

MARYLAND HIGHER EDUCATION COMMISSION
ACADEMIC PROGRAM PROPOSAL

PROPOSAL FOR:

- NEW INSTRUCTIONAL PROGRAM
- SUBSTANTIAL EXPANSION/MAJOR MODIFICATION
- COOPERATIVE DEGREE PROGRAM
- WITHIN EXISTING RESOURCES or REQUIRING NEW RESOURCES

(For each proposed program, attach a separate cover page. For example, two cover pages would accompany a proposal for a degree program and a certificate program.)

Frederick Community College
Institution Submitting Proposal

June 3, 2017
Projected Implementation Date

Associate of Science
Award to be Offered

Science, Technology, Engineering, and Math
Title of Proposed Program

Suggested HEGIS Code

Suggested CIP Code

Science, Math, and Computing & Business departments
Department of Proposed Program

Dr. Marc Frankenberry, Science; Dr. Gary Hull, Math; CBT Dr. Karen Wilson
Name of Department Head

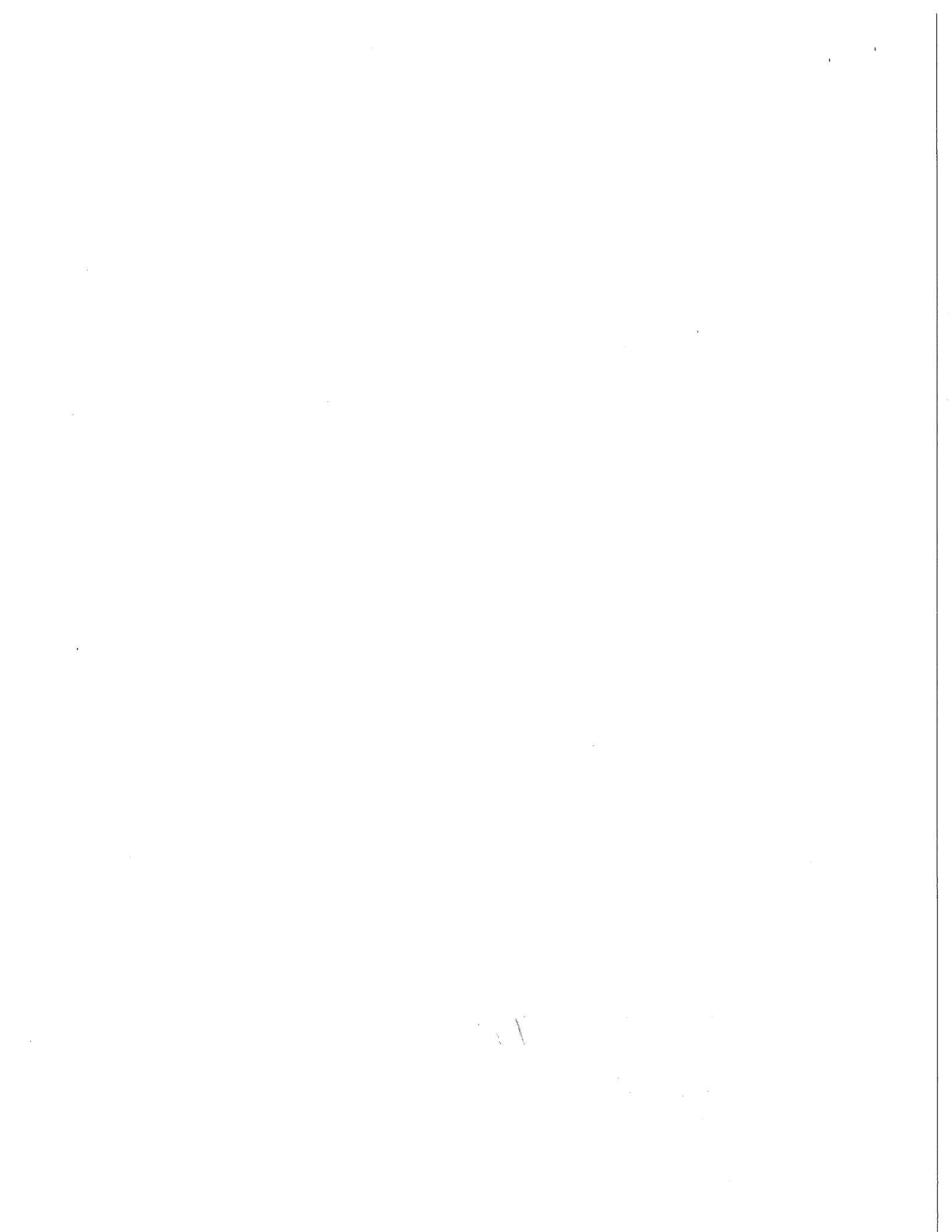
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Elizabeth Beumaster 11/16/16
Signature and Date President/Chief Executive Approval

11/16/16
Date Endorsed/Approved by Governing Board



NEW PROGRAM GUIDELINES

An institution submits a proposal using guidelines in accordance with State regulations. See [COMAR Title 13B.02.03 \(PDF\)](#) for the full set of regulations. Proposals for new programs should be submitted electronically to acadprop@mhec.state.md.us.

New Academic Programs, Degrees and Stand-Alone Certificate Programs

A complete proposal shall include a cover letter from the chief academic officer addressed to the Secretary of Higher Education requesting approval of the new program, a [Proposal Cover Sheet\(pdf\)](#) with all required signatures, and should address all of the following areas:

A. Centrality to institutional mission statement and planning priorities:

1. Provide a description of the program, including each area of concentration (if applicable), and how it relates to the institution's approved mission.

The proposed Associate of Science in Science, Technology, Engineering, and Math (STEM) by Frederick Community College (FCC) is designed to prepare students for transfer to four-year institutions in STEM disciplines.

According to the research of Complete College America¹, Associate degree students graduate with an average of 80 credits rather than the required 60. When colleges provide students with the knowledge and tools to declare a major sooner in their career, students take fewer unnecessary credits. The recent work of Xueli Wang reveals that students who transfer successfully into STEM fields take a majority of STEM courses during their first semester on campus. The study shows "the importance of fostering a more structured path of course-taking that could lead to successful transfer in STEM."²

For that reason, we propose the development of the Associate of Science in STEM that will allow students who might otherwise have declared a General Studies major to focus their coursework in STEM disciplines during their first semester on campus. The AS STEM curriculum has a narrower focus than that of General Studies, requiring students to earn a minimum of nineteen credits in STEM disciplines in addition to the 10-12 credits already in the General Education CORE curriculum. Students who wish to major in approved Areas of Concentration (Biology, Chemistry, Engineering, Mathematics) will follow the curriculum outlined by those specific Areas; students who do not choose an approved Area of Concentration will explore STEM fields with the goal of narrowing their focus, or work with an advisor to transfer in STEM fields outside of Biology, Chemistry, Computer Science, Engineering, and Mathematics.

At FCC, General Studies has traditionally been the major with the largest number of students, and while there will always be a population of students for whom that degree is appropriate, the college will begin encouraging students to declare a "meta" or "umbrella" major in a more specific content area. This initiative will be supported by faculty advising and degree-focused co-curricular events and transfer advising.

Areas of Concentration (all 60 credits)

Biology - Offers a selection of biology and other natural and physical science related courses for the student who wishes to pursue a Bachelor of Science degree in biology. Curriculum in Appendix B.

Chemistry - Offers a variety of science and mathematics courses for students pursuing a course of study in chemistry. Curriculum in Appendix C.

Engineering - Intended to provide the basis for transfer to a four-year college engineering course of study. Curriculum in Appendix D.

¹ Complete College America (Winter 2012). Guided Pathways to Success. Retrieved 8/24/2016 from <http://www.completecollege.org/pdfs/CCA%20Nat%20Report%20Oct18-FINAL-singles.pdf>.

² Wang, Xueli. (2016). Course-Taking Patterns of Community College Students Beginning in STEM: Using Data Mining Techniques to Reveal Viable STEM Transfer Pathways. *Research in Higher Education*: 57, 1-26.

Mathematics - Provides a diversity of courses for students pursuing a course of study in mathematics. Curriculum in Appendix E.

2. Explain how the proposed program supports the institution's strategic goals and provide evidence that affirms it is an institutional priority.

This proposed program directly supports the mission of Frederick Community College by helping students to meet their transfer goals. The program is designed to reduce the time-to-degree for students who typically select the General Studies major by enabling students who are interested in STEM fields (but perhaps not sure which specific discipline) to start on a more focused curricular pathway their first semester on campus. This program is also designed to support students whose desired STEM transfer major is not directly represented by one of FCC's approved Areas of Concentration. Learning support activities will be designed specifically for AS STEM majors and will include major exploration, co-curricular events, and advising.

These initiatives align with the following FCC 2020 Strategic Goals:

- 1) Enhance student persistence, success, and completion through collaborative and effective support systems – students concentrating in Biology, Chemistry, Engineering, or Mathematics will have a focused curriculum to follow rather than a suggested pathway. This will reduce the likelihood that students register for coursework that is not necessary to graduate.
- 2) Increase access, affordability, and student goal completion – research shows that students are more likely to graduate when their program of study is focused;
- 3) Promote excellence in the design, delivery, and support of student learning – targeted advising, co-curricular events around the broad majors, and more will create communities of learners.

B. Adequacy of curriculum design and delivery to related learning outcomes consistent with Regulation .10 of this chapter:

1. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirements.

The AS STEM Curriculum is as follows. Specific Area of Concentration curricula can be found in appendices B-E. No courses are new. Course descriptions for FCC courses can be found in Appendix A.

- Students must complete their credit English and Mathematics within the first 24 credits.
- One general education course must meet the cultural competence graduation requirement (list page 43).
- CORE: The General Education CORE (page 42) is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements. <http://artsys.usmd.edu/>
- Students must take a minimum of nine credits at the 200-level.

<i>Course</i>	<i>Credits</i>
English	
EN 101 English Composition	3
Mathematics	
MA 111 Precalculus or MA 210 Calculus (Biology, Chemistry, Engineering, and Mathematics Areas of Concentration require MA 210 or higher).....	4
Social & Behavioral Sciences	
Two courses selected from different disciplines (Gen Ed course list)	6
Arts, Humanities, and Communications	
Humanities	3
Arts Gen Ed	3

Communications Gen Ed3

Biological & Physical Sciences

Two Biological & Physical Science course; one must be a lab

Recommend BI 101, CH 101, or PY 203. (Gen Ed Course list)7/8

General Education Elective3

PE/Wellness1/3

Electives 27

Take a minimum of 19 credits of courses from any of the disciplines below. A minimum of six credits must be in the same discipline. It is imperative that students consult with an advisor before registering to maximize transfer of coursework; for example some programs will also require MA 210 (Calculus).

BI	Biology	EG	Engineering
CH	Chemistry	MA	Mathematics
CIS	Computer & Information Science	PY	Physics

- Students majoring in an Area of Concentration will follow the curriculum for their major (Biology – Appendix B, Chemistry – Appendix C, Engineering – Appendix D, or Mathematics- Appendix E).
- Students majoring in the Associate of Science in STEM without an Area of Concentration should follow the curriculum outlined above and will have 8 unrestricted elective credits. It is recommended that they take CIS 106 (Object Design and Programming).

TOTAL CREDITS **60**

2. Describe the educational objectives and intended student learning outcomes.

Designed for students who plan to go on to a four-year school and major in one of the traditional STEM areas (science, technology, engineering, math) the STEM degree has a heavy emphasis on undergraduate mathematics or science. The STEM program is also the appropriate major for students interested in taking courses towards a bachelor’s degree in preparation for careers in dentistry, medicine, pharmacy, and physical therapy.

Students wishing to concentrate in one of these areas should consult with an advisor or ARTSYS as early as possible to ensure that all or most of their course credits will transfer to the four-year institution of their choice.

Program Learning Outcomes:

1. Students will demonstrate analytic thinking and problem solving skills in mathematics and the sciences.
2. Students will effectively communicate mathematical explanations (verbal, graphical, numerical, and symbolic representations) and a basic understanding of the scientific method.
3. Students will demonstrate an understanding of basic concepts in biological, chemical, computer science, physical, mathematics or engineering disciplines.

4. Students will demonstrate an ability to apply quantitative methods to chemical, computer science, biological or engineering applications.
 5. Students will be prepared to enter transfer institutions in STEM fields.
 6. Students will demonstrate the ability to use technology appropriate to mathematical and scientific problem solving.
3. Discuss how general education requirements will be met, if applicable.

General Education requirements will be met in the General Education CORE, which is outlined above. The CORE meets the standards established by the Maryland legislature including EN 101, 3 credits of Math, 6 Social and Behavioral Science credits, 7/8 Science credits, 9 Arts, Humanities and Communications credits, and 3 General Education Elective credits.

4. Identify any specialized accreditation or graduate certification requirements for this program and its students.

N/A

5. If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

N/A

C. Critical and compelling regional or Statewide need as identified in the State Plan:

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State in general based on one or more of the following:
 - o The need for the advancement and evolution of knowledge;
 - o Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education;

This new program directly supports the mission of Frederick Community College by helping students to meet their transfer goals. The AS STEM will reflect the advancement and evolution of knowledge in that it will enable students to prepare to transfer in STEM degree programs that may change in response to the job market, societal needs, technology, or other factors. Examples of programs at UMBC and College Park to which students might transfer with a STEM degree include, but are not limited to: dentistry, medicine, pharmacy, and physical therapy.

2. Provide evidence that the perceived need is consistent with the [Maryland State Plan for Postsecondary Education \(pdf\)](#).

Accountability: The proposed degree program will make it less likely that a student takes a course simply to fulfill the requirements of the community college, and more likely that a student takes a course because it will transfer to a baccalaureate institution.

Flexibility: The proposed degree program will enable students to prepare to transfer in STEM degree programs that may change in response to the job market, societal needs, technology, or other factors. Examples of programs at UMBC and College Park to which students might transfer with a STEM degree include, but are not limited to: dentistry, medicine, pharmacy, and physical therapy.

Access: The proposed degree program will help account for the particular needs of first-generation and first-time college students by allowing them the opportunity to earn a degree in STEM as they explore the varying disciplines to narrow a transfer focus. Targeted advising, including expanded opportunities for students to explore new disciplines, will allow students without exposure to career opportunities to more clearly understand their options.

Time-to-degree: The proposed degree will reduce time-to-degree for students who may have typically chosen an open-ended General Studies degree by helping them to choose a discipline for transfer earlier during their time at the college.

E. Reasonableness of program duplication:

1. Identify similar programs in the State and/or same geographical area. Discuss similarities and differences between the proposed program and others in the same degree to be awarded.

It is not anticipated that the AS STEM will draw students from similar programs in our geographical region. Rather, the degree is giving a carefully-designed curriculum to our current students.

Institutions in proximity to Frederick Community College

Institution		
Carroll Community College	Standalone degrees.	Transfer pathways (without specific curriculum) in Biology, Chemistry, Forensic Science, General Geology, Physics, Professional Geology, Exercise Science, Health Science, Engineering, Computer Engineering, Electrical Engineering, Mathematics.
Community College of Baltimore County	Technology Science and Math Pathway leading to degrees	Transfer degrees in Astronomy, Biology, Chemistry, Environmental Science, Forensic Science, Geography, Geology, Mathematics, Meteorology, Oceanography, Physics.
Hagerstown Community College	Associate of Science	Offers a standalone AS but also Options in Biology, Biotechnology, Chemistry, Mathematics, Physics, and Pre-Pharmacy and a standalone degree in Engineering.
Montgomery College	Standalone degrees.	Transfer degrees in Biotech, Chem and Biochem, Environmental Science, Life Science, Physics, Aerospace Engineering, Bioengineering, Chemical Engineering, Computer Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, Mechanical Engineering, Nuclear Engineering, Mathematics.

