire, the essay, and the inven-
tion of the novel are discussed in the second part of
the course. Major writers such as Shakespeare,
Milton, Pope, Swift, and Johnson will be emphasized.
Prerequisite: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

EN 3056
Technical Writing
This course introduces the student to technical writ-
ing, a form of communication that is employed on-the-job in the scientific and technological fields.
Topics include writing technical letters, memoranda,
resumes, instructions, proposals, and research reports.
The purpose of technical writing—to convey factual
information in an unambiguous way—demands clear,
direct and specific writing. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture — 3
credits

EN 3144
Writing for Public Relations, Promotion and Advertising
This course is designed to introduce the student to
the various kinds of writing used in public relations,
marketing, promotion, and advertising including
instruction in: preparing news releases, press state-
ments, feature stories, product articles, newsletters,
fund-raising literature, cover letters in direct mail cam-
paings, and annual reports. Emphasis will be placed
on writing and practicing marketing, public relations,
and advertising within the “new media” environment.
Prerequisites: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

EN 3235
Mass Communications
A course designed to introduce the fundamentals, the-
ories and impact of contemporary mass media. The
course surveys mass media systems with a focus upon
how they operate in American culture. Emphasis is
placed upon the contemporary growth of the print,
film, radio, television, and recording industries, and
on how these media have altered and influenced our
dives. 3 hours Lecture and Discussion — 3 credits

EN 3246
Writing for Radio, Television and the Internet
Students will examine the format, structure, pac-
ing, and style of scripts for radio, television and the
internet and will produce scripts representing at least
three genres. In addition, they will evaluate the role
of the script writer in the public media. Prerequisite:
English I and II or Advanced English I and II. 3 hours
Lecture and Discussion — 3 credits

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EN 3265  
**Creative Writing**

This course is aimed at two audiences: those who have a specific interest in creative writing and want to develop their skills further, and those whose primary interest is in interpreting literature. Literary texts and the students’ own experiences serve as the basis for writing. Prerequisite: English I and II or Advanced English I and II. 3 hours Lecture and Discussion — 3 credits

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EN 4010  
**Critical Theory**

By examining the history of literary criticism and selected texts by contemporary and older literary critics, this course acquaints the student with critical terms, schools of critical theory, analytic procedures and the history of criticism. Students will apply several critical methods to literary works. Prerequisite: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

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EN 4015  
**Video Production I**

This course introduces students to the techniques of single camera video production in a multimedia environment. Instruction will cover the production process from program conceptualization, script and storyboard development, preproduction planning, single camera field production non-linear editing and audio mixing. Students will work individually and in teams to complete assignments. 3 hours — lecture and laboratory — 3 credits.

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EN 4025  
**Video Production II**

This course helps students develop professional level skills in the production of video in a multimedia environment and produce a finished DVD program to be added to their professional portfolio. Students will build upon the basic skills learned in Digital Video Production I. These include advanced video editing, script writing, working with non-professional actors, DVD authoring, motion graphics, compositing and animation graphics. A significant portion of class will be devoted to the development and production of the students’ final project. 3 hours — lecture and laboratory — 3 credits.

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EN 4050  
**English Literature of the 19th and Early 20th Century**

British texts from major writers of the Romantic, Victorian, and Modern periods are highlighted in this class. The focus is on the major writers with an historical sequence to the course. Experimental works will be increasingly emphasized as the class approaches the contemporary period. Prerequisite: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

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EN 4055  
**Themes in Literature**

This course focuses on a particular theme in literature, allowing students a greater depth of approach than possible in other courses. The course will concentrate on an intriguing thematic area or author, such as the works of William Faulkner or war-protest literature. Pertinent historical and philosophical information will provide situational context for the theme’s development. Through reading and writing assignments, students will gain an appreciation of significant literary themes. Prerequisite: English I and II or Advanced English I and II. 3 hours lecture and discussion — 3 credits

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EN 4152  
**Seminar (English)**

As the capstone of the English major’s program, the student studies, under the guidance of a faculty member, a specific period or author. This tutorial approach culminates in the preparation of a paper of considerable length and quality and an oral defense of it. Prerequisite: English I and II or Advanced English I and II and senior standing. 3 hours Lecture and Discussion — 3 credits

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SR 4041  
**Student Research**

This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits
**EQUINE STUDIES**

**ES 1101**
**Stable Management**
An introductory level course designed to emphasize the management and practical care of equine facilities and horses. Topics include stable design, pasture management, preventive health care, basic first aid, nutrient requirements, feed quality and storage, financial considerations, and personnel management. Required management participation involves time commitments in addition to regularly scheduled class hours. 3 hours Lecture and 2 hours Laboratory — 3 credits

**ES 1102**
**Introduction to Equine Science**
This introductory level course covers the history and use of the horse along with the history of equitation. Students will study various equestrian disciplines and breeds with respect to their history, governing organizations, celebrated individuals, and current popularity. The class will examine the state of the horse industry today and trends to expect in the future. Additionally, the course will provide an overview of horse psychology, conformation and movement, functional anatomy, and genetics. 3 hours Lecture — 3 credits

**ES 1106**
**Equine Practicum I**
Students will take part in Equestrian Center operations, acquiring basic skills in stable management and facility maintenance. An integral part of this course is the development of a solid work ethic and teamwork skills. Students will be formally evaluated in these areas twice per semester. Each student will be assigned a horse for whose care they are responsible outside of regularly scheduled stable crew hours. Inspections will chart the students’ conscientiousness and progress in all facets of horse care. Essential horse management skills will be practiced and tested. This course incorporates the British Horse Society curriculum for practical management skills and theory for Stages I and II. 1 hour lecture and 3 hours Laboratory — 2 credits

**ES 1202**
**Equine Health Management**
The common infectious and non-infectious equine diseases, parasitism, lameness, and first aid are discussed in detail. Emphasis is placed on detection and early treatment of equine ailments. 3 hours Lecture — 3 credits

**ES 1205**
**Equestrian Event Management**
This course is designed to provide the future equine professional with the tools necessary to organize equine events, such as horse shows and clinics. Major topics include planning, financing, insurance, and advertising. Required activities outside of regularly scheduled class hours will be assigned. Students will assist in the planning and staging of Equestrian Center activities. 1 hour Lecture — 1 credit

**ES 1208**
**Equine Practicum II**
A continuation of ES 1106, see course description above. Prerequisite: Equine Practicum I. 1 hour Lecture and 3 hours Laboratory — 2 credits

**ES 2107**
**Equine Nutrition and Feeding**
The unique digestive anatomy and physiology of the horse are emphasized. The common roughage, concentrates, and commercial feeds used in the industry are discussed along with design of feeding programs to meet the needs of various groups of horses. 3 hours Lecture — 3 credits

**ES 2111**
**Horse Show Management**
The principles taught in this course are utilized to plan and present the annual Delaware Valley College Horse Show, as well as clinics and other equine activities. Project activities outside of regularly scheduled class hours will be assigned. Prerequisite: Equestrian Event Management. 1 hour Lecture — 1 credit

**ES 2118**
**Equine Massage and Therapy**
Material will be presented on massage techniques and applicable muscle physiology. Students will gain an understanding of equine anatomy, learn how to perceive reactive areas, plan remedial work, and practice various massage techniques on horses in the Equestrian Center. Adjunctive therapies will be introduced. 2 hours Lecture and 1 hour Laboratory — 2 credits

**ES 2210**
**Driving the Single Horse**
Students learn the basics of driving through use of the rein board, ground driving, and driving experienced horses. Safety and correct driving techniques are stressed. Knowledge of harness function and fit is emphasized. 1 hour Lecture and 2 hours Laboratory — 2 credits
**ES 2219**  
**Horse Breeding Management**  
A course designed to acquaint the student with the operation of a horse breeding farm. Teasing, breeding, foaling, mare and stallion care, and foal care are emphasized. Students manage the College’s breeding facility. Required management participation involves time commitments, in addition to regularly scheduled class hours. Offered in the Spring semesters. 2 hours Lecture and 3 hours Laboratory  
— 3 credits

**ES 2250**  
**BHS Stage 2 Exam Prep**  
This course is designed to prepare horsemen and women for the BHS Stage 2 Examination or higher which includes horse management, training, and riding. The course will include lectures and practical hands-on experience. Students will use the BHS testing outlines as guides and receive instruction in theory, lunging, and riding. The course will take place at the DelVal Equestrian Center and students will be required to follow all rules, regulations, and dress codes of the center. Offered in the Spring Semesters. 1 hour lecture and 2 hour laboratory. 2 credits

**ES 2450**  
**Equine Behavior**  
Students explore the human-horse relationship and equine behavior through the study of evolution, sensory physiology, learning processes of the horse, and different training techniques. Students are provided with the principles necessary to develop a relationship between themselves and the horse and create a foundation for further exploration into the complex behaviors of the horse. 3 hours Lecture and Demonstration/Discussion — 3 credits

**ES 3123**  
**Intermediate Driving**  
This course is a continuation of Driving the Single Horse. Students will strive to improve their skills with increased driving time, more advanced rein handling, and the opportunity to drive horses in different levels of training. Prerequisite: Driving the Single Horse. 4 hours Laboratory — 2 credits

**ES 3210**  
**Teaching Techniques**  
In this course, students will build upon the foundation gained in Introduction to Equine Instruction. Lectures will focus upon effective lesson planning and execution. Students will be exposed to alternative schools of thought, teaching methods, and instruction techniques. During the lab portion of the course, each student will execute their lesson plans under the supervision of the course instructor. Offered in the Spring Semesters. Prerequisite: Introduction to Equine Instruction. 1 hour Lecture.— 3 credits

**ES 3217**  
**Equine Anatomy and Physiology**  
This course is designed to acquaint the student with the anatomy and physiology of the horse. Special emphasis is placed on the anatomical and physiological conditions of the performance horse. 3 hours Lecture — 3 credits

**ES 3218**  
**Introduction to Equine Instruction**  
This course is designed to prepare potential riding instructors, introducing fundamentals of teaching in regard to teaching philosophy, learning psychology, riding theory, and powers of instruction. Practice teaching will be included. Labs are designed to prepare students for CHA and BHS Instructor Certifications. Required observations outside of regularly scheduled class hours will be assigned. Offered in the Fall Semesters. Prerequisites: Basic Schooling and Principles of Jumping. 2 hours Lecture & 2 hours Laboratory — 3 credits

**ES 3221**  
**Judging and Course Design**  
An intermediate level course which provides a basic understanding of judging both horse and rider performance. Students compare and contrast judging criteria and scoring systems for hunters, jumpers, eventing, and dressage performance divisions, as well as for hunter and dressage breeding divisions. Offered in Spring Semesters. 2 hours Lecture — 2 credits

**ES 3222**  
**Equine Exercise Physiology**  
Students will study the physiological responses to exercise and training in normal horses. This course involves a survey and the critical evaluation of the current concepts regarding the physiological and environmental factors associated with exercise in the horse. Physiological adaptations are applied to practical training situations so that students understand the basic requirements of training programs and are equipped with the knowledge to carry out exercise testing in order to monitor fitness. Prerequisite: Anatomy and Physiology of Animals or Equine Anatomy and Physiology. 3 hours lecture — 3 credits
Undergraduate Course Descriptions

**ES 3000 or 4000**  
*Selected Topics in Equine Studies*  
Special projects designed to meet individual needs of senior students in specialized fields within equine studies. Projects will be arranged with a department faculty member and the approval of the department chairperson. Prerequisite: Permission of the Department Chairperson. Minimum 3 hours of effort per week per credit — limited to 2 credits

**ES 3371**  
*British Horse Society Stage 3 Exam Prep*  
This course is designed to prepare horsemen and women for the BHS Stage 3 Exam in both Horse Knowledge & Care as well as Riding. Students must have a strong foundation of equine knowledge and riding experience prior to entering this class. Students will learn and demonstrate skills in horse handling, care, practical skills, time efficiency, and riding a variety of horses. Such skills are meant to build upon those developed at the previous level of BHS Stage 2 Exam. Students preparing for the BHS Stage 3 Exam will be more effective in improving the horse’s way of going and analyzing aspects of horse care and stable management practices. Pre-requisites: BHS Stage 2 Horse Knowledge & Care and Riding Certificates. 1 hour lecture and 2 hours laboratory – 2 credits

**ES 4018**  
*Training and Conditioning*  
This course explores the horse’s nature and learning mechanisms with particular reference to the governing influence upon training philosophy and methodology. Emphasis is placed upon working horses from the ground as opposed to riding theory. Students will relate classical training principles endemic to all sport horse disciplines. Topics to be discussed will include longing techniques and use of various auxiliary equipment, starting the young horse, long reining and work-in-hand, dealing with the problem horse, therapeutic options to maximize the sport horse’s performance capabilities, and conditioning theory and approaches. 2 hours Lecture and 2 hours Laboratory — 3 credits

**ES 4222**  
*Equine Business Management*  
This senior level course requires the student to draw upon previous equine and academic courses, as well as their personal experiences. Topics covered in this course include proper documentation and record-keeping, facility design, operation, and management, insurance and risk management, marketing and advertising, financing, tax planning, and the law as it applies to the horse industry. Throughout this course students will research and develop a comprehensive business plan for an equine venture of their choice. 3 hours Lecture — 3 credits

**ES 4290**  
*Senior Seminar in Equine Business*  
This senior level course will explore issues related to current industry trends in equine business. Topics covered will include management practices of employees and working students, risk management, contracts, marketing and web design specific to equine businesses, among others. Students will gain a greater understanding of how to utilize various sources to aid in business planning, as well how to compile and defend a comprehensive business plan. Prerequisite: Senior status or permission of instructor. 3 hours lecture and discussion – 3 credits

**ES 5000**  
*Hartpury Exchange*  
A semester exchange with Hartpury College in Gloucestershire, U.K. for qualified juniors in the Equine Studies majors. Students will pursue modules in pertinent areas selected in consultation with program advisors. Optional modules may include: Equitation, Grassland Management, Equine Therapy, Equine Behavior, Stud Management, and Applied Equine Nutrition. Prerequisites: 3.0 GPA, application to the Exchange, and approval of Hartpury Selection Committee.

* These courses are for Equine Studies students only.

**Riding Skills Course Descriptions**  
Equine Studies students are placed into riding skills courses according to their level of riding skill. All classes consist of practical skills application along with integrated readings and assignments correlating pertinent theory. All Riding Skills students are required to undertake written exams on theory as well as performance tests. Small class size maximizes individual attention and builds trust between student, instructor, and horse. Students are expected to care for their horses and tack before and after each lesson. Once the required credits of Riding Skills are fulfilled, these courses cannot be taken as electives. Students are expected to achieve by graduation a minimum competency level of Flatwork and Gridwork I. 4 hours Laboratory — 2 credits for each course.

**ES 2032**  
*Fundamentals of Flatwork and Jumping I*  
A course for the novice rider, establishing proper position, balance, and use of the aids, both on the
flat and over cavaletti and small fences. Emphasis will be placed upon security, non-interference, and an understanding of the horse. Students will learn basic schooling figures.

*ES 2033
Fundamentals of Flatwork and Jumping II
For the rider who is secure on the flat, but has had little jumping experience. Flatwork skills will be strengthened, including work without stirrups. Students will gain more confidence at the canter and over a simple jump course.

*ES 2034
Balanced Equitation I
An introduction to basic concepts of balanced seat equitation for all disciplines, using the principles of Centered Riding. Emphasis will be placed upon acquiring a balanced, supple position on the flat and over poles with limited work over fences. Centered Riding techniques use body awareness and imagery to decrease tension and increase effectiveness.

*ES 2035
Basic Schooling
This class offers an introduction to classical schooling theory for the intermediate rider. At this level emphasis will shift to influencing the horse. Concepts of contact, bending, and improving the horse’s balance will be the primary focus, with students becoming acquainted with rhythm, suppleness, impulsion, and riding the horse from leg to hand. By semester’s end, students should be able to maintain a consistent frame, thereby improving the horse’s way of going.

*ES 2036
Flatwork and Gridwork I
Flatwork and Gridwork is an intermediate course which provides the rider the opportunity to gain more strength and control over fences while polishing the flat work introduced in Basic Schooling. Prerequisite: Basic Schooling.

*ES 2037
Principles of Jumping
A medium level jumping course emphasizing the relationship between work on the flat and over fences. Students will progress from cavaletti exercises and jumping grids to jumping small courses. Elements of successful show ring riding will be introduced step-by step such as riding lines, related distances, bending lines, and jumping off of turns. This course is geared towards Hunter Seat Equitation. Prerequisites: Basic Schooling.

*ES 2038
Intermediate Dressage
A more intensive study of riding as art and as correct development of the horse. Students will be exposed to the principles of the dressage training pyramid, with emphasis upon developing engagement, straightness, and suppleness. Lateral movements will be introduced toward the end of the semester. Prerequisite: Basic Schooling.

*ES 2039
Flatwork and Gridwork II
This is a course for the high intermediate rider in which they can further practice the jumping skills acquired in Principles of Jumping while polishing the flat work introduced in Intermediate Dressage. Prerequisites: Principles of Jumping and Intermediate Dressage.

*ES 2040
Comparative Techniques in Jumping
A course for the more advanced rider, comparing the riding styles and training methods necessary to prepare the horse for hunter shows, horse trials, and cross-country competitions. Introduction to cross-country jumping, riding over undulating terrain, and natural obstacles will be introduced. Students will explore conditioning techniques and pacing, and will practice more complicated jumping combinations and schooling techniques. Prerequisites: Flatwork and Gridwork II.

*ES 2041
Advanced Methods of Training
A course for the experienced rider focusing upon advanced techniques and gymnastic exercises designed to promote the horse’s athletic development. Complex schooling patterns and lateral work will be practiced. Prerequisite: Intermediate Dressage.

*ES 2042
Balanced Equitation II
An intensive riding skills development course, focusing on improving the rider’s posture and effectiveness. The course emphasizes kinesthetic awareness, postural realignment, and elimination of muscular tension to produce a more effective seat. Students are taught to redirect unnecessary tension into useful energy.
Undergraduate Course Descriptions

*ES 2043
Special Training Project
For the advanced student, in the junior or senior year, who wishes to pursue a training or rehabilitative project with a selected horse, or who would like to train intensively for open competition. Past projects have included the Art and Etiquette of Side Saddle, Starting a Young Horse, Training and Preparing a Young Hunter, Reconditioning/Rehabilitation Project, Advanced Driving, Preparing for Novice Horse Trials. Prerequisite: Permission of the department chairperson.

*ES 2044
Hartpury Riding Students
Open only to Hartpury Exchange students studying in the Equine Studies Program at Delaware Valley College.

* These courses are for Equine Studies students only.

SR 4041
Student Research
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

FOOD SCIENCE, NUTRITION, AND MANAGEMENT

FS 1123
Introduction to Foodservice Systems
An introduction to the field of restaurant and foodservice management. Included is a discussion of the history of foodservice, the different types of foodservice operations, career opportunities available, future trends, and management. 3 hours Lecture — 3 credits

FS 1130
Food, Culture and Cuisine
A study of foods from cultures of a diverse range of countries by examining the foods they produce and their culinary traditions and practices. Lecture includes the respective geography, crop production, religion, history and sociology of each region. Preparation of ethnic meals in the laboratory is part of the ethnographic study of each region. The student will develop a sophisticated understanding of how the values and ways of life of peoples around the globe relate to the development of various foods. There is a fee for ingredients used in the course. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 1203
Science and Technology of Foods
This course explores the application of science and technology to foods. The goal of this course is for students to gain a basic understanding of molecular components of foods, relationships between food composition and food structures and functions, and the relationships of molecular properties to food characteristic and quality. The interaction, reaction, and evaluation of foods due to formulation, processing and preparation are considered. The economic, culinary performance, nutritional and food safety issues that relate to the processing and marketing of foods are also considered. Lectures elucidate the role of engineering, biotechnology, chemistry, biochemistry, nutrition, toxicology, and microbiology in supplying the world with safe and nutritious food. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 1205
Principles of Professional Cooking
This course will provide a foundation of fundamental knowledge of standards, principles, and techniques required for food production. The physical characteristics of food components are introduced as students learn their selection, care, and preparation. Emphasis is placed on foodservice terminology and quantity production. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 2110
Meal and Menu Planning
This course applies the principles of meal planning and menu layout to develop appropriate and well made nutritious meals for a variety of food service facilities and services. This course will emphasize the costing of food, nutritional value related to menu planning and portion control as a means of nutritional planning — 3 credits
FS 2116  
**Physical Sciences and Food**  
The objective of this course is to illustrate to the student how the physical sciences are applied to the evaluation and processing of foods. Students will also work with computational methods, which are applied in technical work, and develop skills in writing technical reports. Prerequisite: Elementary Functions. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 2212  
**Sanitation Management**  
Topics covered in this course include: the microbiology of sanitation; communicable diseases associated with foods; insect and rodent control; chemistry of detergents and sanitizers; water and wastewater treatment; plant and equipment design; HACCP systems in food processing and foodservice; personnel training and motivation. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 3000, 4000  
**Selected Topics I and II**  
Special projects designed to meet individual needs of students in the specialized fields of food and agriculture. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the department chairperson. 3 hours of student/faculty instruction per week — 1 credit each

FS 3110  
**Macronutrients, Vitamins and Minerals**  
This course prepares students to examine the physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. It will further examine metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans.