2. Provide justification for the proposed program.

Under FCC's previous STEM model, curriculum in Biology, Chemistry, Engineering, and Mathematics was suggested to students in recommended pathways. While this provided flexibility for transfer when used with the careful guidance of an advisor, because the curriculum was not coded into a data system students could register for courses of their choice, often adding unnecessary credits. The new model with Areas of Concentration under the AS STEM will make it harder for students to take unnecessary credits.

F. Relevance to Historically Black Institutions (HBIs)

1. Discuss the program's potential impact on the implementation or maintenance of high-demand programs at HBIs.
2. Discuss the program's potential impact on the uniqueness and institutional identities and missions of HBIs.

It is not anticipated that this program will have an impact on HBIs.

H. Adequacy of faculty resources (as outlined in COMAR 13B.02.03.11).

Provide a brief narrative demonstrating the quality of program faculty. Include a summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct) and the course(s) each faculty member will teach.

Faculty in Science and Math Departments all have significant professional and instructional experience. In disciplines with an approved Area of Concentration there will be a full-time faculty member who provides advising, curricular leadership, and program management functions. From semester to semester the exact courses each faculty member teaches may change; in addition a pool of adjunct faculty supplement teaching in many of these areas.

Calzonetti, Teresa	Ph.D.	Associate Professor	Science	Full-time
Coldren, Gregory	Ph.D.	Assistant Professor	Math	Full-time
Cleveland, Natasha	M.S.	Associate Professor	Science	Full-time

Ellis, Debra	Ph.D.	Associate Professor	Science	Full-time
Evans, Evan	M.S.	Associate Professor	Math	
Ford, Bob	Ph.D.	Professor	Science	Full-time
Frankenberry, Marc	Ph.D.	Assistant Professor	Science	Full-time
Gannon, Joanna	M.S.	Assistant Professor	Math	Full-time
Hartley, Josiah	M.S.	Assistant Professor	Math	Full-time
Hatch, James	M.S.	Associate Professor	Cyber security	Full-time
Hawkins, Lisa	Ph.D.	Assistant Professor	Computer & Information Science	Full-time
Huff, Larry	M.S.	Assistant Professor	Math	Full-time
Hull, Gary	M.S.	Associate Professor	Math	Full-time
Johnson, Susan	M.S.	Professor	Computer & Information Science	Full-time
Lochman, Matthew	Ph.D.	Assistant Professor	Math	Full-time
Lochman, Val	M.S.	Assistant Professor	Math	Full-time
Lu, Gengshi	Ph.D.	Associate Professor	Science	Full-time
Marfani, Erum	M.S.	Assistant Professor	Math	Full-time
Martynenko, Walter	M.S.	Associate Professor	Computer & Information Science	Full-time
Morgan-Vallon, Mary	M.S., M.M.E.	Associate Professor	Math	Full-time
Neills, Wen	Ph.D.	Assistant Professor	Science	Full-time
Newnam-Baicy, Jessica	Ph.D.	Assistant Professor	Science	Full-time
Rosebrock, Joseph	Ph.D.	Associate Professor	Science	Full-time
Seidel, Frank	M.S.E., M.B.A.	Associate Professor	Computer & Information Science	Full-time
Sheppard, Patricia	M.S.	Assistant Professor	Science	Full-time
Taverner, Pei	M.S., M.Ed.	Associate Professor	Math	Full-time
Wood, Perry	Ph.D.	Assistant Professor	Science	Full-time
Yagodich, Dina	M.S.	Assistant Professor	Math	Full-time
Yao, Andy	M.S.	Assistant Professor	Computing & Business Technology	Full-time

I. Adequacy of library resources (as outlined in COMAR 13B.02.03.12).

Describe the library resources available and/or the measures to be taken to ensure resources are adequate to support the proposed program. **If the program is to be implemented within existing institutional resources, include a supportive statement by the President for library resources to meet the program's needs.**

No new library holdings will need to be purchased for this program. Currently library loan mechanisms and electronic data retrieval methods can be utilized. The library exceeds state and national standards for community, junior, and technical college learning resource programs. There is a librarian who may be contacted for bibliographical searches and for the purchase of discipline-specific materials.

J. Adequacy of physical facilities, infrastructure and instructional equipment (as outlined in COMAR 13B.02.03.13)

Provide an assurance that physical facilities, infrastructure and instruction equipment are adequate to initiate the program, particularly as related to spaces for classrooms, staff and faculty offices, and laboratories for studies in the technologies and sciences. **If the program is to be implemented within existing institutional resources, include a supportive statement by the President for adequate equipment and facilities to meet the program's needs.**

Classrooms, facilities, and laboratories on campus currently support General Education and STEM courses for the proposed program and no additional facilities are needed.

K. Adequacy of financial resources with documentation (as outlined in COMAR 13B.02.03.14)

1. Complete Table 1: Resources (pdf) and Table 2: Expenditure(pdf). Finance data(pdf) for the first five years of program implementation are to be entered. Figures should be presented for five years and then totaled by category for each year.
2. Provide a narrative rationale for each of the resource category. If resources have been or will be reallocated to support the proposed program, briefly discuss the sources of those funds.

Financial Data Narrative

Resources

Reallocated Funds – No college funds are being reallocated for this program.

Tuition/Fee Revenue – Current tuition/fee revenue from General Studies enrollment will be impacted as these students move from General Studies to the AS STEM degree. There will not be an increase overall in revenue but a redistribution of current tuition/fee revenue between the AA General Studies and the AS STEM degrees. The redistribution is a general approximation that 25% of current General Studies students will declare the AS STEM. During FY 2016, 3,835 students were listed as a general studies majors (Full-time=1716 (45%), Part-time=2119 (55%).

Tuition and fee revenue is based upon the in-county combined tuition/fee rate of \$193 per credit hour for part-time students and an annual tuition/fee rate of \$3,568 for full-time students with an annual average increase of 2.6% for both part-time and full-time students. Full-time students are taking, on average, 12 credits per semester and part-time students are taking, on average, 6 credits per semester. Enrollment projections are based on current enrollment figures for the 2016 academic year with a projected 20% increase each year in full-time enrollment and 25% increase in part-time enrollment.

Grants, Contracts, and Other External Resources – none

Expenditures

Faculty – No additional faculty will be needed.

Administrative staff – No additional staff will be needed.

Support staff – No additional support staff will be needed.

Equipment – No additional equipment will be needed.

Library – No additional Library costs will be needed.

New or revised space – No new or revised space will be needed.

Other Expenses – No additional expenses are needed.

Finances

There will be no impact on college finances as a result of this new degree; existing college resources will be sufficient as there will be no new expenditures.

L. Adequacy of provisions for evaluation of program (as outlined in COMAR 13B.02.03.15).

Discuss procedures for evaluating courses, faculty and student learning outcomes.

The AVP/Dean of Arts and Sciences, assisted by the chairs of Math, Science, and Computer & Business Technology, will oversee the AS STEM, including an extensive, formal program review that will take place every five years. The primary purpose of the periodic comprehensive academic program review is for faculty to self-reflect upon, evaluate, and improve the education provided by their program. The review process provides a framework within which to make program improvements and also provides an opportunity for programs to showcase successes.

The Dean evaluates full-time faculty annually in the form of a written performance appraisal. Part-time faculty teaching is observed by department chairs regularly (more often when they are new or teaching a new course), and student evaluation of faculty happens in every course, every semester.

Student Learning Outcomes assessment is a faculty-driven process the logistics of which are guided by the Office of Planning, Assessment, and Institutional Research. Program student learning outcomes are assessed as part of the five-year program review. Academic departments choose a high-enrollment course to undergo a rigorous assessment for a three-year cycle.

The College has a clearly defined leadership structure designed to maximize faculty's support. The Assessment Coordinator assists with outcomes assessment projects, meets with faculty, processes data, and authors concise analysis reports. The Executive Director of Assessment and Research, AVP of Arts and Sciences, and the Vice President of Learning provide

departmental guidance and oversight of assessment projects. The Outcomes Assessment Council (consisting of ten full-time faculty, A&R, AVP of Arts and Sciences, and AVP of Teaching and Learning) meet monthly to discuss project status and results.

A Spring 2016 site visit by the Middle States Commission on Higher Education found the college to be in compliance with all Middle States Standards around evaluation of courses, faculty, and student learning outcomes.

M. Consistency with the State's minority student achievement goals (as outlined in COMAR 13B.02.03.05 and in the State Plan for Postsecondary Education).

Discuss how the proposed program addresses minority student access & success, and the institution's cultural diversity goals and initiatives.

Frederick Community College has long been committed to the recruitment and retention of minority students and will expand its services and policies to include this program. Data on minority enrollment in the AS STEM will be monitored by the Dean of Arts and Sciences to see how underrepresented minority enrollment reflects the college-wide average (33% in Spring 2016). In July 2014, the population of non-white persons in Frederick County was 17.2%. The percentage of underrepresented minority students at FCC has increased 19% over the past five years.

Recent college recruitment and retention efforts, which will also apply for the AS STEM, include the following:

- Streamlining the student intake and matriculation process to be more efficient, student-centered, and multi-layered. The First Year Experience Program consists of four components connecting pre-recruiting efforts to academic advising, and academic advising to retention endeavors. This is an intentional effort to ensure that first-generation students have a relatively barrier-free experience as they transition from high school to college.
- Continuing to provide academic, social, and cultural support for diverse students to close the achievement gap. The Multicultural Student Services Partnership to Achieving Student Success (PASS) program, a year-long comprehensive program designed for students of color, of low-income households, and those who are at-risk academically, facilitates the matriculation and continued transition of students to FCC through workshops and peer mentoring. This program received positive attention from Maryland Higher Education Commission and was rewarded a grant for four consecutive years. Furthermore, the persistence rate of PASS students (79%) is higher than non-PASS students (70%) and minority students (72%).

N. Relationship to low productivity programs identified by the Commission:

If the proposed program is directly related to an identified low productivity program, discuss how the fiscal resources (including faculty, administration, library resources and general operating expenses) may be redistributed to this program.

Currently there are no low-productivity programs at Frederick Community College which can be redirected.

Course Descriptions

Please note that all courses listed are not offered every semester. Check the current schedule of classes for course offerings.

Time Commitment for Academic Success

At Frederick Community College, in all credit courses, students are expected to invest a minimum of two hours completing out-of-class course work for every hour of in-class instructional time. For example, in a 3-credit course, students experience at least 37.5 hours of instructional time and should invest a minimum of 75 hours in out-of-class time preparing for the course and completing assignments. In a traditional 15-week, 3-credit course, this equates to an average minimum of 5 hours per week. For online and hybrid courses, students can expect active instructional time and 'out-of-class' course work comparable to face-to-face courses with the same number of credits.

Course Blackboard Requirements

Some course sections may require access to the course Blackboard Web site. Students enrolled in those courses are expected to participate through the Blackboard format using their own or appropriate college-available computers.

ACE: Academic and Career Engagement

ACE 100—Learning Strategies (2)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Develops students' learning strategies and explores habits of successful college students. Students will enhance their academic skills and performance by developing strategies for studying and learning, such as ways to set goals, manage time, take notes, prepare for and take tests, read critically, and use college resources. Instruction is closely linked to the demands of content area courses in which students are enrolled.

ACE 101—Academic Engagement Seminar (3)

• GenEd Interdisciplinary & Emerging Issues/
Multicultural Issues & Perspectives; Cultural
Competence

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces first-year students to current, real-world issues as they advance their critical thinking, communication, and research skills. Students will explore questions of local, national, and global significance through multicultural contexts, while building relationships with their classmates, instructor, and other college personnel. Additionally, students will use campus resources and co-curricular events to enhance their educational experience and foster their college success.

ACE 102—College Success Tools (1)

Prerequisites: (EN 50 and EN 51) OR (ESL 94 and ESL 97) OR (ESL 70 and ESL 71)

Introduces students to tools, strategies, and resources designed to help build stronger academic foundations and make informed choices that will lead to college success. Students will plan their academic path, improve their study habits, and connect to campus and online resources to enhance their educational experience and achieve their goals.

ACE 110—Career Assessment & Planning (3)

Prerequisites: (EN 50 and EN 51) OR (ESL 94 and ESL 97) OR (ESL 70 and ESL 71)

Develops critical methods needed to make a satisfying career decision based on research and goal setting strategies that lead to personal and professional success. Students will acquire the skills needed to make informed choices about their education and career. Students will evaluate their strengths, values, interests, and personality in order to identify possible career options. Students will learn techniques for researching career options and making decisions about their future while creating a learning/career portfolio upon which they can build throughout their college career.

ACE 111A—Introduction to Career Planning (1)

Prerequisites: (EN 50 and EN 51) OR (ESL 94 and ESL 97) OR (ESL 70 and ESL 71)

Introduces the career planning process, focusing on students' ability to assess their career planning needs, decision-making, and goal setting, and to plan appropriate actions. Emphasis is placed on assessing varied career resources.

ACE 111B—Job Search and Workplace Basics (1)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Develops key strategies to help students find satisfying work. Students will learn how to connect their employment objectives to their education and work experience. Topics include resume writing, interviewing, job search skills, and workplace basics.

ACE 120—Portfolio Development: Assessment of Prior Learning (1)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides the opportunity for students to examine past experiences, identify and clarify college-level learning within those experiences, and document the learning in a portfolio format suitable for assessment and the potential granting of equivalent course credit. The students will apply college-level learning gained from life experiences to specific courses offered by the college and related to their educational goals.

ACCT: Accounting

ACCT 100—Business Accounting (3)

Prerequisite: EN 51 or ESL 97 or ESL 70

Demonstrates the accounting principles and procedures used by a business in setting up and maintaining records for reporting purposes. Topics include the accounting cycle, preparation of the financial statements, payroll and banking procedures, and computerized recordkeeping.

ACCT 101—Principles of Accounting I (3)

Prerequisites: (EN 50 and EN 51) OR (ESL 94 and ESL 97) OR (ESL 70 and ESL 71)

Introduces the principles and procedures related to accounting theory and practice. The analysis of transactions under generally accepted accounting principles (GAAP) and their relationship to the financial statements are covered from a user's perspective.

ACCT 102—Principles of Accounting II (3)

Prerequisite: ACCT 101

Continues the study of financial accounting principles and procedures from ACCT 101, with emphasis on the corporate form of business organization. Students will also be introduced to managerial accounting concepts used for planning and controlling the business enterprise.

ACCT 111—Computerized Accounting (3)

Prerequisites: (CIS 101 or CIS 116D) and (ACCT 100 or ACCT 101)

Demonstrates the use of commercial software in managing the accounting functions of a business enterprise. Using a hands-on approach, students will learn how to set up a fully integrated accounting system to record sales invoices, collections, purchase invoices, disbursements, and payroll transactions. Students will also set up and maintain inventory and accounts receivable/payable subsidiary ledgers and prepare financial reports.