FS 3120  
**Introduction to Nutrition**  
Chemical composition of nutrients, their digestion, transport and metabolism, and their occurrence in foods are introduced. Nutrition throughout the life cycle is discussed, as well as topics of current interest such as sports nutrition and relationship of diet and behavior. 3 hours Lecture — 3 credits

FS 3122  
**Food Engineering I**  
This course introduces the student to mass and energy balances, and the concept of unit operations. Emphasis is placed on the solution of problems using data from different sources. Topics covered include fluid mechanics, heat transfer, and mass transfer. Prerequisite: Physics II or Physical Sciences and Food. 2 hours Lecture and 2 hours Practicum — 3 credits

FS 3123  
**Food Engineering II**  
A continuation of Food Engineering I. Topics include unit operations such as aseptic processing, drying, evaporation, filtration, membrane separation, size reduction, extrusion, particle size analysis, and refrigeration; consideration of electricity and its uses will be included. Prerequisite: Food Engineering I. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 3125  
**Purchasing, Storage, and Handling of Foods**  
The fundamentals of food service purchasing are introduced in this course. The functions of fore-
Undergraduate Course Descriptions

casting, ordering, purchasing, delivery, receiving, storage, inventory control, and legal responsibilities are discussed. Specifications, quality control and storage are discussed for individual food and non-food products. Prerequisite: Introduction to Food Service Systems or permission of Instructor. 3 hours Lecture — 3 credits

FS 3226
Service Systems Management
This course covers typical “front of the house” operations of the dining room: organization of the dining room, service styles, beverage and alcohol service, cashiering and payment management, and supervision and staff training. Prerequisite: Introduction to Food Service Systems or permission of instructor. 3 hours Lecture — 3 credits

FS 3227
Foodservice Accounting and Cost Control
This course builds on the introductory management and accounting courses so that the student will be able to interpret, plan, and activate food, beverage, and labor cost control systems. Prerequisite: Principles of Accounting I or Accounting Fundamentals. 3 hours Lecture — 3 credits

FS 4004
Industrial Fermentations
This course introduces the student to the principles involved in bioreactor design and the separation and concentration steps which are used to purify the product. Applications such as: biomass, alcohol, organic acids, enzymes, and antibiotics are considered. Prerequisite: Biochemistry or permission of Instructor. 3 hours Lecture — 3 credits

FS 4010
Introduction to Winemaking
This course introduces the student to wine grape varieties, history, their growth, factors which affect quality and the basic steps in winemaking. Prerequisite: Age 21 and Senior status. 2 hours Laboratory — 1 credit

FS 4015
Waste Treatment and Control
This course surveys techniques for evaluating, modifying and disposing of industrial wastes. Emphasis is on the handling of solid and liquid wastes produced by agricultural and food processing activities. 2 hours Lecture — 2 credits

FS 4041
Senior Research
Selected seniors engage in supervised investigations involving library work and laboratory or field experiments related to the food industry. Requirement: Permission of Department Chairperson — 1-3 credits

FS 4042
Sensory Evaluation of Foods
This course covers the physiology, psychology and chemistry of sensory response; the principles and application of discriminative, descriptive and preference testing; objective methods of food evaluation related to sensory properties of foods; selection and training of panelists; data analysis and interpretation. 1 hour Lecture and 3 hours Laboratory — 2 credits

FS 4112
Principles of Food Processing and Preservation
This course covers the background of food processing and maintenance of nutritive quality; general characteristics of raw food materials; principles of food preservation; processing factors that influence quality; packaging; water and waste management; and sanitation. The principles of science and the engineering rationale of various processing systems and their unit operations are explored. Preparation and preservation of perishable foods by modified atmosphere, low temperature, thermal processes, dehydration and other processes are discussed in relation to processing variables. Topics included are: control of microbiological, chemical and physical deterioration; physical, chemical and nutritional changes in food; and the equipment and packaging used in food preservation. Concluding lectures will cover management approaches to assuring efficiency of energy usage, quality maintenance, and product safety in the processing. 3 hours Lecture — 3 credits

FS 4119
Food Distribution Systems
This course emphasizes the methods used to channel fresh and processed foods from producer to consumer. The areas discussed include assembling, transportation, warehousing and distribution to the retail level. 3 hours Lecture — 3 credits

FS 4126
Food Analysis
This course introduces the student to common methods of analysis used in the food industry. The properties of food components and reasons for testing are discussed as related to the tests used. Instrumental and “wet” methods will be covered. Emphasis is
placed on the basic principles involved in the analytical procedure. Prerequisite: Food Chemistry or Permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 4131
Foodservice Facilities and Equipment
A discussion of the selection and use of foodservice equipment. Features and special uses of the equipment will be discussed along with basic operation, cleaning and maintenance. Also included will be purchasing of new and used equipment, equipment design, and basic kitchen design. Prerequisite: Introduction to Food Service Systems or Permission of Instructor. 3 hours Lecture — 3 credits

FS 4149
Quality Assurance and Regulation
This course focuses on an examination of statistical tests, interpretations and sample plans as applied to the control of food production systems and product evaluations. The requirements placed on quality assurance systems to insure compliance with regulatory mandates are covered. Particular attention is given to documents for the Food and Drug Administration, the Food Safety and Inspection Service and the Agriculture Marketing Service. Other regulatory laws that impact the food industry are examined. 2 hours Lecture and 2 hours Laboratory — 3 credits

FS 4200
Medical Nutrition
This course will examine the application of nutrition principles to the pathophysiological and biochemical changes associated with endocrine, cardiovascular, and gastrointestinal tract diseases. The application of nutrition principles and practices relating to the pathophysiological and biochemical changes associated with sepsis, burns, and trauma as well as renal, respiratory, and immune system diseases will be studied to give the student a general overview of the relationship of nutrition and medicine.

FS 4212
Refined Foods and Food Ingredients
Food ingredients derived from plant materials and food products manufactured from those ingredients are the topics of this course. Starches and sweeteners, fats and oils, spices, as well as the manufacture of snack foods, confections, baked products, and nonalcoholic beverages will be discussed. 2 hours Lecture and 3 hours Laboratory — 3 credits

Undergraduate Course Descriptions

FS 4213
Introduction to Brewing Science
This course introduces the student to the basic methods of producing a malt beverage and the factors which influence beverage quality. Prerequisite: Age 21 and senior status. 2 hours Laboratory and Discussion — 1 credit

FS 4222
Quantity Food Production
In this course, the student is introduced to the principles and practices of production management. Students perform all aspects of meals, including planning, ordering, preparing and presenting. Quality control is stressed. Prerequisite: Principles of Professional Cooking. 2 hours Lecture and 3 hours Laboratory — 3 credits.

FS 4223
Seminar (Food Science)
A review and discussion of the literature concerned with advancements in the food industry are features in this course. Prerequisite: Senior standing or permission of instructor. 1 hour Lecture and Discussion — 1 credit

FS 4224
Food Product Development
Criteria considered in the development and production of a food product are the topics of this course. The format of the course is designed to draw upon and expand by application material from the Food Science areas of chemistry, nutrition, microbiology, statistics, and engineering. Sensory evaluation, packaging, and engineering economics will also be introduced. Prerequisite: Senior status in Food Science or Food Technology specializations or permission of instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits

FS 4228
Meat and Meat Products
A study of slaughtering, post mortem handling, meat fabrication, and further process and package systems. The microstructure and microbiology of meats is covered in conjunction with meat inspection, safety systems and quality evaluation. 2 hours Lecture and 3 hours Laboratory — 3 credits
Undergraduate Course Descriptions

**FS 4229**  
**Foodservice Marketing Strategy**  
This course takes the traditional marketing concepts and applies them directly to the restaurant and foodservice industry. Current trends and consumer behavior are discussed along with the importance of menu design and pricing, advertising, and promotions. Prerequisite: Principles of Marketing or permission of Instructor. 3 hours Lecture — 3 credits

**FS 4232**  
**Legal Aspects of Foodservice Management**  
This course is designed to help food service managers and owners prevent legal problems, or minimize the harmful effects of legal situations. Federal, state, and local laws and regulations are discussed on topics including liability, patron civil rights, employee relation, contracts, and security. How to choose and work with an attorney will also be discussed. 3 hours Lecture — 3 credits

**SR 4041**  
**Student Research**  
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

**NATURAL RESOURCES AND BIOSYSTEMS MANAGEMENT: HORTICULTURE MAJOR**

**PS 1101**  
**Exploring Horticulture, Science and the Environment**  
The objectives of this course are to define the field of horticulture, to indicate what horticulturists produce, to explore the various disciplines and areas of specialization and the challenging career opportunities in business, science, education and industry. 2 hours Lecture — 2 credits

**PS 2003**  
**Fruits and Vegetables for Food, Fun and Profit**  
This course discusses how horticulture is a delicious, healthful diet source, gardening pastime, physical fitness routine, science, business, profession, art, industry, and a life sustaining career learning experience. 1 hour Lecture — 1 credit

**PS 2005**  
**Plant Physiology**  
A study of the life processes of plants with laboratory experiments designed to illustrate the physiochemical principles controlling plant growth. Prerequisite: Botany of Vascular Plants. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2101**  
**Botany of Vascular Plants**  
A survey of the Plant Kingdom with emphasis on vascular plants. Principles of seed plant structure and function are presented with stress on the plant’s relationship to its environment. Prerequisites: Biological Science I. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2112**  
**Commercial Fruit Production**  
A study of the commercial production and handling of the deciduous tree fruit crops. Production and marketing of fruits are studied in reference to the selection of sites, soils, choice of varieties, plants, pruning, cultivation, fertilization, pests, spraying and dusting, harvesting, grading, packing, storing, and marketing. Non-majors must have permission of the department chairperson. 2 hours Lecture and 3 hours Laboratory — 3 credits
**PS 2211**  
*Commercial Vegetable Production*  
A study of the culture of the principal vegetable crops, emphasizing production of vegetable plants in hotbeds, coldframes, greenhouses and fields, variety choice, soil adaptation, planting, fertilization, cultivation, pest control, harvesting, storage and marketing. Non-majors must have permission of the department chairperson. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 2235**  
*Principles of Sustainable Agriculture*  
The course in sustainable agriculture embraces several variants of non-conventional agriculture (alternative, regenerative, ecological, low-input) and pulls together these practices into systems that are profitable and environmentally sound. It addresses the serious problems of high energy costs, groundwater contamination, soil erosion and risks to human health and wildlife from pesticides. 2 hours Lecture and Discussion — 2 credits

**PS 2240**  
*Organic Crop Science*  
This course provides the student with practical experience in the organic production of fruits, vegetables, herbs, ornamentals, field crops and turf. Environmental, social, and political issues concerning organic crop production will be addressed. Comparisons to conventional production will be made. 2 hours lecture and 3 hours Laboratory — 3 credits

**PS 3000, 4000**  
*Selected Topics I and II*  
Special projects designed to meet individual needs of students in the specialized fields of agriculture. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the department chairperson. Total Selected Topics credit accepted toward graduation limited to 2 credits. 3 hours student/faculty instruction per week — 1 credit each

**PS 3025**  
*Plant Cell and Tissue Culture*  
This course studies both applied and fundamental aspects of *in vitro* culture of plant cells, tissues, organs and plants. Information about equipment, procedures, and training in the techniques of establishing and maintaining plant cell and tissue cultures will be covered. Prerequisite: Plant Physiology or Microbiology. 1 hour Lecture and 3 hours Laboratory — 2 credits

**PS 3128**  
*Horticulture Techniques I*  
Scientific investigations and techniques relative to horticultural crop production and management are thoroughly reviewed and tested, using the extensive laboratory, greenhouse and field facilities available. Particular emphasis is placed on techniques used in plant acquisition, selection, and field and orchard layout, and in the management, harvesting, and storage of horticultural crops. *Required for Horticulture students in the junior year.* Prerequisite: Information Technology Concepts and Computer Applications. 1 hour Lecture and 3 hours Laboratory — 2 credits

**LAES 3132**  
*Dendrology*  
This covers the identification, ecological adaptation, distribution and use of both native and introduced woody trees and shrubs. The laboratory includes identification and adaptation studies during the different seasons of the year. Not open to Ornamental Horticulture majors. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 3134**  
*Fruit Judging*  
This course enables students to identify fruit cultivars based upon their physical characteristics. Students also learn how to evaluate fruit quality and to grade fruit according to USDA standards. 2 hours Lecture and Practicum — 1 credit

**PS 3204**  
*Small Fruit Culture*  
This course is concerned with the theory and practice of commercial production of small fruits, such as grapes, strawberries, raspberries, blackberries, currants, gooseberries, cranberries, and blueberries. Prerequisite: Commercial Fruit Production or Permission of Department Chairperson. 2 hours Lecture and 3 hours Laboratory — 3 credits

**HT 3205**  
*Subtropical Horticulture*  
The course features a spring tour of growing operations, processors, extension research sites, and universities in Florida to enable students to examine the culture, processing and handling of tropical and subtropical horticultural crops and to learn firsthand about current research and emerging trends in these areas. Prerequisite: Junior or senior status. Scheduled by arrangement — 2 credits
Undergraduate Course Descriptions

**PS 3229**
*Horticulture Techniques II*
This course introduces advanced horticultural techniques through the study and use of modern equipment and instruments. Qualitative and quantitative determinations as well as statistical analyses are made by the student on a generally independent basis. Development of food products is studied in conjunction with field trips to industry plants. Required for Horticulture students in the junior year. Prerequisite: Information Technology Concepts and Computer Applications. 1 hour Lecture and 3 hours Laboratory — 2 credits

**PS 3231**
*Hydroponics*
This course is designed to acquaint the student with the general principles of hydroponic crop production. Topics covered include the essential elements required for plant growth, currently employed hydroponic systems and techniques, and cultural practices employed in hydroponic greenhouse production of such crops as tomatoes, cucumbers and lettuce. Prerequisites: General Chemistry I and II. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 3238**
*Taxonomy of Horticultural Food Products*
This course covers identification, classification (botanical, horticultural and commercial), morphology and importance of fresh and processed fruits, vegetables and nuts. Specific product characteristics are examined in relation to quality, condition, storage, availability and grade standards. Product terminology and techniques used by scientists, growers, business managers and government specialists are emphasized. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 3240**
*Integrated Pest Management*
An introduction to the principles and techniques applied in an integrated pest management program. The objective of the course is to enable the student to become knowledgeable about the natural and supplemental control measures that can be employed to control insects, diseases, and weeds in an integrated pest management program. Prerequisite: Entomology. 3 hours Lecture — 3 credits

**PS 4005**
*Plant Pathology*
This course covers the history, distribution, disease symptoms, etiology, epiphytology, and control of the more common plant pathogens. Laboratory techniques include isolation, culture, and identification of plant pathogenic bacteria, fungi, and nematodes. Appropriate pathogens are emphasized each semester. Prerequisites: Botany of Vascular Plants and Plant Physiology. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 4041**
*Senior Research*
Selected seniors engage in supervised investigations involving library work and laboratory or field experiments related to horticulture. Prerequisite: Permission of the Department Chairperson — 1-3 credits

**HT 4105**
*Seminar (Horticulture)*
This course centers on the current events and experimentation in fruits and vegetables as well as students’ organizational and public speaking skills. Each student is expected to participate in a major presentation and discussion of subjects pertaining to research and current events in horticulture. The course also involves the use of media, interview techniques and resume preparation. 1 hour Lecture and Discussion — 1 credit

**PS 4106**
*Marketing Horticultural Products*
An advanced study of modern techniques in the marketing of fruits, vegetables, and ornamentals. Illustrated lectures, discussion periods and research reports are supplemented by laboratory field trips to various types of retail and wholesale facilities for marketing of processed and fresh market products as well as floral and landscaping operations. 1 hour Lecture and 3 hours Laboratory — 2 credits

**PS 4113**
*Advanced Vegetable Production*
An advanced study designed to acquaint the student with the application of scientific facts and principles as well as commercial trends and applications involved in the successful production, utilization and marketing of the important vegetable crops. Prerequisite: Commercial Vegetable Production. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 4126**
*Applied Production in Horticulture*
This course is designed to provide the horticulture production intern with a background in the applied techniques for fruit and vegetable production. The student will focus on one aspect of production and develop an innovative idea for the possible improvement of current college practices. An oral presentation and written report will be given. Applied
courses in horticulture may be taken one time only. Prerequisite: Student must be currently enrolled in the Horticulture Production Internship. Work experience during the Fall Semester cannot be used for the Experiential Learning Program. Scheduled by arrangement — 1 credit

PS 4127
Applied Marketing in Horticulture
This course is designed to provide the horticulture Marketing intern with a background in the applied techniques for marketing fruit and vegetables. The student will focus on one aspect of marketing and develop an innovative idea for the possible improvement of current college practices. An oral presentation and written report will be given. Applied courses in Horticulture may be taken one time only. Prerequisite: Student must be currently enrolled in the Horticulture Marketing Internship. Work experience during the Fall Semester cannot be used for the Experiential Learning Program. Scheduled by arrangement — 1 credit

PS 4132
Principles of Plant Protection
This course is designed to develop a basic understanding of methods of control of insect pests, plant diseases, and weeds. Emphasis is placed on the identification of common pest insects, plant diseases and weeds and the selection of appropriate control agents. Safe handling and disposal of pesticides are important components of the course. The course is also designed to prepare students for pesticide applicator certification. Not open to Horticulture majors. 2 hours Lecture and 2 hours Laboratory — 3 credits

PS 4202
Advanced Pomology
This course presents an advanced study of the preharvest and post-harvest physiology, breeding and nutrition of deciduous fruit plants. Illustrated lectures are based on the latest research findings supplemented by laboratory periods in which research projects and advanced field techniques are studied and undertaken. Prerequisite: Commercial Fruit Production. 2 hours Lecture and 3 hours Laboratory — 3 credits

PS 4204
Plant Pest Management
This course is concerned with the recognition and methods of control of insects, fungi and weeds which adversely affect agriculture and the health and welfare of man. Prerequisites: Entomology and Principles of Organic Chemistry. 2 hours Lecture and 3 hours Laboratory — 3 credits

Undergraduate Course Descriptions

PS 4225
Plant Disease Diagnosis
This course provides the student with intensive laboratory experience in: the identification of plant pathogens, plant disease diagnosis, and plant disease control as well as, a focus on the physiology of the host-parasite interaction, plant disease resistance, and disease appraisal. Prerequisite: Plant Pathology. 2 hours Lecture and 3 hours Laboratory — 3 credits

SR 4041
Student Research
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

LIBERAL ARTS

LA 0040
A-Day Leadership Laboratory
The student leaders who manage the College’s annual “A” Day exposition may earn credit for their management role; 1/2 credit per semester of leadership participation; may be accumulated to a maximum of 4 semester credits. Pass/Fail

LA 1015
Music Appreciation
The music of each period of history is interpreted and analyzed with a view of understanding and appreciating our musical heritage. Illustrations for the works of the great composers are presented to assist in the establishment of criteria for evaluating music. 3 hours Lecture and Discussion — 3 credits

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Undergraduate Course Descriptions

LA 1020
Skills for College Success
The goal of this course is to improve students’ learning abilities and to sharpen the ability to think clearly, logically, critically, and effectively. This course is also an introduction to the ideals and values of the academic community. Students will also learn about the key abilities and dispositions of a liberally educated person. Required for freshmen who entered the college in the fall of 2008 and after. 1 hour Discussion — 1 credit.