ACCT 117—Payroll Accounting (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and ACCT 100 or ACCT 101

Examines the concepts, regulations, laws and procedures related to payroll accounting. The course is comprehensive and detailed to prepare students to be competent to account for the payroll of all businesses. Includes hands-on preparation of all payroll forms, schedules, records, and applications of different systems.

ACCT 201–Intermediate Accounting I (4)

Prerequisites: ACCT 100 & ACCT 101 or ACCT 101 & ACCT 102

Reviews generally accepted accounting principles and the conceptual framework of financial accounting. Provides an intensive study of accounting procedures, work papers, financial statement preparation, and disclosure of financial statement items. Analyzes revenue recognition concepts and the proper accounting for cash, receivables, and inventories.

ACCT 202–Intermediate Accounting II (4)

Prerequisites: ACCT 100 & ACCT 101, or ACCT 101 & ACCT 102, or ACCT 201

Provides an intensive study of accounting for tangible and intangible assets, current and non-current liabilities, stockholders' equity, and investments. Emphasis is placed on proper accounting and financial statement disclosure of earnings per share, leases, deferred income taxes, and accounting changes, with an analysis of time value of money applications.

ACCT 203–Managerial Cost Accounting (3)

Prerequisite: ACCT 101

Presents accounting information that is used by managers for planning, directing and controlling the business. Both short-term operational planning and long-term strategic planning concepts are covered. Specific topics include accounting for product costs vs. period costs, job-order costing and process costing, cost behavior analysis, Cost-Volume-Profit (CVP) decision making, activity-based and standard costing, and capital budgeting.

ACCT 205–Federal Income Tax Accounting (3)

Prerequisite: ACCT 100 or ACCT 101

Covers current federal revenue acts as they relate to business and individual tax procedures. Includes income inclusions and exclusions, exemptions, capital gains and losses and business and individual deductions. Encourages use of tax forms but requires independent analysis of taxable status and handling income-expense items.

ACCT 206–Federal Taxation: Corporations & Partnerships (3)

Prerequisite: ACCT 205

Focuses on the federal taxation rules as they apply to corporations, partnerships, estates and trusts.

ACCT 214–Auditing (3)

Prerequisites: ACCT 100 & ACCT 101 or ACCT 101 & ACCT 102

Examines auditing principles and their application to the examination of financial statements. Special attention to authoritative pronouncements, internal control, auditing procedures and working papers as well as professional ethics and responsibilities. Students perform an auditing case study outside of class.

ACCT 216–Governmental and Not-For-Profit Accounting (3)

Prerequisites: ACCT 100 and ACCT 101 OR ACCT 101 and ACCT 102

Introduces the environment, characteristics, principles, and practices associated with governmental and not-for-profit accounting. Major areas explored include fund accounting, fund types, revenue and expenditure recognition, and financial reporting.

ACCT 233–Applied Accounting (3)

Prerequisites: ACCT 111, ACCT 201, CIS 111E

Provides students with hands-on experiences completing the daily duties and tasks required of a staff accountant. During the first half of the course, students review the accounting concepts related to the duties and tasks. During the second half of the course, students apply their knowledge of accounting principles and procedures to complete the duties and tasks. Students work in a simulated business environment using accounting application software.

ASLS: American Sign Language Studies

ASLS 100–ASL Fingerspelling (2)

Prerequisites: ASLS 103 or permission of program manager

Provides an in-depth study of American Sign Language Fingerspelling. Fingerspelling is a crucial component of ASL. Focuses on developing receptive and expressive fingerspelling skills. Emphasizes whole-word and phrase recognition of fingerspelling embedded in signed sentences with clarity, accuracy, speed, and proper handshapes. Through class activities, this course covers names of people, cities, states, titles of books, movies, brand names, lexicalized fingerspelling and more.

ASLS 101–Visual Gestural Communication (3)

Trains students' visual acuity (receptive and expressive) and coordination of body movements. Emphasis is on mime, gestures and facial expressions. Through class activities and movement, students communicate without using the spoken voice. This class is designed to be a foundation for American Sign Language 1-3. It is recommended that ASLS 102 be taken concurrently with ASLS 101.

ASLS 102–American Sign Language I (ASL I) (3)

• GenEd Arts and Humanities/Humanities
Presents the basic skills used in American Sign Language. Includes vocabulary and grammar related to the exchange of personal information, introductions and negotiating the environment of sign conversation. Uses workbooks and videotapes. (First of four courses in ASL. Credit by examination is available.)

ASLS 103–American Sign Language II (ASL II) (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: ASLS 102

A continuation of American Sign Language I. Further develops communication competencies in sign language above the basic level. Introduces transcription symbols, sentence types, time pronominalization, subjects and objects, classifiers, locatives, pluralization and temporal and distributional aspects. Develops receptive/expressive skills. Features additional information about the Deaf community and Deaf culture.

ASLS 106–Introduction to the Deaf Community (3)

• GenEd Interdisciplinary & Emerging Issues/
Multicultural Issues & Perspectives; Cultural Competence

Provides an introduction to the American Deaf Community. The course touches on various topics including: American Sign Language, different modes of communication, laws concerning the Deaf, professions within the Deaf community, education of Deaf children (controversies and approaches), the importance and value of Deaf Culture (including history, family, values, traditions, past and current trends).

ASLS 107–Introduction to Deaf History (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and ASLS 106

Explores Deaf History from 355 B.C. to present day. Introduces significant individuals in history who were Deaf or influenced the Deaf culture. Explores the development of the first university for the Deaf and an island that was inhabited primarily by Deaf individuals. Examines how technology and inventions have improved and changed the lives of Deaf Society over time. Explores education of the Deaf and unique issues.

ASLS 108–ASL Number Use (2)

Prerequisite: ASLS 102

Provides an in-depth study of American Sign Language Number Use. Number Use is an important component of American Sign Language. Focuses on developing receptive and expressive skills, proper handshapes and their signing location. This course covers 5 systems in ASL Number Use: cardinal, ordinal, incorporation, unique, and sports system. It is recommended that ASLS 103 be taken concurrently with ASLS 108.

ASLS 202–American Sign Language III (ASL III) (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: ASLS 103

A continuation of American Sign Language II. Emphasizes ASL grammar, vocabulary development and the Deaf culture. Expands dialogue, short stories, narratives, short conversations and both receptive and expressive skills. Emphasizes signing techniques as well as signing speed and accuracy.

ASLS 203--American Sign Language IV (ASL IV) (3)

• GenEd Arts and Humanities/Humanities
Prerequisite: ASLS 202

A continuation of ASL III. Features comprehension of medium and longer stories, narratives and dialogues presented by the instructor and Deaf ASL users. Students express self-generated stories. Presents hypothetical issues and problems. Includes interaction with the Deaf community in both directed and non-directed activities.

ASLS 206--American Deaf Culture (3)

Prerequisite: ASLS 107

Examines the unique culture of the Deaf Community. Some topics covered include attitudes from and towards the Deaf, values (family, social, political), humor, storytelling, athletics, performing arts, jokes, organizations, clubs, educational issues, and the diversity of membership. Reviews how new advances in technology have changed the culture.

AN: Anthropology**AN 101--Introduction to Anthropology (3)**

• GenEd Social & Behavioral Sciences/Anthropology; Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents general patterns of the development of human culture and the basic principles of social anthropology and ethnology. Provides field work experience and emphasizes concepts of the modern practical views of anthropology.

AN 103--Introduction to Archaeology (3)

• Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Emphasizes archaeological tools, methods, interests and interpretations. Techniques of recording, preserving and organizing data will be practiced. Involves scouting of sites, test diggings and research of the known historical past. Provides a field study of the area.

AR: Art**AR 100--Introduction to the Creative Arts (3)**

• GenEd Arts and Humanities/Arts

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces students to the areas of visual arts, dance, music, and theater through an exploration of representative works. The study of the creative arts will enhance self-expression and a better understanding of the human experience. The course meets the Maryland State approved Associate of Arts in Teaching degree.

AR 101--Two Dimensional Art and Design (3)

• GenEd Arts and Humanities/Arts

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Investigates the concepts and principles of two-dimensional visual design using black and white through a series of design exercises of increasing complexity.

AR 102--Three Dimensional Art and Design (3)

Prerequisite: AR 101

Builds on the design concepts of AR 101. Explores the principles of visual organization and communication using color and three-dimensional form.

AR 103--Survey of Non-Western Art (3)

• GenEd Arts and Humanities/Arts; Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

An introduction to indigenous visual expressions created in Africa, Asia and the Americas, emphasizing a global perspective and illuminating the historical and artistic interaction of world cultures. A visit to an art museum is required.

AR 104--Survey of Art I (3)

• GenEd Arts and Humanities/Arts; Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Note: AR 104 and AR 105 need not be taken in sequence.

Surveys the major developments in painting, sculpture and architecture from prehistoric times to the Italian Renaissance. Explores multi-cultural diversity through the study of the history of civilization, religion, myth, literature, politics and the human condition as manifested in the visual arts. A visit to an art museum is required.

AR 105--Survey of Art II (3)

• GenEd Arts and Humanities/Arts; Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Note: AR 104 and AR 105 need not be taken in sequence.

Surveys the major developments in painting, sculpture and architecture from the Italian Renaissance to the present. Explores multi-cultural diversity through the study of the history of civilization, religion, myth, literature, politics and the human condition as manifested in the visual arts. A visit to an art museum is required.

AR 106--Drawing I (3)

• GenEd Arts and Humanities/Arts

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Develops skills in using different drawing mediums and approaches. Emphasizes learning how to draw still life, landscape, drapery studies and experimental problems. Includes problems of scale and collage. Students will acquire a portfolio of drawings from studio work. Students must furnish supplies.

AR 107--Drawing II (3)

Prerequisite: AR 106

A continuation of AR 106 with more complex drawing. Emphasizes arranging and understanding the various composition formats, picture planes and pictorial methods of expression found in drawing. Students must furnish supplies.

AR 108--Painting I (3)

Prerequisite: AR 101 or AR 106

Introduces the fundamental concepts and techniques of painting in oils or acrylic. Compositional problems based on still-life, interior and exterior space will be explored. Students must furnish supplies.

AR 109--Painting II (3)

Prerequisite: AR 108

A studio course in analysis of solutions to problems involved in oil or acrylic painting. Develops skills in the preparation of the canvas and in the production of representational, abstract and other styles of paintings.

AR 113--Pottery I (3)

• GenEd Arts and Humanities/Arts

Prerequisites or Corequisites: EN 50A and EN 52 or ESL 95 and ESL 99

Explores clay as a medium for the expression of art. Uses various production techniques, decorating and glazing methods to achieve well-conceived and designed objects of ceramic art.

AR 114--Pottery II (3)

Prerequisite: AR 113

An advanced study into the nature of ceramic art. Skills and techniques learned in Pottery I are refined and advanced, chemical information and historical traditions are elaborated upon to prepare the student for the production of fine ceramic art.

AR 115--Introduction to Color Theory and Design (3)

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces students to the basic principles and elements of color theory. Through lectures, still images, and in-class studio work, students will develop an awareness of color and a deeper understanding of color theory and practice. Topics include the scientific, psychological, and aesthetic aspects of color. Historic examples of color trends in art and design will also be discussed.

AR 119--Pottery: The Wood Kiln (3)

Prerequisites: AR 113

Explores wood-firing as a medium for the expression of ceramic art. Uses various production techniques, decorating and glazing techniques, along with wood kiln firing methods to achieve well-conceived and well-designed objects of ceramic art.

AR 203–Sculpture (3)

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces the three-dimensional processes of carving, modeling, casting and constructing sculptures. Gallery visits, discussions and critiques augment the student's personal studio experiences.

AR 204–Illustration I (3)

Prerequisite: AR 106

Concentrates on the development of hand skills and concepts which are an important part of the technique and magic of picture making. Explores material resources and the preparation of art for reproduction such as advertising design, editorial and fiction illustration. Includes trips to professional design studios.

AR 205–Illustration II (3)

Prerequisite: AR 204

Develops individual style and interpretation. While class assignments are given, individual preferences are welcomed and encouraged. Considers illustration for books, social comment, etc. Study and discussion of slides and sometimes films on the work of past masters and current trends. Critiques and discussions on works in progress.

AR 206–Introduction to Figure Study I (3)

Prerequisite: AR 106

Offers an intensive study in drawing and painting of the human figure, action, volume, structure and anatomy.

AR 207–Introduction to Watercolor I (3)

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Instruction in transparent watercolor techniques, including wash and dry brush, ink and watercolor and expanded uses such as intermixing with turpentine and charcoal and pastel.

AR 210–Watercolor II (3)

Prerequisite: AR 207

Expands techniques developed in AR 207, emphasizing personal expression in watercolor painting. Explores the various advanced methods in watercolor painting, observing works of traditional and contemporary artists. Includes individual research required and museum visits.

AR 213–Intermediate Sculpture (3)

Prerequisite: AR 203

Explores figurative and abstract directions in clay, plaster, welded steel and/or assemblage. Emphasizes a wide range of materials and techniques and their resulting aesthetic statements.

BI: Biological Science

BI 55–Preparation for Allied Health (0) [3]

Prerequisites: (EN 50 and EN 51) OR (ESL 94 and ESL 97) OR (ESL 70 and ESL 71), and MA 81

Presents basic science concepts and science study skills. A preparatory course for students who have limited science background.

BI 100–Fundamental Concepts of Biology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* MA 82 or MA 85 or MA 103A or BU/MA 205A or MA 206A or MA 207A

Explores basic biological concepts involved in understanding the structure, function, and evolution of organisms. Introduces organization of living matter, metabolism, genetics, evolution, and ecology, and their application to everyday life. This one semester laboratory course is intended for non-STEM (science, technology, engineering, and math) majors, and is designed to provide students with an appreciation of biological concepts and their current applications. Meets the requirement for a general education science lab course.

BI 101–General Biology (4)

• GenEd Science

Prerequisites: Completion of high school biology strongly recommended, [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Explores the basic biological principles common to all living organisms, including biological chemistry, bioenergetics and metabolism, cellular and molecular biology, and classical and molecular genetics. Methods of scientific inquiry and data analysis are studied and practiced. BI 101 is the first of a two semester series that together with BI 102 is a comprehensive survey of modern biology. This course is intended for STEM (science, technology, engineering, and math) majors, and pre-allied health majors.

BI 102–General Biology (4)

• GenEd Science

Prerequisite: BI 101

Continues the comprehensive survey of modern biology begun in BI 101 with an emphasis on mechanisms of evolution, methods of phylogenetic reconstruction and analysis, diversity of life, and ecology. Surveys biological diversity of all eukaryotic domains and kingdoms, including the study of various anatomical, physiological, and behavioral adaptations for life in different habitats. Select vertebrate body systems are studied.

BI 103–Anatomy & Physiology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), AND (MA 82 or MA 85) AND (BI 55 or BI 101 or BI 120 or CH 101)

The first course in a two-semester sequence. Presents a study of physiology according to the body systems approach. Emphasizes relationships between form and function at both the microscopic and gross levels of organization. Includes basic anatomical terminology, concepts of cell biology, histology, integumentary system, skeletal system, muscular system, nervous system, special senses and endocrine system.

BI 104–Anatomy & Physiology (4)

• GenEd Science

Prerequisite: BI 103

The second course in a two-semester sequence. Includes the cardiovascular system, lymphatic system and immunity, respiratory system, digestive system and metabolism, urinary system, fluid/electrolyte balance, acid/base balance, and reproductive system.