LA 1058
Community Concert Band
This course provides students the opportunity to develop their musical skills through the study and performance of selected works for concert band. Performances are held on campus throughout the school year. 2 rehearsals per week — 1 credit per semester

LA 1059
Chorale
This course provides students the opportunity to develop their musical skills through the study and singing of selected choral literature from various periods of music history. Performances are held on campus throughout the school year. 2 rehearsals per week — 1 credit per semester

LA 1060
Introduction to the Fine Arts
This course studies the music of each period of history. Illustrations from the works of the great composers are presented to assist in the establishment of criteria for evaluating the music. One field trip is taken to The Philadelphia Academy of Music for the purpose of studying the orchestra in a rehearsal setting. This course also examines painting, sculpture, and architecture in history to increase the student’s ability to interpret and appreciate works of art. 3 hours Lecture and Discussion — 3 credits

LA 1112
Spanish I
A study of basic grammar and vocabulary with oral and written exercises that include conversation and composition. 3 hours Lecture and Discussion — 3 credits

LA 1113
French I
Students develop a skill for recognizing cognate words using idiomatic expressions and acquire a basic vocabulary enabling them to read aloud with understanding, to pronounce accurately, to recognize and use appropriate grammatical structure, and to write and translate sentences for composition. 3 hours Lecture and Discussion — 3 credits

LA 1160
German I
Instruction and practice in understanding and speaking the German language with stress on sentence structure, inflections, vocabulary, and pronunciation. 3 hours Lecture and Discussion — 3 credits

LA 1212
Spanish II
A continuation of the study of basic grammar and vocabulary with emphasis on spoken and written Spanish, including the reading of carefully graded Spanish texts. Prerequisite: Spanish I. 3 hours Lecture and Discussion — 3 credits

LA 1214
French II
Students will refine skills of vocabulary-building, speaking, reading, and translating. Prerequisite: French I or equivalent. 3 hours Lecture and Discussion — 3 credits

LA 1223
Campus Leadership Training
This course is designed to provide a framework for developing leadership skills. The training emphasizes active communication, team building, intervention strategies, decision making, and problem resolution. Students wishing to apply for campus leadership positions including Peer Advisors, Resident Assistants, Diplomats and Student Government leaders are encouraged to take this course. The course is open to second semester freshmen, as well as sophomores and juniors. 1 hour per week — 1 credit, Pass/Fail

LA 1225
Critical Thinking
The goal of this course is to sharpen ability to think clearly, logically, critically, and effectively. Thinking effectively is also necessary to communicate effectively, solve problems and to make the best choices. This course is designed to increase and focus your thinking abilities by using a variety of methods - lectures, class discussions, readings, written assignments, problem-solving activities, and examinations. Success in the course depends on the student’s willingness to commit to developing the thinking potential that he or she possesses. May be required for transfer students who entered the college in the fall of 2008 and after. 1 hour Lecture — 1 credit
LA 1261
German II
Instruction and practice in understanding and speaking the German language with increasing emphasis on reading and writing the language. Prerequisite: German I or Equivalent. 3 hours Lecture and Discussion per week — 3 credits

LA 2005
Speech
Experience is stressed in preparation, delivery, and criticism of speeches on a variety of topics. Speeches include personal experiences, manuscript readings, demonstration, informative, and persuasive with a goal of attaining extemporaneous skill in delivery. 3 hours Lecture and Discussion — 3 credits

LA 2012
Introduction to Sociology
This course covers the nature and functioning of human culture, with special attention to the problems of modern Western society. The course centers upon the interaction of individual persons and the social groups in which they have membership. 3 hours Lecture and Discussion — 3 credits

LA 2036
Introduction to Psychology
A study of the general subject matter in the field, including: child psychology, heredity and environment, individual differences, the nervous system, personal adjustment, human development, intelligence, mental processes, and abnormal behavior. 3 hours Lecture and Discussion — 3 credits

LA 2040
Modern History of Western Societies
This course provides a comparative history of modern Western civilization, beginning with the era of scientific, political and industrial revolutions, since the 16th century. Through the discussion and analysis, the student should gain a deeper understanding of the modern Western world and how it came to evolve. 3 hours Lecture and Discussion — 3 credits

LA 2042
Introduction to Philosophy
This course is a historical approach to Western philosophy. Major figures from the Greeks to contemporary philosophers are treated. 3 hours Lecture and Discussion — 3 credits

LA 2138
History of Western Civilization I
A survey of the developments of western societies and ideologies from the origins of civilization in the ancient Near East to the mid-seventeenth century. 3 hours Lecture and Discussion — 3 credits

LA 2224
Pennsylvania History and Government
Surveys political, social and cultural developments in the Commonwealth from Penn’s Charter until the present day, with special consideration of the role of Bucks County. Students will be required to participate in fieldwork at Delaware Valley College’s Roth Farm and Living Museum. 3 hours Lecture and Discussion — 3 credits

LA 2230/ED 2230
Educational Psychology
A practical treatment of the theory and practice of teaching and learning and their applications in the classroom, family, and community. Topics include: conditioning, cognitive processes, motivation, testing and grading. ED 2230 open to Education majors only. Any student may take LA 2230. 3 hours Lecture and Discussion — 3 credits

LA 2375
Personality Theories
A review of the major theories of personality development and personality functioning. In addition to covering the details of each theory, the implications and applications of each theory are considered. 3 hours Lecture and Discussion — 3 credits

LA 2450
Lifespan Development
This course focuses on physical, cognitive, social, personality and moral development over the lifespan. Students will be introduced to human development concepts, issues and theory with emphasis on inter-relationships between individuals, families, schools, communities, and culture. 3 hours Lecture and Discussion — 3 credits

LA 2575
Introduction to Counseling Theories
This course serves as a general introduction to the primary theoretical perspectives that guide the works of counseling psychologists. It introduces students to the process of counseling and psychotherapy. 3 hours Lecture and Discussion — 3 credits

Delaware Valley College 177
Undergraduate Course Descriptions

**LA 2620** 
**Multicultural Issues in Psychology**
This course will impart a basic understanding of psychological concepts about identity and culture and how they affect interactions with others. The course focuses on a multicultural perspective for understanding and working with diverse populations, and will examine theoretical and research literature concerning gender, race/ethnicity, relation, etc. in the provision of psychological services. 3 hours Lecture and Discussion — 3 credits

**LA 3XXX** 
**Introduction to Public Policy**
This course provides an overview of the study of public policy by focusing on the policy challenges confronting the American Presidency. Students will examine issues and the structures and processes shaping policy in the areas such as the American healthcare system, economic policies, homeland security, and defense policy. Students will identify key elements of the policy formation process and gain a basic understanding of how policy is analyzed and evaluated.

**LA 3008** 
**Student Government**
Students receive 1/2 credit on a pass/fail basis for active participation in the activities of student government. They include, but are not limited to, maintaining an office for a class year or on Student Government itself, serving on committees like SAC, being an officer in a club and representing that club in Student Government. A short paper is required each semester for students in the Student Government Board who desire credit. To receive credit, students must sign up for it at the Registrar's Office — 1/2 credit, Pass/Fail

**LA 3022** 
**Acting I**
This course provides students with a safe and respectful atmosphere in which to explore the actor’s craft. The student not only learns how to act but how to use acting in common situations. 3 hours Lecture and Laboratory — 3 credits

**LA 3024** 
**Acting II**
This course prepares the student for specific roles. The actors will be matched to parts for which they seem most suitable and will learn how to break down a role emotionally and physically. By the end of the course they will prepared to begin rehearsals for a production. Prerequisite: Acting I or equivalent experience. 3 hours Lecture and Laboratory — 3 credits

**LA 3025** 
**Acting III**
This course leads the actor through the production process. There is a step by step plan in which the actor is moved from rehearsal through performance in some of America’s great plays. The plays will be chosen to suit the student’s abilities. Prerequisite: Acting II. 3 hours Lecture and Laboratory — 3 credits

**American History and Government to 1877**
A survey of political, social, and cultural developments from colonial times through the period of Reconstruction. 3 hours Lecture — 3 credits

**LA 3032** 
**American History and Government Since 1877**
A survey of political, social, and cultural developments from 1877 to the present. 3 hours Lecture — 3 credits

**LA 3034** 
**Adolescent Psychology**
This course studies the development and behavior of adolescents with a focus on understanding the adolescent in terms of family, peers, school, culture and the community at large. Identity development, delinquency and sexuality will all be examined with an emphasis on how to provide services to the adolescent in need. Prerequisite: Introduction to Psychology or Permission of Instructor. 3 hours Lecture and Discussion — 3 credits

**LA 3055** 
**Substance Use and Abuse**
An introduction to the elementary dynamics of substance use, abuse, dependency and treatment. The course is designed to facilitate the acquisition and retention of information needed by the prospective professional in the field of alcohol and drug abuse treatment. Prerequisite: Introduction to Psychology. Suggested Prerequisite: Biological Science I. 3 hours Lecture and Discussion — 3 credits

**LA 3101** 
**Cultural Anthropology**
This course examines the origins of human culture, with emphasis upon cultural and social organization, the impact and influence of cultural change upon such organization, and the traditions, rituals and relationships that define human civilization. 3 hours Lecture — 3 credits

**LA 3132** 
**Comparative Politics**
This course offers a comparative analysis of European, African, Asian, Middle Eastern, and Latin American political systems. 3 hours Lecture — 3 credits
LA 3139  
*Introduction to Research*

This course is designed to introduce students to the requirements, philosophy, and methods of scientific research. Topics will include: experimental design, scientific methods, grants and funding, communications, searching methodology, ethics, selecting a graduate program, dissection and analysis of research papers, research style, and the administration of research projects. 3 hrs per week — 3 credits

**LA 3151, 3251**  
*Studio Art I, II*

Studio Art I is an elementary course in which the student is given the opportunity to find her/himself and the medium through which she/he wants to work. Studio Art II requires the student to express the self through the medium suggested by the instructor. Each course is a prerequisite for the following one. 2 hours Lecture and Practicum — 2 credits for each course

LA 3240  
*Political and Cultural Geography*

The significance of contemporary world patterns of nations is considered through the interaction of their physical, economic, political, and cultural aspects, with an emphasis upon the interplay between population, migration patterns, language, religion, and political developments. 3 hours Lecture — 3 credits

LA 3241  
*Invention and Technology in America*

Examines the influence of agricultural, mechanical, technological, and scientific change upon the United States from colonial times to the present. Students will be required to participate in fieldwork at Delaware Valley College’s Roth Farm and Living Museum. 3 hours Lecture — 3 credits

LA 3380  
*Introduction to Counseling Techniques*

This course includes information relating to stages in the counseling process, interviewing skills, counseling objectives, and appropriate strategies. Students actively learn various counseling techniques using the mediums of role playing, peer critiques, videotaping, and discussions. Ethical considerations are emphasized. Prerequisites: Introduction to Psychology and Introduction to Counseling Theories. 3 hours Lecture and Discussion — 3 credits

LA 3390  
*Measurement and Assessment in Psychology*

This course involves discussion of the theory and application of psychological tests of intellectual functioning, achievement, aptitude, interests, attitudes and personality. Multiple testing contexts are discussed, including educational and psychological research, counseling and guidance, and private industry. Prerequisite: Introduction to Psychology. 3 hours Lecture and Discussion — 3 credits

LA 3465  
*Methods of Psychological Research*

This course examines research methods used to study human behavior. Research design, including experimental, correction and survey methods are examined. Course topics include: the design of psychological experiments, data collection, data analysis and interpretation and preparing a research report. Students use SPSS statistic software to conduct literature reviews, analyze data, and write research reports in the laboratory. Prerequisites: Introduction to Psychology and Statistics for Science, or Permission of Instructor. 3 hours Lecture and 3 hours Lab — 4 credits

LA 3680  
*History and Systems of Psychology*

A study of the history of psychology, including early and modern schools of thought, important trends, famous psychologists, as well as recent developments in the field. Prerequisite: Introduction to Psychology. 3 hours Lecture and Discussion — 3 credits.

LA 3750  
*Child Development*

This course involves theory and research on psychological development from conception to adolescence. Physical, cognitive, social and emotional changes will be studied. Prerequisite: Introduction to Psychology or Permission of instructor. 3 hours Lecture and Discussion — 3 credits

LA 4014  
*Abnormal Psychology*

This study of abnormal psychology in American society, including its occurrence, condition, and treatment, emphasizes the maintenance of good mental health. Topics include mood disorders, substance abuse, brain disorders and dream analysis. Prerequisite: Introduction to Psychology. 3 hours Lecture — 3 credits
Undergraduate Course Descriptions

LA 4037
Non-Western Societies
Non-Western Societies surveys the non-Western cultures and histories of Asia, Africa, and the Middle East, and their nineteenth and twentieth century interactions with the outside world. This course will explore pre-modern origins and enduring traditions of each region, address various independence movements of the twentieth century, and discuss examples of contact with the West, conflicts arising over US-Soviet Cold War competition, terrorism, and the recent challenges to the emerging global economy. 3 hours Lecture and Discussion — 3 credits

LA 4038
Cultural Enrichment
Students are required to attend or participate in 14 cultural events, including concerts and recitals, lectures presented by distinguished authors, visits to museums, art galleries and shows, and theater presentations from among which the student must select a variety. Required for students who entered the College prior to the fall of 2008 — 1 credit

LA 4040
Developmental Disabilities
This course provides an overview of developmental disabilities, delays, and disorders from a life-span perspective. Topics include individual progress, services, and policies with attention to both family support and school-based principles of inclusion for youth. The course includes observation of youth with development disabilities. Prerequisite: Introduction to Psychology. 3 hours Lecture and Discussion — 3 credits

LA 4045
Seminar (Counseling Psychology)
Under faculty direction, students explore topics in psychology. This tutorial approach culminates in the preparation of a paper of considerable length with an oral defense/presentation. 3 hours Lecture — 3 credits

LA 4110
Critical Issues in World History
Examines global problems in historical perspective across time – war, terrorism, and the threat of war; cultural, racial, ideological, religious, gender, and economic struggles; and the search for peace and order. 3 hours Lecture — 3 credits

LA 4111
International Political Economy
This course analyzes the development, processes, and institutions of the global political economy, with an emphasis upon the politics and diplomacy of international trade and finance. 3 hours Lecture — 3 credits

LA 4112
Senior Seminar for Secondary Education
Under faculty direction, students explore topics in any of the following fields: American History, European History, World History, or the History of Science/Agriculture/Technology. This tutorial approach culminates in the preparation of a paper of considerable length with an oral defense/presentation. 3 hours Lecture — 3 credits

LA 4127
United States Foreign Policy
The history of American foreign relations concerns, power, profit, security, politics, and ideology. This offering of U.S. diplomatic history, covering selected topics from 1775 to the present, will explore competing interpretations of America’s hot and cold wars, periods of peace, isolation, and intervention. 3 hours Lecture and Discussion — 3 credits

LA 4203
Social Psychology and Human Interaction
The scientific study of how people interact, communicate, influence, interpret and relate to one another. The course focuses on the way an individual relates to groups as well as how various groups affect the individual. Topics include: prejudice, groupthink, attitude inoculation, polarization, eyewitness testimony, altruism, aggression, bargaining, mediation, arbitration, and conciliation. Prerequisite: Introduction to Psychology. 3 hours Lecture and Discussion — 3 credits

LA 4224
Cultural Minorities
The social institutions of selected racial, ethnic and religious minorities, as well as the institutional, demographic and social/psychological aspects of inter-group relations, are reviewed. Prerequisite: Introduction to Sociology. 3 hours Lecture and Discussion — 3 credits
LA 4228  
The American Family  
This course traces a history and background of American family patterns that includes the structure, functions, and values of the contemporary family. It also deals with the factors that may result in the disorganization of the family. 3 hours Lecture and Discussion — 3 credits

LA 4243  
Ethics  
An introduction to classical and modern logic; major concerns and approaches to ethics are considered, with emphasis on modern ethical problems. 3 hours Lecture and Discussion — 3 credits

LA 4372  
Couples and Family Counseling  
This course is designed to introduce systems theories that are utilized in couples and family counseling. Topics include family development, and the issues, concepts and interventions associated with major family therapy models. Prerequisite: Introduction to Psychology. 3 hours Lecture and Discussion — 3 credits

LA 4583  
Introduction to Behavior Modification  
An introduction to the concepts, theories and applications of learning theory and behaviorism as they are applied to a variety of treatment conditions and applications in a variety of settings, with special emphasis on school settings. Prerequisite: Introduction to Psychology. 3 hours Lecture and Discussion — 3 credits

LA 4892  
Childhood Psychopathology  
This course explores the biological, psychological and social/cultural factors in the etiology, course and treatment of childhood disorders. Prerequisite: Introduction to Psychology. Suggested Prerequisite: Abnormal Psychology. 3 hours Lecture and Discussion — 3 credits

SR 4041  
Student Research  
This course is designed for students of all majors who are of sophomore status and above with a minimum cumulative GPA of 2.7 and who have a serious desire and potential to undertake a research project. After obtaining the approval of a faculty mentor, students intending to register for Student Research will need to submit a 1-2 page proposal to the Student Research Committee for approval. Proposals should include an abstract, project timeline, budget, and any funding requests. For registration in the fall semester, a proposal should be submitted no later than April 20 and for registration in the spring semester, a proposal should be submitted no later than Nov. 20. Once approved, registration is through the student’s departmental chair. Students, mentors and committee members will meet throughout the semester, with student presentations at the end of the semester. Contact hours dependent on number of credits registered for this course — 1-3 credits

Policy Studies Minor  
The undergraduate minor in Policy Studies is designed to provide students with the analytical foundations they will need to understand policy development, implementation, and evaluation in both the United States and other countries. It draws on existing strengths of Delaware Valley College with our solid foundations in the Life, Environmental and Agricultural Sciences, and a strong Liberal Arts core.

The Policy Studies minor is an interdisciplinary program of study housed in the Liberal Arts Department though it reaches across other disciplines, including Agribusiness and National Resources and Biosystems Management. Students will have the chance to focus on a broad range of issues in agricultural, environmental, economic and social policy. It is anticipated that students completing the minor will find that these studies can enrich any major degree program and may have the potential to provide opportunities for employment in local, state and federal governmental institutions and both U.S. and international non-governmental organizations and professional associations. In addition, a minor in Policy Studies would augment the program of any student wishing to pursue graduate work.

This 15 credit major can be combined with any undergraduate major. Not all courses listed below are offered on a regular basis.

Required Core — Common Core — 9 Credits  
LA XXXX Introduction to Public Policy  
LA 3132 Comparative Politics  
LA 4111 International Political Economy  
Electives — choose 5 Credits from the following  
LA 4112 Senior Seminar  
LA 4127 US Foreign Policy  
LA 4XXX Special Topics  
LA 3240 Political & Cultural Geography  
LA 4224 Cultural Minorities  
LAES 1120 Sustainability: Saving the Earth and Feeding
Undergraduate Course Descriptions

MP 1203  MP 2115

LAES 3140 Environmental Impacts
AE 3210 Global Crop Ecology
LAES 4015 Regional Land Use Planning
AB 2225 Agricultural Economics
AB 4242 Food and Agricultural Policy
Undergraduate Research (maximum of 3 credits total from LA 4112 and UG research)

**MATHEMATICS AND PHYSICS**

**MP 0010**
*Fundamentals of Algebra*
A review of fundamental arithmetic and algebra to familiarize the students with the basic concepts of mathematics. The course is designed to provide the student with the requisite foundation and practice in preparation for the MP 1102, 1203 or 1205 sequence. Students assigned to this course are required to take MP 1102 College Algebra and MP 1203 Elementary Functions or MP 1205 Finite Mathematics to fulfill the Mathematics Core Curriculum requirement.
3 hours Lecture and Discussion — 3 institutional credits (Institutional credit will not be applied to either required or elective credits, but will be counted toward determining full-time status.)

**MP 1102**
*College Algebra*
This course provides a detailed treatment of basic algebra, stressing solution of equations and problem-solving techniques. Emphasis throughout is on practical applications and manipulative skills. Prerequisite: Successful completion of MP 0010 Fundamentals of Algebra, or a score of 465 or greater on the mathematics portion of the SAT. 3 hours Lecture and Discussion — 3 credits

**MP 1105**
*Discrete Mathematics*
An introduction to the theory and application of discrete mathematics. Topics include logic, sets, functions and relations, combinations and elementary probability. Prerequisite: College Algebra. 3 hours Lecture and Discussion — 3 credits
**Elementary Functions**
Mathematical functions, including logarithms and trigonometry, are treated from both the numerical and functional viewpoints. Emphasis throughout is on practical applications and manipulative skills. This course serves as a precalculus background. Prerequisite: College Algebra or its equivalent, as determined by the department, or satisfactory performance on appropriate diagnostic exam administered to entering students. 3 hours Lecture and Discussion — 3 credits

**MP 1204**
**Calculus I**
This is a one-semester calculus course designed to introduce the student to the basic ideas, techniques, and applications of differential and integral calculus of a single-variable. Prerequisite: Elementary Functions or a score of 620 or higher on the mathematics portion of the SAT. 4 hours Lecture and Discussion — 4 credits

**MP 1205**
**Finite Mathematics**
This course provides students with an overview of finite mathematics. Topics include systems of linear equations and inequalities, linear programming, matrix theory, mathematics of finance, set theory, and combinatorics. Prerequisites: College Algebra or its equivalent, as determined by the department or satisfactory performance on appropriate diagnostic exam administered to entering students. 3 hours Lecture and Discussion — 3 credits.