BI 107–Human Biology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* MA 82 or MA 85 or MA 103A or BU/MA 205A or MA 206A or MA 207A

Presents a study of the human body and its relationships to health, disease, and the environment. Covers basic concepts of anatomy, physiology, genetics, cancer, disease, immunology, aging, human evolution and/or related topics. Incorporates case studies, group work and information technology. For the non-science major. Meets the requirement for a general education science lab course. Students cannot receive credit for both BI 107 and BI 117.

BI 115–Fundamentals of Human Anatomy (5)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 81

Describes the major organs and organ systems of the human body. Emphasis is placed on the body structures and their role in body functions. Examples of various medical procedures (MRI, endoscopy, radiography, etc.) are included as a means of describing organs/organ systems. Health issues are stressed as a means of understanding the function of the organs/organ systems.

BI 117–Study of the Human Body (3)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* MA 82 or MA 85 or MA 103A or BU/MA 205A or MA 206A or MA 207A

Examines the human body and its relationships to health, disease, and the environment. Covers basic concepts of anatomy, physiology, genetics, cancer, disease, immunology, aging, human evolution, and/or other related topics. Incorporates case studies, group work, and information technology. For the non-science major. Students cannot receive credit for both BI 117 and BI 107.

BI 120—Microbiology for Allied Health (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), AND (MA 82 or MA 85) AND (BI 55 or BI 101 or BI 103 or CH 101)

For allied health students. Covers the basic principles of cell chemistry and microbiology with respect to human physiology. Includes cell physiology, growth and metabolism of microorganisms, import groups of pathogenic microorganisms, antimicrobial agents, immunology and introductory biochemistry.

BI 130—Forensic Biology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* MA 82 or MA 85 or MA 103A or BU/MA 205A or MA 206A or MA 207A

Introduces the principles and concepts of the biological aspects of forensic science. Examines the role of the laboratory in criminal investigation and human identification using forensic pathology, serology, anthropology, molecular biology, and other specializations.

BI 140—Biotechnology and Society (3)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Presents an overview of biotechnology and its scientific foundation through introductory investigations of the cell, protein structure and function, genetic expression, ecological and evolutionary interactions, and technological applications and issues. Introduces how science blends with consumer applications, regulatory information and social issues to provide a detailed perspective of the interrelationship among science, technology and society. May include one or more mandatory field trips, and/or guest lecturers.

BI 201—General Ecology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Provides an overview of the interactions among living things and their abiotic environments, emphasizing factors which affect the abundance and distribution of living things. The laboratory will focus on using field experiences to develop topics covered in the lecture. Some Friday, Saturday or overnight field trips.

BI 202—Human Ecology (3)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* MA 82 or MA 85 or MA 103A or BU/MA 205A or MA 206A or MA 207A

Investigates physical environments of human beings and the effect of technologies on the environment. Emphasizes small group investigations of air, water and soil pollution and the rapidly expanding population as it affects the natural ecosystem within Frederick County and the Eastern seaboard. Some Friday or Saturday field trips.

BI 203—Elements of Microbiology (4)

Prerequisites: CH 101 and BI 101 or BI 103

Introduces microbiology. Includes basic study of morphology, physiology, genetics and ecology of microorganisms, with an introduction to infectious diseases and immunology.

BI 220—Cell Biology and Tissue Culture (4)

Prerequisites: BI 101 and CH 101

Introduces cellular organization, regulation, energy transport, and division. Discusses gene expression and interaction in relation to cellular biology. Presents tissue culture in the laboratory setting as a medium for bioprocess manufacturing. May include one or more mandatory field trips and/or guest lecturers.

BI 240—Genetics (4)

Prerequisites: BI 101 and CH 101

Includes history of genetics, the chemical basis of heredity, the chromosomes and genes, probability, variation in gene structure, mutation, extrachromosomal systems and genes flow in populations.

BPM: Bioprocessing Technology**BPM 102—Bioprocessing Environment (3)**

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents the tenets of Current Good Manufacturing Practices (cGMPs) and regulations relevant to the bioprocess manufacturing industry. Importance of inspections and monitoring are discussed. Work-related issues are introduced, such as workplace conduct, employer expectations, company organization and policy, personal safety, and industrial hygiene. May include one or more mandatory field trips and/or guest lecturers.

BPM 103—Laboratory Techniques I (1)

Prerequisites: Completion of high school biology or chemistry is strongly recommended, [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Focuses on the basic principles and procedures used in all laboratory courses. Includes safety, use of instruments and equipment, basic wetlab skills, laboratory math, and professionalism.

BPM 110—Bioprocessing Measurements (4)

Prerequisite or Corequisite: BPM 103

Examines methods of measurement and monitoring used in bioprocessing. Emphasizes pH, temperature, pressure and flow rates, as well as spectrophotometry, and biochemical and chemical analytical methods.

BPM 214—Techniques in Bioproduction (4)

Prerequisites: BI 120 or BI 203, BI 110, BPM 102

Introduces practices used in the industry to manufacture a biological material or product, as well as problem-solving strategies. Emphasizes and demonstrates aseptic technique, upstream and downstream processes, and quality control through hands-on laboratory activities.

BLD: Building Trades**BLD 101—Introduction to Building Trades (3)**

Prerequisite: EN 51 or ESL 97 or ESL 70

Introduces general aspects of building trades, the building process, and its phases. Emphasizes health and safety issues related to the building trades. Explores print reading, building design, building site planning, site preparation, and estimating as it relates to construction. Includes an overview of applicable equipment and materials required in the building trades.

BLD 108—Duct Design & Installation (3)

Prerequisite or Corequisite: BLD 109

Covers duct installation, sizing, making take-offs, modifications, and unit tie-ins. Lectures will cover safety, sizing methods, types of tools used, duct types and applications. In a lab setting, students will learn hands-on how to measure, cut, modify, and install ductwork for various applications. CFM measurements and airflow troubleshooting will also be covered.

BLD 109—Fundamentals of HVACR (4)

Prerequisite: EN 51 or ESL 97 or ESL 70

Covers fundamentals of heating, cooling, ventilation, humidity control, and basic refrigeration. Students will receive hands-on experience in a lab setting.

BLD 110—Controls for HVACR (3)

Prerequisite: BLD 109 or permission of program manager

Covers the topics of controls in HVACR with respect to thermostats; pressure, safety and temperature devices; and valves. In a lab environment, students will be able to identify and apply usage of these components.

BLD 113—HVAC Installation & Troubleshooting (3)

Prerequisite: BLD 110 or BLD 112 or permission of program manager

Teaches basics of troubleshooting, installation, service, and preventative maintenance techniques of HVAC equipment. Course includes EPA CFC certification. Hands-on experience will be conducted in a lab setting where students will demonstrate and apply these techniques.

BLD 114—Fossil Fuels & Hydronic Heating (3)

Prerequisite: BLD 110 or BLD 112 or permission of program manager

Covers the topics of fossil fuel heating devices, hydronic and forced air equipment. Students will apply troubleshooting, installation, service, and preventative maintenance techniques on these systems in a lab setting.

BLD 120—Welding Symbols & Blueprint Reading (2)

Prerequisite: EN 51 or ESL 70 or ESL 97

Introduces various types of prints used in the welding industry. Topics include print reading, measurements, metallurgy, types of welds and joints, and welding symbols.

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BLD 121–Introduction to Welding (4)

Prerequisite or Corequisite: BLD 120

Introduces the basic processes in the welding field. Emphasizes welding safety. Introduces the various types of welding equipment, identification and selection of filler material, types of welds, and the different welding positions.

BLD 122–Advanced Welding: SMAW (4)

Prerequisite: BLD 121

Focuses on Shielded Metal Arc Welding (SMAW). Students will perform a SMAW welding performance qualification test on limited thickness test plates in the 2G and 3G positions on carbon steel in accordance with American Welding Society D1.1 Structural Welding Code; this leads to an in-house certification.

BLD 125–Advanced Welding: GTAW (3)

Prerequisite: BLD 121

Introduces Gas Tungsten Arc Welding (GTAW) on carbon steel, stainless steel, and aluminum. Topics include welding safety, basic machine maintenance, and welding techniques.

BLD 127–Advanced Welding: GMAW (3)

Prerequisite: BLD 121

Focuses on Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), and oxyfuel cutting on carbon steel. Students will develop skills to weld groove welds in multiple positions. Students will perform GMAW and FCAW welder performance qualification tests on limited thickness test plates on carbon steel in accordance with American Welding Society D1.1 Structural Welding Code.

BLD 128–Advanced Welding: SMAW 4G (3)

Prerequisite: BLD 122

Focuses on Shield Metal Arc Welding (SMAW) and oxyfuel and Plasma Arc cutting on carbon steel. Students will complete a SMAW welder performance qualification test on limited thickness test plates in the 4G position on carbon steel in accordance with American Welding Society D1.1 Structural Welding Code. Leads to an in-house certification.

BLD 141–Fundamentals of Structural Wiring (4)

Prerequisite: EN 51 or ESL 97 or ESL 70

Covers basic principles and fundamentals of electricity and electrical work. Course will include components of schematics and blueprints, importance and role of the National Electrical Code, and safety. Students will receive hands-on experience with tools of the trade, wiring, and installing components of accessory terminations.

BLD 142–Residential Electric (3)

Prerequisite: BLD 141 or permission of program manager

Advances student knowledge and experience in the National Electrical Code (NEC) and its application. Topics covered will include NEC calculations, as well as print reading, circuitry, schematics, materials, and circuit testing. Hands-on applications will be conducted in a lab setting.

BLD 145–Commercial Electric (3)

Prerequisite: BLD 142 or permission of program manager

Continues the concepts and skills covered in the first two courses of the electrical building trades program. This course covers wiring methods mainly used in commercial construction. Topics covered to include: conduit (bending, installation), commercial lighting (fluorescent, HID), and transformers. Students will also have an overview of the applicable sections of the National Electrical Code (NEC), including box/conduit fill, and load calculations.

BLD 146–Specialized Systems (3)

Prerequisite: BLD 141 or permission of program manager

Covers topics in the electrical field such as CAT5, CAT6, CATV, fiber optics, fire alarms, photovoltaic, and electric controls. Students will receive hands-on experience working with materials and components in a lab setting. Students will also be introduced to the National Electrical Code (NEC) codes governing these various sub-fields of the electrical industry.

BU: Business Studies

BU 103–Introduction to Business (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces effective use of planning, organization and control in the management of an enterprise. Introduction to finance, personnel and plant management, marketing and business and government relations.

BU 107–Business Mathematics (3)

Covers the mechanics of computation and fundamentals of problem solving in such practical applications as statistics, percentage, interest, partial payments, distributions, payroll and graphs.

BU 109–Entrepreneurship & Small Business Enterprise (3)

Explores starting and successfully managing a small business. Includes making the decision for self-employment, getting started (new business, going concern, franchising), marketing the product or service, achieving proactive financial management, a miscellany of management pointers for small businesses (personnel/inventory/control/managing risk) and regulations and taxes.

BU 110–Personal Financial Management (3)

Develops a well-rounded approach to managing personal finances. Includes financial planning, budgeting, financing consumer purchases, risk control, investments and retirement planning.

BU 116–Global Business Simulation (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and ACCT 101 and BU 103 and any CIS course

Introduces students to an international business model in which students work as team members in a simulated business firm. The students will perform various business functions (i.e., purchasing, accounting, marketing, and managing human resources) as the firm transacts business in a virtual environment with students in the U.S. and other countries. Emphasis will be placed on decision making, critical thinking, and team-building throughout the course.

BU 132–Professional Human Resource Preparation (2)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Reviews requirements of the Professional Human Resources (PHR) or Senior Professional in Human Resources (SPHR) certification. Includes application exercises that develop specific competencies and decision-making skills. This course follows the Human Resource Certification Institute's exam preparation course.

BU/MA 205–Business Statistics (3)

• GenEd Mathematics

Prerequisites: MA 82 or MA 85 or MA 103 or MA 103A or MA 206 or MA 206A or MA 207 or MA 207A or appropriate score on mathematics placement test and (CIS 101 or CIS 111E or CIS 116E) and placement in EN 51 or ESL 70 or higher on the reading placement test

Introductory non-calculus statistics course for business. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, chi-square tests and non-parametric tests. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A. Business Administration students must take BU/MA 205 (not BU/MA 205A).

BU/MA 205A–Business Statistics with Algebra (3) [5]

• GenEd Mathematics

Prerequisites: A grade of "C" or better in MA 81 or appropriate score on mathematics placement test, and (CIS 101 or CIS 111E or CIS 116E), and placement in EN 51 or ESL 70 or higher on the reading placement test

Introductory non-calculus statistics course for business. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, chi-square tests and non-parametric tests. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A. Business Administration students must take BU/MA 205 (not BU/MA 205A).

BU 211–Business Law I (3)

Prerequisite: EN 101

Introduces business law and its application to business activity. Includes contracts, agency and employment, negotiable instruments and sales.

BU 213–Principles of Finance (3)

Prerequisites: ACCT 102 and any credit mathematics
Overview of financial sectors and tax environment; ratio analysis; forecasting profits; working capital management; investment decisions with present value emphasis and investments under uncertainty; valuation and cost of capital; and long-term financing.

BU 221–Public Relations (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces basic principles that business and administrative organizations have found to be successful in building and maintaining favorable public relations. Attention to the various tools of public relations such as the broadcast media, newspapers, periodicals, brochures, photographs and exhibits.

BU 223–Human Resource Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces basic concepts of Human Resource (HR) Management in organizations. Provides an overview of the primary elements of HR management, including human resource planning, recruitment, selection, training and development, performance management and employee motivation/retention, compensation and benefits, workplace safety, labor relations, and legal/ethical issues.

BU 225–Marketing (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Explores problems and organization of systems that distribute goods and services in the business world. Promotion through retail and wholesale parallels; consumer buying habits; pricing, budgeting, transportation and warehousing; and sources and uses of marketing information.

BU 227–Principles of Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides an introduction to basic principles of management in business and other organizations. Emphasizes management functions including planning, organizing, staffing, directing, controlling and coordinating. Explores the role leaders play in strategic planning, change management, innovation, decision making, and motivating employees/teams.

BU 251–Introduction to International Business (3)

Presents the management and decision-making aspects of international business situations. Studies the functions of international business as it relates to economics, monetary systems, law, finance and accounting.

BU 272–Supervisory Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Prepares the student for the transition from employee to supervisor. The course evaluates styles of leadership and develops skills in human relations management.

BU 273–Business Communications (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Emphasizes the theory and practice of oral, written, and interpersonal communication used in the workplace. Classroom activities and assignments will focus on writing business correspondence and reports, planning and delivering effective presentations, and developing teamwork and collaboration skills.

BU 274–Customer Relations (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines the role of customer relations in business and emphasizes the theory and practice of developing, fostering and managing relationships between the company and the customer. The course will focus on those practices that lead to customer loyalty and retention. Value equation applications and a systems approach to service excellence are introduced in the course. The course will also address building excellent customer relations into the mission of the company and committing to customer service as competitive advantage.

BU 275–Fundamentals of Leadership (3)

Prerequisite: EN 50A or EN 61 or ESL 95 or ESL 73

Emphasizes the theory and real-time practice of leadership skills used in the workplace. Classroom activities and assignments will focus on strategies for navigating change, leading with priorities in mind, managing conflict, giving and receiving constructive feedback, visioning, preparing mission statements, and setting goals.