**MP 1206**
**Geometry**
An overview of classical and modern geometry and its applications with an introduction to the axiomatic approach and the concepts of mathematical proof. Prerequisite: Elementary Functions. 3 hours Lecture and Discussion — 3 credits

**MP 2114**
**Business Statistics I**
An introduction to the concepts of probability and statistics. Topics include data analysis and description, probability, probability distributions, sampling distributions, and estimation. Prerequisite: Elementary Functions or Finite Mathematics. 3 hours Lecture and Discussion — 3 credits

**Introduction to Actuarial Science**
This course provides a basic introduction to actuarial science and its role in insurance as a discipline and an industry. Topics include: a brief history of the evolution of the actuarial profession, basic mathematics of simple and compound interest, introduction to probability theory, and applications of material to risk management and insurance. Prerequisite: Elementary Functions or Finite Mathematics or equivalent, as determined by the department. 3 hours Lecture and Discussion — 3 credits

**MP 2116**
**Statistical Quality Control**
This course provides an introduction to the purpose and function of statistical quality control. Topics include the use of modern statistical methods for quality control and improvement as well as the principles of statistical quality control and their application in a variety of situations. Prerequisite: Elementary Functions or its equivalent, as determined by the department. 3 hours Lecture and Discussion — 3 credits

**MP 2119, MP 2219**
**Physics I and II**
This is a general course stressing the understanding of physical principles and methods of problem solving. The first semester covers the basic principles of mechanics, heat, and the kinetic theory of gases. The second semester covers electricity, magnetism, wave motion, light, and selected topics in modern physics. In the laboratory, experiments are performed illustrating the basic physical principles and methods of experimental science. Prerequisites: Elementary Functions is a prerequisite for Physics I, and Physics I is a prerequisite for Physics II. 3 hours Lecture and Discussion, 3 hours Laboratory — 4 credits each

**MP 2121**
**Calculus II**
This course is a continuation of Calculus I. Topics include methods of integration, infinite series, functions of several variables, partial differentiation and multiple integration. Prerequisite: Calculus I. 4 hours Lecture and Discussion — 4 credits
Undergraduate Course Descriptions

**MP 2123, MP 2224**

*Physics Ic and IIc*

This is a general course which uses calculus to stress the understanding of physical principles and the methods of problem solving. The first semester covers the basic principles of mechanics, heat, and the kinetic theory of gases. The second semester covers electricity, magnetism, wave motion, and light. In the laboratory, experiments are performed illustrating the basic physical principles and methods of experimental science. Prerequisites: Calculus I is a prerequisite for Physics Ic, Physics Ic is a prerequisite for Physics IIc. 3 hours Lecture and Discussion, 3 hours Laboratory — 4 credits each. Students may take the lab that accompanies MP 2119 or MP 2219.

**MP 2126**

*Linear Algebra*

This course is an introduction to linear algebra. Topics may include systems of linear equations, matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, and applications. Prerequisite: Calculus I. 3 hours Lecture and Discussion — 3 credits

**MP 2214**

*Business Statistics II*

This is a course in statistical inference. Topics include: parametric and non-parametric hypothesis tests on means and proportions, Chi squared tests, analysis of variance, regression, and correlation. Practical applications are stressed. Prerequisite: Business Statistics I. 3 hours Lecture and Discussion — 3 credits

**MP 2215**

*Statistics for Business*

This course provides an introduction to the concepts of probability and statistics. Topics include data analysis and description, probability distributions, sampling distributions, estimation, and hypothesis testing. Prerequisite: Elementary Functions, Finite Mathematics, or an equivalent course, as determined by the department. 4 hours Lecture and Discussion — 4 credits.

**MP 2223**

*Ordinary Differential Equations*

This course covers the solution of ordinary differential equations. The topics of discussion include solution of first-order equations, linear equations with constant coefficients, and series solution of differential equations. Applications are stressed. Prerequisite: Calculus II, Physics II or IIc. 3 hours Lecture and Discussion — 3 credits

**MP 3030**

*Numerical Methods*

A study of numerical methods involved in interpolation, differentiations and integration, numerical solutions of equations and systems of equations, and fitting empirical data. Applications are stressed. Prerequisites: Calculus II or both a programming Language and Elementary Functions. 3 hours Lecture and Discussion — 3 credits

**MP 3036**

*Methods in Advanced Mathematics*

An introduction to the study of formal mathematics, with an emphasis on proofs. Topics may include finite mathematics and combinatorics, elementary number theory, and analysis. Prerequisite: Calculus II. 2 hours Lecture and Discussion — 2 credits

**MP 3037**

*Modern Algebra and Number Theory*

An introduction to the theory of groups, rings, fields and polynomials, and the theory of numbers including unique factorization, congruence classes and the distribution of primes. Prerequisites: Linear Algebra and Methods in Advanced Mathematics or Permission of instructor. 3 hours Lecture and Discussion — 3 credits

**MP 3120**

*Foundations of Mathematics*

This course presents the logical and philosophical basis of mathematical structures and modes of thinking. This includes discussion of Godel’s theorem, the notion of completeness, the Axiom of Choice, and the Peano postulates. Prerequisite: Calculus I or Permission of Instructor. 3 hours Lecture and Discussion — 3 credits

**MP 3123**

*Advanced Calculus*

This course provides an in-depth look at the calculus of several variables. Topics include: the geometry of n-dimensional space, differentiation and integration of functions of several variables, integrals over curves and surfaces, and the theorems of Green, Stokes and Gauss. Prerequisite: Calculus II. 3 hours Lecture and Discussion — 3 credits
**Physics IIIC**

This course covers the modern concepts of physics and stresses appropriate mathematical techniques. The topics include special theory of relativity, important historical experiments, the classical theory of the electron, the Rutherford atom, the Bohr atom, early ideas on quantization, postulatory quantum mechanics from the Schroedinger point of view, and the one electron atom. Prerequisites: Ordinary Differential Equations and either Physics II or IIc. 3 hours Lecture and Discussion — 3 credits

**MP 3140**

**Applied Mathematics**

The course covers the mathematical tools for treating a variety of problems in science; boundary value problems for differential equations, Green’s functions, calculi of variations, spectral theory of operators, and other topics, as time permits, are included. Prerequisites: Ordinary Differential Equations and Physics IIc. 3 hours Lecture and Discussion — 3 credits

**MP 3231**

**Statistics for Science**

A course in basic and intermediate methods of applied statistics, with emphasis on the analysis of data from laboratory and field experiments. Both parametric and non-parametric techniques are presented, and the logic underlying experimental design and statistical inference is stressed. Recommended for students anticipating graduate study or research careers. Prerequisite: Elementary Functions or Finite Mathematics. 3 hours Lecture and Discussion — 3 credits

**MP 3235**

**Fourier Series**

This is an introduction to Fourier series and eigenvalue functions covering the topics of orthogonal systems, Fourier series, eigenvalue functions and boundary value problems with an introduction to the derivation and classification of partial differential equations. Prerequisite: Ordinary Differential Equations. 3 hours Lecture and Discussion — 3 credits

**MP 3241**

**History of Mathematics**

Development of mathematics from the earliest days to the present, with emphasis on Greek mathematics, the development of calculus, and the history of algebra, analysis, and geometry in the nineteenth and twentieth centuries. Prerequisite: Calculus I or Permission of instructor. 3 hours Lecture and Discussion — 3 credits

**MP 3250**

**Biostatistics**

This course focuses on applying existing statistical tools and techniques to interpret data about the medical and life sciences. Topics include data analysis and description, probability distributions, estimation, hypothesis testing, correlation and regression and analysis of variance. 3 hours Lecture — 3 credits

**MP 4115, MP 4215**

**Mathematics Seminar**

A program of individual reading, discussion, and student presentation of material on selected topics in mathematics. Prerequisites: Advanced Calculus and Modern Algebra. 1 hour Lecture and Discussion — 1 credit each

**MP 4122**

**Analysis**

This course is an introduction to the ideas and theorems of real analysis. Topics include: basic set theory, function theory, topology, sequences and series, and the limits, continuity, differentiation and integration of functions on metric and Euclidean spaces. Prerequisites: Advanced Calculus and Methods in Advanced Mathematics. 3 hours Lecture and Discussion — 3 credits

**MP 4125**

**Partial Differential Equations**

Topics include eigenfunctions, expansions, separation of variables, types of partial differential equations, numerical methods, similarity solutions, and perturbation theory. Prerequisite: Advanced Calculus. 3 hours Lecture and Discussion — 3 credits

**MP 4132**

**Symbolic Logic**

Topics covered include: Boolean algebra, logic circuit analysis, Karnaugh mapping, IC logic families, D/A and A/D conversions, memory devices, flip-flops, arithmetic circuits, number systems and codes, and interfacing. Prerequisites: Elementary Functions or Finite Math and either Physics II or a computer course. 3 hours Lecture and Discussion, 3 hours Laboratory — 4 credits

**MP 4227**

**Complex Variables**

This is an introduction to the theory of functions of complex variables. Topics covered are: derivatives, Cauchy-Riemann equations, harmonic functions, integrals, Cauchy’s Integral formula and power series. Additional topics may include conformal mapping and the theory of residues. Prerequisite: Advanced Calculus and either Linear Algebra or Methods in Advanced Mathematics. 3 hours Lecture and
NATURAL RESOURCES AND BIOSYSTEMS MANAGEMENT: ENVIRONMENTAL DESIGN; FLORICULTURE AND NURSERY; AND TURF MANAGEMENT MAJORS

LAES 1125 Introduction to Design
An introduction to landscape architecture and environmental design. The course explores the history of the profession, current topics, career opportunities and a hands-on introduction to the world of graphic storytelling. Required for Environmental Design majors, but open to all students. 2 hours Studio — 1 credit

MP 3124
Discussion — 3 credits

PS 2014 Floriculture Techniques
This course stresses the application of basic floriculture, greenhouse management and crop-production techniques, as well as fundamental florist skills, through hands-on laboratories in small groups and practical lectures. 2 hours Lecture and 3 hours Laboratory — 3 credits

LAES 2015 Landscape Techniques
This course stresses the application of basic landscaping, landscape maintenance and nursery production, handling and marketing techniques through hands-on laboratories in small groups and practical lectures. Required for all Ornamental Horticulture majors. 2 hours Lecture and 3 hours Laboratory — 3 credits

LAES 2118 Woody Plant Identification II
The course focuses on the identification, culture and landscape uses of native and introduced trees, shrubs and vines. This spring course features evergreen coniferous plants and spring blooming plants. Extensive use is made of the Henry Schmieder Arboretum plant collections on campus. CAN be taken without Woody Plant Identification I. 1 hour Lecture and 3 hours Laboratory — 2 credits

LAES 2133 Design Studio I: Design Process and Communication
The first course in the design studio sequence introduces students to the regenerative design process and graphic communication. It is intended to open the mind to creative expression, critical problem solving and design communication through a comprehensive understanding of the spirit of place, stakeholders’ values and green sciences and technologies. 4 hours Studio — 2 credits

LAES 2135 Site Engineering I
The fundamentals of surveying, grading, drainage, construction documentation, construction specifications, plant lists and plant specifications are taught. The course will utilize the outdoors, hand drawing and computer-aided design software to develop student capabilities. Prerequisite: Computer-Aided Design 4 hours Studio — 2 credits
**Woody Plant Identification I**
The course focuses on the identification, culture and landscape uses of native and introduced trees, shrubs and vines. This fall course features plants that bloom in the summer and fall as well as plants that display autumn foliage and fruits. Extensive use is made of the Henry Schmieder Arboretum plant collections on campus. 1 hour Lecture and 3 hours Laboratory — 2 credits

**LAES 2242**
**Site Engineering II**
The second site engineering course further develops the student’s knowledge and capabilities in construction detailing. The course utilizes real sites and real projects to explore complex issues of grading, drainage, construction details and construction specifications. Prerequisite: Site Engineering I 4 hours Studio — 2 credits

**LAES 2247**
**Design Studio II: Site Design**
In the second studio course, students continue to develop their understandings of and capabilities in regenerative design strategy. The focus is site planning and design development of smaller projects such as residential, community and school gardens. Prerequisite: Design Studio I 6 hours Studio — 3 credits

**LAES 3000, 4000**
**Selected Topics I and II**
Special projects designed to meet individual needs of students in the specialized fields of agriculture. Projects are arranged on a one-to-one basis with a department faculty member with the approval of the department chairperson. Total Selected Topics credit accepted toward graduation limited to 2 credits. 3 hours of student/faculty instruction per week — 1 credit each

**PS 3005**
**Plant Propagation**
The course covers, in theory and practice, the principles and methods involved in the propagation of woody and herbaceous plants. Sexual reproduction and asexual reproduction by cuttings, graftage, layering, etc. are considered and practiced. 2 hours Lecture and 3 hours Laboratory — 3 credits

**LAES 3101**
**Flower Show Practicum**
In this course, students are involved with every aspect of a major exhibit at the Philadelphia International Flower Show, the largest indoor flower show in the world. Field trips and guest lecturers are used extensively to enrich the course. NOTE: This special course runs from September through March and requires participation outside of scheduled class hours. **Students must register for both the fall and spring semesters.** Total practicum credit accepted towards graduation limited to 2 credits — 1 credit, pass/fail

**PS 3106**
**Floral Crop Production I**
Fall and winter major and minor floral crops are studied to indicate specific applications of the fundamental factors and cultural practices required. Prerequisite: Floriculture Techniques or Permission of instructor. 1 hour Lecture and 3 hours Laboratory — 2 credits

**LAES 3109**
**Interior Plant Identification, Culture and Use**
This self-paced, independent course of study uses the resources of the College’s Arthur Poley Conservatory and the Henry Schmieder Arboretum tropical plant collections. The course also uses a specially designed Internet-accessible study manual and instructor/student interaction to guide students in the study of interior plant identification, culture and use. 2 hours lecture (Arranged) — 2 credits

**LAES 3117**
**Herbaceous Plant Materials I**
The identification, use, culture, and sources of annuals, aquatics, biennials, bulbs, and ornamental grasses are covered. Extensive use is made of the Henry Schmieder Arboretum plant collections. 1 hour Lecture and 3 hours Laboratory — 2 credits

**LAES 3130**
**Design Studio III: Master Planning**
Regenerative design strategy is applied in this studio to large scale master planning and regional design projects. Prerequisite: Design Studio II 6 hours Studio — 3 credits
Undergraduate Course Descriptions

LAES 3147
*Today’s Sustainable Homestead*
Using an interdisciplinary approach, this course explores how traditional time-tested approaches can be combined with cutting-edge and emerging technologies to enable homeowners to live more self-reliantly and sustainably on limited acreage. Impacts of location, zoning, property size and type as well as other factors affecting sustainable living are explored. Practical approaches to plant and animal based food production and preservation, energy conservation and production, water and waste management, alternative energy and other topics will be discussed. 3 hours lecture — 3 credits

PS 3208
*Floral Crop Production II*
Winter and spring major and minor crops including bedding plants are studied to indicate specific application of the fundamental factors and cultural practices required. May be taken before Floral Crop Production I. Prerequisite: Floriculture Techniques or Permission of instructor. 1 hour Lecture and 3 hours Laboratory — 2 credits

LAES 3210
*Interior Plantscaping*
This course examines “Stress Horticulture” as it affects Interior Plantscaping, the landscaping of interior areas such as offices, shopping malls, and other public and private buildings. It explores Interior Plantscaping professional practice, design, installation, and maintenance and introduces computer imaging as a valuable Interiorscaping tool. Prerequisite: Interior Plant Identification Culture and Use. Offered in the fall semester of even numbered years. 2 hours lecture — 2 credits

LAES 3215
*History of Landscape Architecture*
A critical and historical analysis of the development of the main types and periods of landscape design. 2 hours Lecture and Discussion — 2 credits

LAES 3217
*Herbaceous Plant Materials II*
The identification, use, culture, and sources of perennials, herbs and roses are covered. Extensive use is made of the Henry Schmieder Arboretum plant collections. May be taken before Herbaceous Plant Materials I. 1 hour Lecture and 3 hours Lab — 2 credits

LAES 3221
*Design Studio IV: Built Environments*
The regenerative design strategy is explored in urban, semi-urban, suburban and small town projects. Prerequisite: Design Studio III 6 hours Studio — 3 credits

LAES 3224
*Landscape Construction*
This course focuses on understanding the materials used in landscape construction, design considerations for these materials, and the installation of construction projects. 2 hours Lecture and 3 hours Laboratory — 3 credits

LAES 3225
*Arboriculture*
Principles are presented in this course that pertain to the area and management of large ornamental trees and shrubs in the established landscape. Consideration is given to environmental factors, nutrition, soils, insect and disease control, and the use of ropes and other safety equipment in tree climbing and pruning. Prerequisites: Landscape Techniques and/or permission of instructor. Offered in the fall semester. 2 hours Lecture and 3 hours Laboratory — 3 credits

LAES 3232
*Introductory Floral Design*
Basic skills and techniques required to create floral arrangements, corsages, and various other designs are discussed and practiced. Use of materials, care of cut flowers, and appropriate design presentation are discussed. 6 hours Studio — 3 credits

LAES 3237
*Introduction to Horticultural Therapy*
This course will provide students with educational opportunities on the profound interaction of people and plants as well as the benefits of horticulture on the mind, body and soul. Students will learn the concepts, history, principles, practice, basic skills, applied research and recent developments of horticultural therapy; familiarize with physically, mentally and emotionally challenged populations in different settings; take field trips to local facilities and connect with professionals in the field. 2 hours Lecture and 2 hours Lab — 3 credits
**Advanced Woody Plant Materials**
An advanced course in the characteristics, identification and use of woody plant materials. Stress is placed on unusual plants. Prerequisites: Woody Plant Identification I and II. Offered in the spring semester. 1 hour Lecture and 3 hours Laboratory — 2 credits

**LAES 3251**
**Horticultural Therapy Techniques and Practices**
This course provides students in horticultural therapy with hands-on opportunities for developing horticultural techniques and skills needed to work with varied populations with special needs. Students will be supervised and trained to practice horticultural therapy techniques and gain experience in diverse settings. Prerequisite: Introduction to Horticultural Therapy. 2 hours Lecture and 2 Hours Lab — 3 credits

**LAES 3365**
**Horticultural Therapy Management**
This course prepares students in horticultural therapy to develop, manage, supervise and evaluate horticultural therapy programs. Students will visit local horticultural therapy sites to learn about managing and supervising experience from horticultural therapists. This course will study strategies of how to run a horticultural therapy program as a growing business. Prerequisite: Horticultural Therapy Techniques and Practices. 2 hours Lecture and 2 hours Lab — 3 credits

**LAES 4008**
**Seminar (Ornamental Horticulture and Environmental Design)**
This course involves the research, construction and presentation of a seminar in the student’s field of interest. 1 hour Lecture and Discussion — 1 credit

**LAES 4041**
**Senior Research**
Selected seniors engage in supervised investigations involving library work and laboratory or field experiments related to ornamental horticulture. Requirement: Permission of department chairperson — 1-3 credits

**LAES 4125**
**Design Studio V: Natural Systems**
Regenerative design strategy is applied to projects in reclamation and restoration of natural systems. Prerequisite: Design Studio IV 6 hours Studio —
Undergraduate Course Descriptions

**LAES**

**Advanced Floral Design**

Emphasis is placed on creative floral design techniques for weddings, parties, funerals, holidays, and current design trends. Discussions follow the history of some design styles, market trends, current plant availabilities, shop management and operations. Prerequisite: Introductory Floral Design. Offered in the fall semester of odd numbered years. 4 hours Studio — 2 credits

**PS 4206**

**Nursery Management**

This course offers a study of the various practices and methods of operating a commercial nursery for the production of ornamental trees and shrubs. Prerequisites: Woody Plant Identification I and II and Plant Propagation, or permission of instructor. Offered in the spring semester of odd numbered years. 2 hours Lecture and 3 hours Laboratory — 3 credits

**PS 4209**

**Greenhouse Management**

This is a study of the principles involved in the construction, maintenance, and utilization of greenhouse facilities, including the management of the greenhouse environment. 2 hours Lecture and 3 hours Laboratory — 3 credits

**LAES**

**4230**

**Landscape Contracting and Bidding**

The course focuses on the comprehension of the costs involved in the operation of a landscape contracting business, strategies for the recovery of those costs, and methodology for obtaining reasonable profits. 3 hours Lecture and Discussion — 3 credits

**LAES**

**4237**

**Design Studio VI: Senior Projects**

This capstone studio allows students to focus on a topic of interest while managing a project of choice through a comprehensive regenerative design process. Students will be required to select a project type with real stakeholders and a real site followed by a comprehensive site investigation and analysis, master planning, design development and construction documentation. Prerequisite: Design Studio V 6 hours Studio — 3 credits

**LAES**

**4290**

**Professional Practice Seminar**

Explores topics related to landscape architecture and
RFQs, sales and client relations, portfolios, innovative projects and current events. 1 hour Lecture and Discussion — 1 credit

**PHYSICAL EDUCATION**

**PE 1109, 1209**  
*Physical Education I and II*  
Two credits are required for graduation. This course emphasizes the importance of physical fitness, with carry-over value. Each student enrolled in the college engages in designated activities. The activities are geared toward developing a level of fitness which will enable individual students to function at peak efficiency. Activities include: weight training, aerobic conditioning, jogging, dance exercise, dance on video, aerobics and other fitness activities. May be taken a maximum of 4 times — 1 credit each

**PE 2011**  
*First Aid and Cardiopulmonary Resuscitation*  
This course is designed to prepare the student, through knowledge and skill development, to meet the needs of most situations when emergency first aid care is needed and medical assistance is not readily available. This course enables students to increase personal safety and accident prevention knowledge by becoming acquainted with many causes of accidents and with action that can be taken to eliminate or minimize such cases. This course cannot be used to satisfy the Physical Education Core Curriculum requirement. 2 hours Participation — 2 credits
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GEORGE F. WEST, '84

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CRAIG HILL, '86

JULIAN PRUNDEANU, '87

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