BU 281–Global Awareness in the Work Environment (3)

• GenEd Interdisciplinary & Emerging Issues/
Multicultural Issues & Perspectives; Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Promotes student awareness of the cultural diversity in the workplace whether in the US with multicultural coworkers or abroad. Stresses student thinking about the global work environment by analyzing and applying course information. Utilizes a variety of classroom and Internet activities and projects to develop an understanding of the workplace cultural surroundings.

BU 290–Project Management (3)

Prerequisite: CIS 101

Introduces concepts and practices of project management and their universal application to all types of organizations. Students will analyze the roles of the project manager and project team and utilize techniques for effective project planning, management, control, closeout, and evaluation.

Accounting (MGT)

(Continuing Education/Noncredit)

MGT 252–Become a Certified Bookkeeper

The course focuses on preparing you for the national Certified Bookkeeper examination by helping you truly master the skills and knowledge required for certification. Subject areas to be covered are adjusting entries (accruals and deferrals), correction of accounting errors (including the bank reconciliation), basic book and tax depreciation, basic payroll (includes paying wages, withholding, reporting taxes, use of basic forms), and recording and costing out merchandise inventory. You will use 5 workbooks, one for each exam subject. Exams are administered at Prometric Test Centers. Exam fees are additional.

To become a certified bookkeeper, you will need at least 2 years of working bookkeeping experience and will have to sign a written code of ethics. Certification can increase your earning potential, enhance your standing as a professional and give you an edge in the most competitive job market.

CH: Chemistry**CH 100–Chemistry and Society (4)**

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Intended for non-science majors. Explores important concepts of modern chemistry. Emphasizes connection between basic scientific principles and the current technologies of our society. Laboratory experiments illustrate the process of scientific discovery. No background in science is required. Will not serve as a prerequisite for CH 102, CH 201 or advanced science courses. For non-science majors.

CH 101–General Chemistry (4)

• GenEd Science

Prerequisites: Completion of high school chemistry strongly recommended, [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Intended for science majors, technology majors and pre-allied health majors. Examines the concepts underlying modern chemistry, including atomic and molecular structure, bonding, states of matter and solutions. Laboratory experiments illustrate the lecture material.

CH 102–General Chemistry (4)

• GenEd Science

Prerequisite: CH 101

Continues examining the concepts underlying modern chemistry, including kinetics, equilibrium, acid-base theory, nuclear chemistry, electro-chemistry, chemistry of the elements and an introduction to organic and biochemistry. Laboratory experiments illustrate the lecture material.

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CH 105–Essentials of Organic Chemistry (4)

Prerequisite: CH 101

Introduces organic chemistry, emphasizing nomenclature, structure, methods of preparation, reactions and some biological applications. Laboratory includes synthesis and identification of organic compounds. For students in allied health fields and for students needing a one-semester organic chemistry course.

CH 201–Organic Chemistry (4)

Prerequisite: CH 102

Presents the hydrocarbon and derivatives, emphasizing bonding, structure, nomenclature, methods of preparation, reaction and reaction mechanisms. Laboratory emphasizes common techniques, synthesis of representative compounds.

CH 202–Organic Chemistry (4)

Prerequisite: CH 201

Continues to present the hydrocarbon and derivatives, emphasizing bonding, structure, nomenclature, methods of preparation, reaction and reaction mechanisms. Laboratory emphasizes common techniques, synthesis of representative compounds and qualitative organic analysis.

CMSP: Communications Speech

CMSP 101–Introduction to Communication Studies (3)

• GenEd Arts and Humanities/Communications
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces students to the basic theories and practical applications of human communication as it relates to their communication experiences. These include interpersonal situations, intercultural experiences, small group interactions, and public communication. Students will be given opportunities to develop their effectiveness in the speaking-listening communicative setting as well as develop knowledge of the communication process as a system.

CMSP 103–Speech Fundamentals (3)

• GenEd Arts and Humanities/Communications
Prerequisite: EN 52 or ESL 99 or ESL 72

Emphasizes the attainment of understanding and skill in public speaking. Assignments require analyzing the audience, researching, organizing, outlining, supporting and delivering a variety of extemporaneous speeches.

CMSP 105–Group Discussion (3)

• GenEd Arts and Humanities/Communications;
Cultural Competence

Prerequisite: EN 52 or ESL 99 or ESL 72

Offers skills development in verbal, non-verbal and intercultural communication, listening, observation, leadership, and participation in groups. Emphasizes collaborative learning through researching and analyzing questions of fact and policy, problem solving and decision making, interacting and reaching consensus.

CMSP 107–Career Communication (3)

• GenEd Arts and Humanities/Communications

Prerequisite: EN 50A or EN 61 or ESL 95 or ESL 73

Offers students knowledge and skills needed to communicate within their prospective professions and with others outside those professions. Assignments in interviewing, group discussion and extemporaneous speaking are adapted to individual students.

CMSP 201–Foundations of Communication Theory (3)

Prerequisite: CMSP 101

Provides students with an understanding of the principle theories related to the field of communication. Specifically, it introduces students to the study of communication theory and provides them with the conceptual and theoretical foundation needed to succeed as a communication scholar. Concepts and theories learned in this course will be studied in greater detail in the upper level courses required of the major.

CAD: Computer Aided Design

Students enrolling in these courses should be familiar with the Microsoft Windows operating system.

CAD 101–Introduction to AutoCAD I (3)

Prerequisite: EN 51 or ESL 97 or ESL 70

Introduces AutoCAD software and its application as a drawing tool. Students will utilize basic AutoCAD commands to create two-dimensional production and architectural drawings. Students will use templates, layer control, dimensioning, editing, text, symbol creation, and blocks to create and modify geometrical designs and print/plot drawings for presentation.

CAD 102–Introduction to AutoCAD II (3)

Prerequisite: CAD 101

Continues the study of AutoCAD at an intermediate level. Students will create pictorial views and three dimensional drawings. Students will be introduced to additional CAD systems (Autodesk Architecture, Revit, Civil 3D, and Microstation).

CAD 121–Introduction to MicroStation I (3)

Prerequisite: EN 51 or ESL 97 or ESL 70

Introduces the fundamentals of MicroStation Computer Aided Design software system. Provides intensive hands-on instruction covering the basic commands used to create 2-D production drawings. Covers how to create and modify geometrical designs, plot, and use levels and reference files to organize and separate information.

CAD 130–Introduction to Revit (BIM) (3)

Prerequisite: EN 51 or ESL 97 or ESL 70

Introduces students to Autodesk Revit software, a Building Information Modeling (BIM) program, and its application as a design/drawing tool throughout the design process. Allows students to design structural components in 3D, annotate with 2D drafting elements, and access building information from the building models database.

CAD 200–Introduction to Architectural Drawing and Design (3)

Prerequisite: CAD 101

Introduces the basic principles and concepts of architectural drawing and design, and their application. Develops an understanding of programming and schematic design. Introduces fundamental drawing practices, drawing systems, and presentation techniques. Students will create architectural sketches, drawings, and models.

CAD 201–Residential Architecture I (4)

Prerequisite: CAD 102

Introduces the basics of residential architecture. Content covers the language of architecture, the makeup of a set of plans, and the geometry of drawing parts of houses. Students will complete a set of plans and work with various disciplines for one house. Plans will be completed in AutoCad.

CAD 202–Residential Architecture II (4)

Prerequisite: CAD 201

Introduces the use of AutoCad in preparing construction documents and 3-dimensional models of buildings. Architecture terminology, building techniques, building conventions, building design, and architecture-related information will be introduced. Students will complete a set of plans and work with various disciplines for one house. Plans will be completed using AutoCad.

CAD 204–Introduction to Inventor (3)

Prerequisite: CAD 102

Introduces Autodesk Inventor software and its application as a design/drawing tool. This course covers basic and advanced Autodesk Inventor features used to create, edit, document, and print parts and assemblies.

CAD 205–Civil Drafting I with CAD (3)

Prerequisite: CAD 102

Introduces fundamental concepts of civil drafting and design of civil engineering projects. Students will explore career fields in civil engineering and design including survey, land development, environmental, highway, and utilities. Students will use CAD software to create and revise civil drawings including site surveys, plot plans, record plans, utility drawings, and plan profiles. Students will develop an understanding of the relationship of GIS applications to civil engineering.

CAD 207–Civil Drafting II with CAD (3)

Prerequisite: CAD 205

Introduces intermediate/advanced concepts of civil drafting and design of civil engineering projects. Students will use 3D civil CAD software to create and revise civil engineering drawings including survey drawings, highway layouts, profiles, site plans, corridors, sections, grading plans, cut and fill drawings, and other civil detail drawings.

CIS: Computer & Information Sciences

Students without typing skills should enroll in a keyboarding class concurrent with their first information processing class.

CIS 101–Information Systems and Technology (3)

- GenEd Interdisciplinary & Emerging Issues/ Computer Literacy

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Explores the fundamentals of information systems and relevant technologies. This course surveys the terminologies, types, components, functions, architectures, and development life cycle of information systems. Topics include roles, values, impacts, applications, security concerns, social issues, ethics, and responsibilities related to the use of information systems in businesses. Students will also learn productivity applications, such as word processing, spreadsheet, presentation, and database software.

CIS 103–Keyboarding (3)

A series of courses leading to increased skills in keyboard use.

CIS 103A–Introductory Keyboarding (3)

Develops typewriting skills and techniques. Covers basic procedures such as typing personal and business letters, envelopes, centering, tabulation and manuscripts. Goal is at least 30 words per minute. Course may be waived upon examination.

CIS 103B–Executive Keyboarding (3)

Prerequisite: CIS 103A

Helps students with keyboarding experience to further their skills in the area of administrative or executive office skills. Students identify their speed and accuracy problems, develop practice routines to help correct those problems, and learn basic and advanced business formatting. Teaches how to prepare employment documents, how to handle office tasks, how to edit and abstract written materials, and how to make decisions and set priorities.

CIS 103C–Keyboarding for the Business and Medical Professional (3)

Note: In order for students to be successful in this course, students should demonstrate the ability to type by touch a minimum of 25 words a minute with three or less errors for three minutes. There are many online sites to test typing speed and accuracy. Students will be tested at the first class meeting.

Designed for students who can keyboard by touch, have keyboarding experience, and want to further their expertise in the area of business and medical administrative office skills. Students will identify their speed and accuracy problems, develop practice routines to help correct those problems, and learn basic and advanced business and medical administrative document formatting. Emphasis will be placed on how to prepare employment and patient documents, how to handle office tasks, how to edit and abstract written materials, and how to make decisions and set priorities.

CIS 106–Object Design and Programming (3)

- GenEd Interdisciplinary & Emerging Issues/ Computer Literacy

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 81

Covers basics of object-oriented programming, fundamentals of computer information systems, impact of information technology on the economic, political and cultural development of society as well as the ethical, societal, and legal aspects of information technology. Students will design, implement, document, and debug object-oriented programs to solve problems by utilizing various data types and algorithms, control structures, encapsulation, and inheritance. Students will participate in structured walkthroughs and discussions, create Unified Modeling Language (UML) diagrams in designing solutions, and debug errors within the designed solutions. Requires no prior programming experience.

CIS 111–Microcomputer Software Applications

A series of individual courses involving various state-of-the-art microcomputer software application packages. Courses include:

CIS 111A–Microcomputer Software Applications: Word Processing (3)

Prerequisite or Corequisite: CIS 101 or CIS 106 or CIS 116D

Covers the basic, intermediate and advanced features of word processing. Students create, edit, format and save personal and business documents. Along with data integration, special features such as mail merge, sorting, styles, columns, footnotes, outlines, table of contents, indexes, and templates are presented.

CIS 111B–Microcomputer Software Applications: Database (3)

Prerequisite or Corequisite: CIS 101 or CIS 106

Covers the basic and advanced features of a commercial database software package. Students plan, define and use a database; perform queries; produce reports and forms; work with multiple files; and learn the basic concepts of database programming.

CIS 111C–Microcomputer Software Applications: Computerized Accounting (3)

Prerequisites: (CIS 101 or CIS 116D) and (ACCT 100 or ACCT 101)

Demonstrates the use of commercial software in managing the accounting functions of a business enterprise. Using a hands-on approach, students will learn how to set up a fully integrated accounting system to record sales invoices, collections, purchase invoices, disbursements, and payroll transactions. Students will also set up and maintain inventory and accounts receivable/payable subsidiary ledgers and prepare financial reports.

CIS 111E–Microcomputer Software Applications: Spreadsheets (3)

Prerequisite or Corequisite: CIS 101 or CIS 106 or CIS 116D or CIS 116F

Covers the basic and intermediate features of a commercial spreadsheet software package. Students design a variety of worksheets and charts; create formulas and functions, work with a spreadsheet's database features; apply 'what if' techniques and interchange data with other applications.

CIS 111J–Microcomputer Software Applications: Web Page Development (3)

Prerequisite or Corequisite: CIS 101, CIS 106, or CIS 116D

Introduces modern web development tools for website construction. This course covers the topics relevant to the development of interactive websites, including conceptualization, design, layout, and visual stimulation. Students will learn HTML5, CSS3, and JavaScript.

CIS 111K–Microcomputer Software Applications: Practical Structured Cabling (3)

Provides students with the fundamental skills to work with structured cabling systems that make up data and voice systems. This course will cover copper and fiber-optic cable types, installation, testing, and troubleshooting. Students will also learn about OSHA safety standards, applicable building codes, and industry standards. An overview of accrediting associations (e.g., BICSI, ETA) will be included.

CIS 111L–UNIX/Linux Operating System (3)

Prerequisite: CIS 101 or CIS 106

Explores the practical use and operation of an open-source operating system (Linux/Unix). Students will learn how to use basic Unix commands, shell scripting, and various system utilities.

CIS 111M–PC Operating Systems (3)

Prerequisite: CIS 101, CIS 106, CIS 116D, or CIS 212

Explores the installation, configuration, and operations of operating systems. Students learn to set up, configure, troubleshoot, and maintain hardware devices and software applications on an operating system. Completion of this course will help prepare students for the A+ certification exam. It is recommended that students take this course and CIS 212-PC Repair & Diagnostics in the same semester.

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CIS 111R–Business Software Applications (3)

Emphasizes an integrated approach. Covers different software applications, from spreadsheet to word processor, to graphs, to the file manager, to communication files. Provides numerous hands-on assignments and exercises. Students gain practical experience using a computer to solve problems that arise in the automated office environment.

CIS 116–Microcomputer Software Applications (A,B, ...) (1)

A series of short-term courses leading to increased skills in various state-of-the-art microcomputer software application packages.

CIS 116B–Internet Home Page (1)

Prerequisite: CIS 116D

Learn how to create Web pages using mark codes, link Web sites, include images and sound files and how to create user-friendly forms.

CIS 116C–Presentation Graphics (1)

Introduces the basic principles and terminology of presentation graphics software. Topics covered include but are not limited to creating slides, using charts and graphics, customizing information and controlling the design of an electronic presentation. Teaches how to make transparencies, 35mm slides and handout notes for a slide show.

CIS 116D–Windows (1)

Covers the basics of the Windows operating system from navigating with the mouse to customizing the desktop to managing files, directories and programs.

CIS 116E–MS Applications Spreadsheets (1)

Covers the basic and intermediate features of MS Excel 2013. Students design a variety of worksheets and graphs, create formulas, work with a spreadsheet's database feature, apply 'what if' techniques, and exchange data with other applications.

CIS 116F–Computer Fundamentals (1)

Surveys computer basics including hardware, applications, operating systems, and communication networks. Students learn the components of hardware, applications of software in work place, variety of operating systems, and the basics of communication networks.

CIS 116L–Software Integration (1)

Prerequisite: CIS 111A, CIS 111E, CIS 116C

Builds upon student's knowledge of the Microsoft Office Suite. Students cover the basics through advanced features of sharing data among Word, Excel, Access, PowerPoint and Outlook.

CIS 116P–Photoshop (1)

Introduces the basic principles and terminology of graphics software used for Web and print materials. Students will learn how to create, modify, and import images as well as merge and edit colors. Students will become familiar with both the MAC and PC platforms in this course.

This course is recommended for students planning to take CMM114 or CIS111J.

CIS 116Q–Macromedia Flash (1)

Introduces the basic principles and terminology of Web media software. Students learn how to create interactive media including animated logos, Web site navigational controls, and media-rich elements that integrate with Web pages.

CIS 140–Java Programming (3)

Prerequisite: CIS 106

Introduces Java programming language with an emphasis on object-oriented principles. Students utilize library classes in developing Java standalone applications and applets. Topics include Graphical User Interface (GUI) programming, event-driven programming, inheritance, and polymorphism.

CIS 170–Security Fundamentals (3)

Prerequisite or Corequisite: CIS 180 or CIS 190

Provides students with the knowledge and skills to implement, maintain and secure network services, network devices, and network traffic. Builds on foundational network concepts, computer hardware, and operating systems principles.

CIS 173–Healthcare Information Technology (3)

Prerequisite or Corequisite: CIS 101 or CIS 106

Prepares students to become healthcare information technology technicians. Topics covered include healthcare-related regulatory requirements, healthcare terminology/acronyms, medical business operations, electronic health records (EHRs), and healthcare specific security best practices. Students will obtain the knowledge and skills required to implement, deploy, and support health IT systems in medical facilities.

CIS 175–Game Theory and Design (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers game theory and design. Topics include the roles of game designers, game structures and elements as well as game development stages and methods. Students learn about designing, prototyping, and playtesting games.

CIS 176–Game Creation (3)

Prerequisite or Corequisite: CIS 116D or CIS 116F (prerequisite only, course no longer offered) or CIS 116P or CIS 101 or CIS 106 or CIS 175

Covers the creation of basic games. This hands-on course guides students step by step through the basics of building interactive games. Students learn to create computer games utilizing current technologies, such as web page design/development languages, animation/simulation software, and game engines.

CIS 177–Interactive 3D Technology (3)

Prerequisite or Corequisite: CIS 116D or CIS 116F (prerequisite only, course no longer offered) or CIS 101 or CIS 106

Surveys the current 3 dimensional (3D) technologies and introduces the design and creation of virtual interactive 3D models. Covered techniques include mesh modeling, texturing, lighting, rigging, animating, and rendering. Students learn to design and develop computer generated interactive 3D worlds using 3D production tools such as Blender.

CIS 178–3D Modeling and Animation (3)

Prerequisite or Corequisite: CIS 101 or CIS 106 or CIS 177

Introduces fundamentals of creating and animating 3 dimensional (3D) computer modeling. The industry standard 3D modeling and animation software are surveyed and explored. This course covers Autodesk Maya Certified Professional exam topics and objectives. Topics include 3D modeling concepts and 3D animation process. Students learn to create and animate 3D models using 3D modeling tools.

CIS 179–Cybersecurity Fundamentals (3)

Prerequisite or Corequisite: CIS 106

Introduces the Essential Body of Knowledge for IT security and the fundamentals of cybersecurity, including the cyber architecture, components of security practices, and cybersecurity-related legislative framework. Students learn to identify risks, threats, and vulnerabilities relevant to information technology resources and to analyze the significance of security models and issues associated with security management. Surveys the software lifecycle and software assurance.

CIS 180–Networking Fundamentals (3)

Prerequisite: CIS 106 or CIS 111M

Reviews hardware, operating systems, and other networking principles. Includes comprehensive networking skill sets necessary for the CompTIA Network exam.

CIS 190–Cisco 1 Networking Fundamentals (3)

Prerequisite or Corequisite: CIS 106 or CIS 212

Covers networking fundamentals, Open Systems Interconnection (OSI) network reference model, and Transmission Control Protocol/Internet Protocol (TCP/IP). Topics include network topologies, protocols, IP addressing, subnet masks, and Ethernet. Students will also learn the basic network design and cable installation.

CIS 191–Cisco 2 Routing Technologies (3)

Prerequisite or Corequisite: CIS 190

Introduces the routing protocols and concepts, as well as the fundamentals of Cisco routers. Students learn to install, configure, customize, operate, maintain, and troubleshoot Cisco routers and relevant components.

CIS 192–Cisco 3 Switching Technologies (3)

Prerequisite or Corequisite: CIS 191

Surveys switching protocols, Local Area Networks (LANs), and LAN switching. Students will analyze, configure, verify, and troubleshoot routing protocols, including routing for IPv4 and IPv6, EIGRP for IPv4 and IPv6, as well as OSPF for IPv4 and IPv6. This course also covers LAN switch operations and virtual private networks.

CIS 193–Cisco 4 WAN Technologies (3)

Prerequisite or Corequisite: CIS 192

Introduces the principles and implementation of Wide Area Networks (WANs). Topics include the traffic control and access control lists (ACLs), services and protocols for wide-area access, Point-to-Point (PPP) protocols and WAN, as well as the concepts and operations of frame relay. Students will learn to configure, verify, and troubleshoot WANs.

CIS 200–IT Support Services (3)

Prerequisite: CIS 101, CIS 106, CIS 111M, or CIS 212

Introduces the fundamentals, operations, roles, and responsibilities of information technology (IT) support services. Students practice problem-solving and communication skills appropriate in the computer user-support environment. Best practices in customer support and professional work habits are emphasized throughout the course. Topics include incident identification, incident management, information collection skills, communication skills, personal skills, technical skills, security skills, troubleshooting skills, training skills, and business skills.

CIS 201–Computer Science I (4)

Prerequisites: MA 82 and [CIS 140 (prerequisite or corequisite) or minimum grade of C in CIS 106]

Emphasizes object-oriented design, data abstraction and programming beyond an introductory level. Introduces user interfaces and graphics through the study of object design. Emphasizes object-oriented software engineering including Unified Modeling Language (UML). Investigates fundamental sorting and searching algorithms, introductory dynamic data structures and event-driven programming techniques. Develops programming skills using a language that supports the object-oriented paradigm.

CIS 202–Computer Science II (4)

Prerequisites: Minimum grade of C in CIS 201

Emphasizes algorithms, data structures, and object-oriented software engineering. Introduces algorithmic analysis including asymptotic notation, empirical performance measurements, and time/space tradeoffs. Covers fundamental computing algorithms including sorting, searching, and manipulating dynamic data structures, such as lists, stacks, queues, trees, graphs and hash tables. Investigates recursion including applications to algorithms and data structures. Integrates further software engineering concepts including data abstraction and participation in team programming projects. Projects will be completed using a language that supports the object-oriented paradigm (Java).

CIS 203–Systems Analysis & Design (3)

Prerequisites: CIS 106

Presents concepts of structured systems analysis and design techniques such as problem definition, cost analysis, charting and scheduling, implementation planning and documentation. Emphasizes project management, communication and analytical skills.

CIS 204–Computer & Information Sciences Project (3)

Prerequisite: CIS 203

Student is assigned a project commensurate with their background and training and carries it through from system analysis and design to program preparation and implementation.

CIS 208–C++ Programming (3)

Prerequisite: CIS 106

Emphasizes object-oriented programming in C++. This course provides a comprehensive coverage of C++ features, including arrays, strings, pointers, references, classes, inheritance, polymorphism, function overloading, function overriding, virtual function, and template. Students learn to design and implement object-oriented programs in C++ programming language.

CIS 210–Data Communications and Networking (3)

Prerequisite or Corequisite: CIS 101 or CIS 106 or CIS 111M or CIS 116F

Introduces Local Area Network (LAN) design and management. Emphasizes practical design considerations and hands-on management. Specific design topics include standards, topologies, interconnectivity, comparative implementations, security and electronic messaging. Management topics include installation, resource and user management and software/programming considerations.

CIS 212–PC Repair & Diagnostics (3)

Prerequisite or Corequisite: CIS 101, CIS 106, CIS 116D, or CIS 111M

Introduces diagnosis and troubleshooting of personal computers. This course covers the hardware and software troubleshooting techniques, including diagnosis software, board replacement, storage, and memory troubleshooting. Completion of this course will help prepare students for the A+ certification exam. It is recommended that students take this course and CIS 111M-PC Operating Systems in the same semester.

CIS 217–Cybercrime and Digital Forensics Investigation (3)

Prerequisite: CIS 111L or CIS 111M

Introduces the fundamentals of computer forensics including the techniques and processes involved in identifying, collecting, preserving, and analyzing digital evidence. Surveys the contemporary crime and related legal issues and laws.

CIS 218–Information Security & Assurance (3)

Prerequisite or Corequisite: CIS 106

Introduces the fundamentals of information security and assurance. Topics include cryptography, security architecture and controls, risk management and governance, disaster recovery planning and management, as well as security frameworks, standards, and policies. Students learn to protect information systems from unauthorized access in order to ensure confidentiality, integrity, and availability.

CIS 219–Ethical Hacking and Systems Defense (3)

Prerequisite: CIS 106

Introduces the fundamentals of protecting information technology resources from cyber attacks. Students learn the tools and penetration testing methodologies used by ethical hackers, as well as the methods and tools to protect against attacks and vulnerabilities. Surveys computer crime-related laws and regulations.

CIS 222–Computer Organization (4)

Prerequisite: CIS 106

Introduces the organization and essential functions of computer systems. This course surveys the components of computer systems from the architecture point of view and provides an in-depth discussion on topics including central processor unit (CPU) structure, instruction sets, data representation, computer arithmetic, digital logic, memory architectures, and parallel processing. Students will also explore the support of operating systems from programming perspectives.

CIS 223–Cloud Security (3)

Prerequisite or Corequisite: CIS 180 or CIS 190

Introduces the essentials of cloud security technologies, mechanisms, and standards/frameworks as outlined by Cloud Security Alliance (CSA) and National Institute of Standards and Technology (NIST) Cloud Computing Security Standards. Surveys cloud governance, certification compliance, and accreditation. Students learn to analyze risk in cloud environments and cloud security solutions, create and secure public and private cloud instances, and secure cloud applications.

CIS 224–Wireless Communications (3)

Prerequisite or Corequisite: CIS 180 or CIS 190 or CIS 210

Provides comprehensive coverage of wireless communication technology. Surveys characteristics, infrastructures, transmission methods, standards, and protocols of wireless communication systems. Topics include frequency spectrum, wireless network technology, cellular wireless networks, mobile applications, and mobile Internet protocol (MIP).

CIS 225A–Computer Programming Language: PHP (3)

Prerequisite: CIS 106

Introduces programming using PHP.

CIS 225B–Computer Programming Language: eXtensible Markup Language (XML) (3)

Prerequisite: CIS 106

Introduces programming using XML.

CIS 225C–Computer Programming Language: Mobile Applet Programming (3)

Prerequisite: CIS 106

Introduces applet programming for mobile devices using the Android operating system.

CIS 225D–Computer Programming Language: HTML5 & CSS3 (3)

Prerequisite: CIS 106

Surveys the latest Web Design and Development skills with a focus on HTML5 and CSS3. Students will learn a variety of tools including Open Source editing tools as well as Dreamweaver and some editing software. It is recommended that students have a foundational knowledge of HTML. Emphasis is placed on designing cross-browser compatible interfaces that optimize usability, accessibility, and enhance browser interoperability.

CIS 226–Game Scripting (3)

Prerequisite or Corequisite: CIS 106

Introduces the development of computer games using a scripting language. A current scripting language will be covered and used to develop game programs. Students learn to design and develop cross-platform computer games.

CIS 227–Game Programming (3)

Prerequisite: CIS 106

Covers the development of computer games using a high-level programming language. Introduces the game development aspects and techniques through creation of computer programs. Surveys the current game engines. Students learn to develop computer game programs for specific game engines and platforms.

CIS 228–Simulation and Game Development (4)

Prerequisite: CIS 106

Covers the development of digital interactive contents used in computer games and computerized simulations. This course introduces students to the current game engines and simulation software used to build comprehensive and interactive computer games and simulations.

CIS 230–Database Management Systems (3)

Prerequisite: CIS 106

Provides an in-depth study of database management systems and the fundamentals of database design and development. Topics include Structured Query Language (SQL), normalization, integrity constraints, data models, and transaction control. Students design and develop databases and database applications utilizing database management systems (DBMS), such as Oracle or Microsoft SQL Server.

CON: Construction Management

CON 101–Introduction to Construction Management (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Introduces the construction management process, each party's roles and responsibilities, forms of construction management delivery systems, and construction documents. Students will describe the role of the construction manager within the context of ensuring timely, high quality, profitable, and safe construction projects.

CON 131–Construction Law (3)

Prerequisite: EN 52 or ESL 99 or ESL 72; *Corequisite:* CON 101

Explores construction law and the relationship between owners, engineers, architects, contractors, sub-contractors, suppliers, and attorneys relative to construction legal and contractual issues.

CON 132–Materials & Methods of Construction I (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Provides the construction manager with a fundamental understanding of construction materials and methods of construction. Emphasis of the course is on properties of materials, engineering methods, construction methods, testing methods, and related building codes. Part one of two courses, this course focuses on soil, earthwork, foundations, paving, concrete, masonry, thermal products, and roofing.

CON 133–Materials & Methods of Construction II (3)

Prerequisite: CON 132

Provides the construction manager with a fundamental understanding of construction materials and methods of construction. Emphasis of the course is on properties of materials, engineering methods, construction methods, testing methods, and related building codes. Part two of two courses, this course focuses on wood construction, steel construction, exterior and interior finishes, glazing, windows, doors, exterior wall systems, cladding, interior walls/partitions, finish ceilings, and flooring.

CON 140–Architectural Blueprint Reading (3)

Prerequisite: EN 51 or ESL 97 or ESL 70

Introduces basic blueprint and construction document reading methodology. Develops the practice of utilizing construction documents as an important communication tool in the construction process. Areas of focus include views, symbols, scales, dimensions, materials, construction methods, and terminology used in the various disciplines included in construction documents.

CON 171–Green Building - Introduction to LEED & Other Rating Systems (3)

Prerequisite: CON 101 or BLD 101 or CAD 101 or *permission of program manager based on industry experience*

Provides an overview of emerging delivery systems for high performance green buildings and the basis on which their sustainability can be evaluated. The U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) criteria are discussed in detail.

CON 200–Construction Surveying (3)

Prerequisites: CON 140 or CAD 101, and MA 81

Introduces basic principles and concepts of surveying with an emphasis on building construction applications.

CON 202–Mechanical and Electrical Systems (3)

Prerequisite or Corequisite: CON 101 or BLD 101 or CAD 101

Introduces basic principles and concepts of mechanical and electrical building systems and their application to design and construction of buildings. The course develops an understanding of basic concepts of heating, cooling, plumbing, and electricity.

CON 203–Principles of Site Management (3)

Prerequisites or Corequisites: CON 101 or BLD 101; and CON 133

Examines the principles that apply to planning and managing construction project field operations. Major areas of focus include documentation and recordkeeping, jobsite layout and control, project safety, jobsite labor relations, subcontracting and purchasing, time and cost control, changes and claims, quality management, payments, and project closeout.

CON 204–Construction Project Cost Estimating (3)

Prerequisite: CON 101 or CAD 101, and CON 133; *Note: students who do not have experience using spreadsheet software (Excel) should take an introductory course in spreadsheet applications prior to taking this course.*

Introducing cost estimating concepts and methodologies that apply to the construction industry. Areas of emphasis include estimating techniques, quantity take-off, pricing, material and labor estimation, estimating by division, bidding, and computer applications.

CON 205–Construction Accounting and Financial Management (3)

Prerequisites: CON 101 and CIS 101

Provides an introduction to construction accounting and financial management. Areas of emphasis include principles of construction accounting, job costing, interpreting financial statements, cash flow/management, cost and profit management, financing, computer applications, and tax management.

CON 206—Construction Project Scheduling (3)

Prerequisites: CON 101, CON 133, CON 140, and CIS 101
Introduces the concepts and procedures in preparing a project schedule. Bar charts, critical path method, and computer applications are examined. Students will use sample projects and case studies to apply scheduling concepts.

CON 210—BIM and Construction Management (3)

Prerequisite: CON 101
Introduces Building Information Modeling (BIM) programming into the Construction Management environment. Utilizing the text and mock construction scenarios the student will learn and experience how to utilize BIM technology to aide in the construction and maintenance of facilities.

Construction (TRD)

(Continuing Education/Noncredit)

TRD 132—Small Gas Engine Repair

Provides basic instruction in the diagnosis, maintenance and repair of four-cycle and two-cycle gasoline engines. Includes practice troubleshooting and repairing techniques for small gasoline engines. Lecture and hands-on labs. List of required tools given out first night of class. (Liability form required.)

TRD 157—Electricity: Journeyman/Master's Exam Prep

Prepare for the master's/journeyman's license exam. Review the NEC and calculations, etc., to prepare for the exam. Prerequisite: Familiarity with NEC book.

TRD 189—Maryland Stationary Engineer Exam Prep

This course will prepare students to take the exam for the Maryland Stationary Engineer's License. Topics include: boilers, control devices, pneumatics, basic electricity, fire alarms and pumps, draft, combustion instruments and controls, water treatment, boiler operation and licensing.

TRD 179—Small Gas Engines: Advanced

Prerequisite: CCO 110
This course offers advanced instruction on two- and four-cycle gasoline engines. Includes advanced diagnostics, disassembly, measurement and rebuilding of engines in hands-on labs. Topics include: hydrostat and manual transmissions, single and dual stage snow throwers, hydraulic system diagnostics and repair. Appropriate for homeowners, professionals, and those who want to test for national certification.

TRD 205—OSHA 10-Hour Construction Safety & Health Outreach Program

The OSHA Outreach Training Program for the Construction Industry provides training for workers and employers on the recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces in the construction industry. The program also provides information regarding workers' rights, employer responsibilities, and how to file a complaint. Students who successfully complete this course will receive OSHA 10 cards.

TRD 206—OSHA 10-Hour General Industry Safety & Health Outreach Program

The OSHA Outreach Training Program for General Industry provides training for workers and employers on the recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces in general industry. The program also provides information regarding workers' rights, employer responsibilities, and how to file a complaint. Students who successfully complete this course will receive OSHA 10 cards.

TRD 215—Lead Safety for Renovation Repair and Painting

Renovators have a role to play in preventing lead poisoning. Dust from renovations, repairs, and surface preparation during painting activities creates potential lead hazards when lead-based paint is disturbed and lead-safe work practices are not used. The EPA requires certification for renovation firms, and training and certification for renovators to prevent lead poisoning resulting from unsafe renovation practices. Contractors performing renovation, repair and painting (RRP) projects that disturb lead-based paint in homes, child care facilities, and schools built before 1978 must be certified and must follow specific work practices to prevent lead contamination. Topics to be covered include basic lead-based paint information, regulations, and requirements. Students will practice proper techniques and actions required by the EPA rule.

TRD 255—Backflow Prevention Assembly Tester Certification

This course provides guidelines for acceptable practices for testing and annual inspection of backflow prevention assemblies used in cross-connection control programs. A final written and hands-on exam will be administered at the end of the course. Those receiving a passing grade will receive certification which is valid for 2 years.

TRD 256—Backflow Prevention Assembly Tester Refresher

This course provides a one day refresher course for individuals already holding certification as a tester. It is voluntary for individuals whose certifications have not expired but mandatory for those whose certification has expired with the last 12 months. The Certification Test must be registered for separately.

TRD 257—Backflow Prevention Assembly Tester Recertification Exam

This course is for individuals currently holding Backflow Prevention Assembly Tester certification but whose certification is due to expire. Assembly testers hold valid certification for two years from the date of initial certification and/or recertification. Recertification will be awarded after successful completion of a hands-on lab test and a 50-question written exam.

TRD 260—EPA 608/CFC Certification

The EPA 608 certification is required for all technicians working with CFCs. This course will prepare you to take the exam. Core, Type 1, 2, & 3 will be reviewed. At the end of the class, each student will have the opportunity to take the EPA 608 exam. Students will need to pass Core and one or more of the three Types to receive certification. Students passing all four sections will receive Universal certification.

TRD 265—National Electric Code (NEC) Update-10 Hour

This course covers the updates to the National Electric Code (NEC). The NEC is updated every 3 years. Learn about the important changes that have happened to the NEC and how to perform new calculations. An overview of NEC navigation and application will assist you in staying compliant. There will also be time to cover NEC related questions.

CE Professional Development (CPD)

(Continuing Education/Noncredit)

CPD 120—SHRM-CP & SHRM-SCP Certification Prep Course

Business leadership has changed over recent decades. We now live and work in a global economy, in which geographic borders are virtually non-existent, and innovation, agility and strategy are critical success factors. The HR profession operates at the core of this global economy, ensuring the alignment of organizational strategy with a high-performing workforce. The new SHRM credentials, SHRM Certified Professional (SHRM-CP) and SHRM Senior Certified Professional (SHRM-SCP), address these new roles. The SHRM-CP and SHRM-SCP encourage HR professionals to acquire the behavioral competencies and knowledge they'll need to effectively perform their jobs and achieve career success. This certification program was built with employers in mind. It will undoubtedly help set the global standard for excellence in HR and aims to grow certification throughout the HR profession. Join fellow HR practitioners to prepare and practice for your certification exam in this 12-week course. You'll learn test-taking strategies as well as important concepts that are essential for your mastery of the exam's body of competency and knowledge.

CJ: Criminal Justice

CJ 101–Introduction to Criminal Justice (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Presents a history of criminal justice, with emphasis on English antecedents important to the administration of justice in the United States. Introduces the United States Constitution and Supreme Court decisions affecting individual rights and law enforcement practices. Includes career orientation through an analysis of criminal justice agencies.

CJ 106–Police-Community Relations (3)

Prerequisite: Acceptance into the Police Academy

An overview of law enforcement community relations and community policing concepts. Will review officer-citizen contacts, problem solving, crime prevention, cultural diversity, sexual harassment, and Americans with Disabilities Act. Review the prohibitions against racial, religious, and ethnic violence.

CJ 108–Serial Killers: Psychosocial Perspectives (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Presents an overview of serial killers in the United States and other countries. Introduces the background of serial killers as well as causes and failures in their lives that led up to the killings. Presents case studies of serial killers as well as the investigation, apprehension, trial, and sentencing of these offenders.

CJ 110–Criminal Law (3)

Prerequisite: EN 101

Explores the history and purpose of criminal law. Also examines elements of substantive criminal common law as modified by statute. Introduces legal research and a case study review of appellate court decisions relative to selected aspects of criminal law.

CJ 204–Police Operational Services (3)

Prerequisites: CJ 101, CJ 110

Examines police operational techniques and strategies, incident analysis, patrol deployment, traffic enforcement theory and practice, crime prevention and community relations and the investigative process. Explores the police officer's role as a manager of community crime prevention resources. Includes analysis of recommended practices for maintaining police officers health and safety.

CJ 212–Criminalistics (4)

Prerequisite: Acceptance into the Police Academy

Laboratory class develops skills in the identification, collection, preservation and presentation of physical evidence. Introduces police photography, including use of the camera, negative and print processing and photo preparation of courtroom presentation.

CJ 214–The Correctional Process (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and CJ 101

Surveys the juvenile and adult correctional process from adjudication through probation or parole.

CJ 220–Criminal Evidence & Procedure (3)

Prerequisite: CJ 110

Examines the United States Constitutional limitations on law enforcement, emphasizing arrest, use of force and search and seizure. Rules of evidence of particular importance to the law enforcement function including: the hearsay rule and exceptions; documentary, opinion, corpus delicti and circumstantial evidence; character and past crimes; evidentiary privileges; jurisdiction and venue; and witnesses.

CJ 221–Police Defense Tactics (5)

Prerequisite: Acceptance into the Police Academy

An overview of law enforcement use of force and defensive tactic concepts. Will review unarmed defense, pressure points, controlled force and impact weapon usage.

CJ 222–Police Arsenal and Procedures (5)

Prerequisite: Acceptance into the Police Academy

An overview of law enforcement use of force and firearms concepts. Review deadly force, police and usage, mental preparation, shooting fundamentals, safe weapons handling and firearms qualifications.

CJ 223–Emergency Vehicle Operations Course (EVOC) (3)

Prerequisite: Acceptance into the Police Academy

Presents the concepts and goals of professional driving, i.e. to reduce motor vehicle collision frequency by improving future law enforcement officer's attitude and skills. Provides a better understanding of the capabilities and limitations of an emergency police vehicle while enhancing student's knowledge and abilities as it relates to safe operation of the vehicle.

CJ 224–Awareness Training for Weapons of Mass Destruction (3)

Prerequisite: Acceptance into the Police Academy

Provides baseline awareness-level training involving weapons of mass destruction (WMD) developed by the U.S. Department of Homeland Security. Introduces the role first-responders play in prevention, preparedness, deterrence and response to a potential terrorist incident.

CMM: Digital Media

CMM 101–Introduction to Electronic Media (3)

• GenEd Arts and Humanities/Arts

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Surveys the functions and effects of the electronic mass media. Emphasis will be placed on researching and analyzing the history of radio and television, including government regulations, audience measurement, advertising and careers in broadcasting.

CMM 103–Introduction to Film (3)

• GenEd Arts and Humanities/Arts

Presents an analytical and interpretative study of film masterworks. Covers the historical development of film from silent short movies to the present and includes an analysis of film from several perspectives: artistic, technological, social and economic.

CMM 105–Basic Darkroom to Digital Photography (3)

• GenEd Arts and Humanities/Arts

Prerequisite: EN 52 or ESL 99 or ESL 72

Explores photography as a medium for artistic expression through analysis of photographic masterworks and other forms of visual art. Examines standards of professional photography and the means by which photographic works of artistic integrity are identified and comprehended. Presents basic principles of camera work in film and digital formats. Black & white and color printing techniques are also studied. For the beginning photographer.

CMM 111–Communications Graphics I (3)

Level one graphic design. Prepares the student for the print graphic design field through the use of the computer. The student will be introduced to design vocabulary, methods and technology through lecture, examples and hands-on project work. Emphasizes Adobe Illustrator, Adobe Photoshop, and Adobe InDesign.

CMM 112–Communications Graphics II (3)

Prerequisite: CMM 111

Level two graphic design. Expands on Communications Graphics I. Students will solve a variety of design problems using the computer and contemporary graphics software. Real world design assignments will be given, allowing the student to gain experience in dealing with clients, meetings, project management, cost effectiveness, and color printing prepress. Lectures, demonstrations and class critiques are held to give the student a look at the historical and functional use of design. Emphasizes intermediate design skills using Adobe InDesign, Illustrator, Acrobat, Bridge, and Photoshop.

CMM 114–Web Design I (3)

Prerequisite: CMM 111 or CMM 132

Presents beginning level design for the Internet. Taught from a design perspective, students learn software, hardware, and design principles used to produce successful Web sites. Assignments include the design and creation of Web publications. Lectures cover the study and critique of contemporary Web design. Primary Software: HTML, Adobe Dreamweaver, Photoshop, and Imageready.

CMM 115–Professional & Transfer Portfolio (1)

Prerequisite: CMM 112 or CMM 212

Designed for communications graphics students who are ready to transfer to a Bachelor's program, or are applying for an internship, or are seeking a job. Students will revise existing portfolios and design self-promotion materials including an effective resume and cover letter for the computer graphics profession.

CMM 131–Darkroom Photography I (4)

Provides a basic understanding of photography as technique and craftsmanship, photography in communications, as a method of expression and the scientific basis of photography. Covers the basic techniques with cameras, exposure of film, developing of film, printmaking, composition, light, action photography, manipulation of the image in the darkroom, basic chemistry of photography, sensitometry and color as it is seen. Students provide cameras and accessory equipment.

CMM 132–Digital Photography I (3)

Designed for students interested in digital photographic processes. The class will introduce basic concepts for acquiring digital images and the process of manipulating the image through the use of a Macintosh computer with Adobe Photoshop software. Hands-on instruction with Photoshop will include making selections, cropping images, using paint and editing tools and working with color and brush palettes. A portfolio of digital photographic work will be produced by the end of the semester.

CMM 152–Digital Studio Production (4)

Develops digital studio production skills pertaining to camera operation, set design, studio lighting, audio recording, and professional crew roles and responsibilities. Extensive hands-on active learning provides an insight into on set studio productions and real world applications. As a member of a production team, students participate in the design and execution of an effective digital studio production.

CMM 212–Communication Graphics III (3)

Prerequisite: CMM 112

Level three graphic design. Offers an advanced level approach to graphic design. Expands upon Communications Graphics II. Emphasizes the development of a well-rounded graphic design portfolio, containing professional quality graphic design, photography and illustration. An intensive study using current graphics software to generate print graphics such as corporate identity, advertising, collateral and package designs. Primary software: Adobe InDesign, Adobe Photoshop, and Adobe Illustrator.

CMM 214–Web Design II (3)

Prerequisite: CMM 114

Presents intermediate level Web design. Students will design and produce multimedia Web sites consisting of typography, graphics, animations, and sound. Emphasis on user interface design and Web site planning through hands-on skills using HTML, BBEdit, Macromedia Dreamweaver, Macromedia Flash, Macromedia Fireworks, Adobe Photoshop, and Adobe ImageReady.

CMM 252–Digital Film Production (4)

Prerequisite: CMM 152

Develops digital film production skills pertaining to preproduction, production, and post production. Extensive hands-on active learning provides an insight into script writing, budgeting, scheduling, field production, sound design, and non-linear post production. As a member of a production team, students will be required to create a production book, digital film, and DVD as part of their professional portfolio.

CMM 254–Principles of Film and Video Editing (4)

Prerequisite: CMM 152 or CMM 252

Develops practical skills in digital editing through a series of demonstrations and intensive hands-on exercises. Students study various editing styles and philosophies while designing and completing assigned editing projects using Final Cut Pro software. Effective media management and post-production processes are emphasized.

CMM 256–Television Studio Directing and Operations (4)

Prerequisite: CMM 152

Develops managerial and technical skills of directing television productions in a multi-camera studio. Script formats, scene blocking, managing cast and crew and technical aspects required to create successful programming are emphasized in a series of hands-on production sessions.

CMM 259–Television News Production (4)

Prerequisite: CMM 252

Develops television news writing and production skills with hands-on studio and field exercises. Students will write news stories, interview campus and community newsmakers on-camera and edit news segments into finished programs on Final Cut Pro. Brief lectures, demonstrations and video examples are followed by news production work. Students will learn to use professional equipment and processes while producing news, sports and event programming.

CMM 261–Digital Post Production (4)

Prerequisite: CMM 254

Develop advanced skills in digital post production through a series of demonstrations and intensive hands-on exercises. By studying various editing styles and philosophies, students will design and complete assigned post-production projects using Final Cut Pro, After Effects, Photoshop and other professional software packages.

DR: Drama (see THR: Theatre)**ECD: Early Childhood Development****ECD 101–Introduction to Early Childhood Education (3)**

Prerequisite: EN 52 or ESL 99 or ESL 72

Examines conceptual framework for understanding the role of the early childhood education professional. Content focuses on the profession of early childhood education in the context of historical, philosophical, and social influences. Units of study also review contemporary trends, issues and practices in the field of early childhood education.

ECD 104–Activities I for Children (3)

Prerequisite: EN 52 or ESL 99 or ESL 72; Corequisite: ED 100

Designed to teach the methods and proper use of materials in presenting creative learning experiences to young children in the areas of language, creative dramatics, art, music, movement, math, science, emergent literacy, and outdoor activities. This course meets the state requirements for Office of Child Care Licensing & Credentialing. This course is 45 hours of the 90 hours required for Preschool Lead Teacher. Fifteen hours of documented observation are required.

ECD 106–Infants & Toddlers Development and Care (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Examines the best practices designed to meet the needs of infants and toddlers as related to their physical growth and development, mental health, and human relationships. Attention will be given to the family and child's multicultural customs, gender equity, and children with special needs, while insuring quality program development and implementation in out of home care environments. Content will focus on the caregiver, the child, and the program being provided to meet the learning needs of the infant and toddler. This course meets the state requirements of the Office of Child Care Licensing and Credentialing for Infant/Toddler Lead Teacher.

ECD 107–Child Health, Safety and Nutrition (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Presents a survey of the health, safety, and nutritional needs of young children. Includes required state and federal codes. Emphasizes the establishment and maintenance of a safe and healthy learning environment.

ECD 108–Activities for the School-Age Child (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Examines developmentally appropriate principles, materials, and methods used with school age children ages 6 to 12. Specific consideration given to planning activities for school age child care. Students plan and present lessons in the areas of physical, cognitive, and social development. This course meets the state requirements of Office of Child Care Licensing and Credentialing for School Age Teacher.

ECD 210–Directed Practicum in Early Childhood (3)

Prerequisites: Successful completion (grade of C or higher) of ED 100, ED 203 or ECD 110, ECD 101, ECD 104, ECD 106 and ECD 213

Offers students an opportunity to conduct structured observation and participate in activities in an early childhood setting. Students will provide assistance to the classroom instructor and may be required to assume major responsibility for the full range of teaching and care giving duties for a group of young children. In addition, students will complete a course portfolio. Students will participate in 60 hours of directed practicum at an assigned site (4 hours per week).

ECD 212–Administration of Child Development Centers (3)

Prerequisites: ED 100 and (ECD 104 or ECD 108)

Designed to provide students with management skills necessary to operate an early childhood center, family child care or before/after school program that serves children from infancy through age twelve. Topics include program policies and procedures, government regulations, finance and budget, facility operation, personnel management, health and safety, accreditation systems, and program evaluation and improvement. This course meets the state requirements of Office of Child Care licensing and credentialing for School Age and Preschool Director.

ECD 213–Understanding and Guiding the Young Child's Behavior (3)

Prerequisite: ED 100

Designed for adults who are responsible for the care and development of young children from birth to eight years of age, primarily in an early childhood setting. This course will focus on developmentally appropriate child guidance philosophies, methodologies of discipline, and guidelines for the responsible adult.

ECD 230–Language and Literacy Development in Early Childhood (3)

Prerequisites: ED 100, ECD 104

Designed for adults who are responsible for the care, development and teaching of young children from birth to eight years in primarily an early childhood setting. This course is a study of the development of oral language by the young child, the relationship between language development and emerging literacy, and the structuring of the learning environment for the child birth to eight years. A variety of quality early childhood literature will be reviewed along with methods for using children's literature to enhance language development.

Early Childhood Development (CHI)

(Continuing Education/Noncredit)

CHI 113–Child Development & Behavior

Introduces basic growth and developmental principles necessary to work effectively with young children from ages birth to 12 years. Emphasizes the social, emotional, physical and intellectual developmental stages of the young child. This course satisfies one-half of the 90-hour State requirement for Day Care Certification. (Also offered for credit as ED100) All licensees must attend all hours of Child Care Administration approved courses. Those who arrive late, leave early or do not meet course performance requirements as detailed in the course outline do not receive a certificate.

CHI 114–Activities I for Children

Introduces the principles, materials and methods used with young children ages birth to six, including advancing physical, cognitive, communicative, creative and social skills. Students plan and present lessons in the area with young children. This course satisfies one-half of the 90-hour state requirement for day care certification. Corequisite: Child Development & Behavior. Meets training requirement for Senior Staff. (Also offered for credit as ECD104) All licensees must attend all hours of Child Care Administration approved courses. Those who arrive late, leave early or do not meet course performance requirements as detailed in the course outline do not receive a certificate.

CHI 130–Activities for the School Age Child

Examines developmentally appropriate principles, materials and methods used with school-age children ages 6 to 12. Specific consideration given to planning activities for school-age child care. Students plan and present lessons in the areas of physical, intellectual and social development. This course meets the state requirements for training for group leader. (Also offered for credit as ECD 108.)

CHI 131–Administration of Child Development Centers

Presents management practices and the administrative functions of child development center directors. Covers state requirements for physical facilities, staffing and designing programs. Covers budgeting and financing of child development centers. Prerequisites: Child Development & Behavior; Schools & Society; Observing, Recording, & Assessing Behavior; Activities I for Children; Child Health, Safety & Nutrition. (Also offered for credit as ECD 212)

CHI 136–Infants & Toddlers Development and Care

Examines the child's growth and development from conception to age two. The course investigates normal stage development, health, feeding, play, rest, abuse as well as appropriate activities for socialization, positive guidance techniques and skills to enhance parent/caregiver communication. This course meets the State requirement's approved training for Infant/Toddler Senior Staff qualification.

CHI 138–Special Education in Early Childhood

Designed to provide an introduction to students in the field of special education focusing on children birth to five years old. Students will explore theories and techniques in caring for and teaching children who have been identified as exceptional. The course content focuses on inclusive education, referral process, early intervention, interdisciplinary community services, effects on family, and adaptations to curriculum, materials and environment. (Also offered for credit as ECD 110.)

CHI 140–Understanding & Guiding the Young Child's Behavior

Designed for adults who are responsible for the care and development of young children from birth to eight years of age, primarily in an early childhood setting. This course will focus on developmentally appropriate child guidance philosophies, methodologies of discipline, and guidelines for the responsible adult.

EC: Economics

EC 201–Principles of Economics (3)

• GenEd Social & Behavioral Sciences/Economics
Prerequisite: EN 52 or ESL 99 or ESL 72

Introduces basic concepts, the national accounts, national income analysis, business cycles and the monetary system with an essentially macro-economic approach.

EC 202–Principles of Economics (3)

• GenEd Social & Behavioral Sciences/Economics
Prerequisite: EC 201

Emphasizes price theory, distribution, international trade and economic development with an essentially micro-economic approach.

ED: Education

ED 100–Child Development & Behavior (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Introduces basic growth and developmental principles necessary to work with young children from birth to twelve years old. Emphasizes the social, emotional, physical and cognitive developmental stages of the young child. This course meets the Maryland State Department Office of Child Care licensing & credentialing requirements. This course is 45 hours of the 90 hours required for Preschool Lead Teacher.

ED 102–Schools and Society (3)

• GenEd Social & Behavioral Sciences/Education
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines the historical, philosophical, and social development of American education. Students will learn methods, concepts, and principles of education. They analyze and reflect on the processes of teaching and learning. They explore the interrelationships of education, social institutions, and pluralistic culture. Students will also reflect on ways that values, skills, and experience shape and are shaped by schooling and society. Observations, teaching, and a portfolio are required. Fifteen hours of documented observation are required.

ED 202–Educational Psychology (3)

Prerequisites: EN 50A or EN 61 or ESL 95 or ESL 73, and PS 101

Introduces the nature and theories of learning processes. Focuses on classroom interaction and its influence upon the learning process and the growth and development of the child. (This course satisfies the Maryland State Department of Education professional education course work in human learning.) Fifteen hours of documented observation are required.

ED 203–Foundations of Special Education (3)

• Cultural Competence
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides an overview of critical issues and strategies related to educating students who have been identified as exceptional. The course content focuses on historical and legal foundations of special education, inclusive education, developmental characteristics of exceptional students, and strategies for accommodating students. (This course satisfies the Maryland State Department of Education professional education course work in inclusion of special populations.) Fifteen hours of documented observation are required.

ED/PS 208–Human Growth & Development (3)

• GenEd Social & Behavioral Sciences/Education
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents central concepts related to parameters of human development through the life span. Includes physical, social, emotional and mental development at the various stages of life. Considers the influence of culture as well as individual differences. (This course satisfies the Maryland State Department of Education professional education course work in child or adolescent development.)

ED 214–Processes and Acquisition of Reading (3)

Prerequisites: 30 credits including EN 101, PS 101 or teacher certification

Assists pre-service and in-service teachers in understanding the reading acquisition process through observation and analysis of reading and written language development and the study of current issues in reading research. The course is organized around current, accepted, research-based theoretical models that account for individual differences in reading. The course includes an introduction to language structures, including spoken syllables, phonemes, graphemes, and morphemes. Participants will apply knowledge of the core areas of language to reading acquisition in terms of first and second language acquisition, typical development, and exceptionalities. Participants will be introduced to current scientific research related to literacy acquisition.

ED 215–Instruction of Reading (3)

Prerequisite: ED 214

Facilitates understanding and use of a representative array of research-based instructional techniques and strategies in the area of reading. The course emphasizes instructional routines and strategies in the five major components of reading instruction (phonological and phonemic awareness; phonics, spelling and word study; fluency; vocabulary development; and comprehension) suitable for various age and ability groups. Throughout the course, students will demonstrate their skill with instructional routines and strategies through role-play, live demonstrations, and critique of models, and review the research evidence relevant to those approaches.

ED 216–Materials for Teaching Reading (3)

Prerequisite: ED 214

Assists pre-service and in-service teachers in understanding and using the findings of scientific research to select, evaluate, and compare instructional programs and materials for teaching reading. Participants will learn strategies for enabling students to become strategic, fluent, and independent readers using a variety of texts and other materials. They will develop techniques to involve parents, school staff, and members of the community in children's reading development and enjoyment.

ED 217–Assessment for Reading Instruction (3)

Prerequisites: ED 214, ED 215

Assists pre-service and in-service teachers in becoming proficient consumers and users of classroom-based assessments and assessment data. Instruction focuses on the purposes of assessment, types of assessment tools, administration and use of several valid, reliable, well-researched formal and informal assessments of reading and related skills, effective interpretation of assessments results, and communication of assessments results in a variety of contexts. Participants will show that they can use assessment data to guide instructional decisions. Participants will demonstrate their abilities by selecting, administering, and/or interpreting assessments appropriate for screening, diagnosis, monitoring of progress, and measurement of outcomes.

ED 218–Teaching Reading in the Content Areas, Part I (3)

Prerequisites: 30 credits including EN 101, PS 101 or teacher certification

Provides students with an understanding of the essentials of reading processes necessary for secondary students to become proficient readers. Participants gain an understanding of the following five areas: purposes and types of reading, methods of assessing reading, strategies and skills in reading, student-centered reading instruction, and affective dimensions of reading. (This course can be used to partially satisfy the Maryland State Department of Education reading requirement for secondary teachers.)

ED 219–Teaching Reading in the Content Areas, Part II (3)

Prerequisite: ED 218

Expands on Part I, focusing on types of reading, skills in reading, and instruction. The emphasis will be on teaching secondary student to learn from text. Participants will formulate research questions, complete a literature review, and implement and evaluate a coherent literacy plan. Participants will also implement reading and writing strategies that promote student mastery of subject content. (This course can be used to partially satisfy the Maryland State Department of Education reading requirement for secondary teachers.)

EM: Emergency Management

EM 1A-Module One: Foundations of Emergency Management

Prerequisites: FEM 113, FEM 131, FEM 151

Provides an introduction to the position of emergency manager, including history, key areas of emphasis, and responsibilities. Surveys emergency management as an integrated system with resources and capabilities networked together to address all hazards. Introduces the National Incident Management System, the Incident Command System and Emergency Operations Center operations.

EM 2A-Module Two: Emergency Management Coordination

Prerequisites: FEM 150, FEM161, FEM 215

Provides an introduction to the fundamentals of emergency management coordination. Surveys how the resources and capabilities of organizations at all levels can be networked together in emergency management phases for effective all-hazard response. Introduces the National Incident Management System, the Incident Command System and Emergency Operations Center operations.

EM 3A-Module Three: Leadership and Management

Prerequisites: FEM 132, FEM 133, FEM134

Provides an introduction to leadership and influence in emergency management. Describes decision-making and the attributes of an effective decision maker. Explains how leaders are able to build trust and motivate others to achieve shared goals. Identifies basic communication skills needed to convey decisions across a diverse workforce.

EM 4A-Module Four: Planning and Response

Prerequisites: FEM 140, FEM 159, FEM 174

Provides an introduction to the emergency planning process, including the rationale behind planning. Introduces participants to the key concepts and principles of the National Response Framework. Describes key Mission Assignment (MA) concepts and provides knowledge needed to carry out MA processing responsibilities.

EM 5A-Module Five: Emergency Management Mitigation

Prerequisites: FEM 157, FEM 173, FEM 186

Explores the reasons and need for planning for a sustainable, disaster-resistant community. Introduces participants to mitigation basics for tornadoes, wildfires, hurricanes, floods, and earthquakes. Describes the Continuity Management Cycle, the Continuity of Operations (COOP) Program Manager, and the unique aspects of continuity exercise design.

EM 6A-Module Six: Recovery and Assessment

Prerequisites: FEM 103, FEM 179, FEM 201

Provides students with the knowledge to plan an effective damage assessment program, conduct rapid damage assessments, and begin the process of recovery and mitigation. Introduces students to the Homeland Security Exercise and Evaluation Program (HSEEP), exercise design, and exercise. Introduces students to the National Disaster Recovery Framework (NDRF) key concepts, core principles and roles and responsibilities of NDRF leadership.

EM 102–Emergency Management Planning (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides the student with a thorough understanding of risk management, operational planning, and strategic planning as applied in current emergency management policy. The student will evaluate and use current policy tools to determine risk vulnerabilities and capabilities, evaluate and critically assess an emergency operations plan, identify the components of an emergency operations plan, and assess the purpose of strategic planning.

EM 104–Disaster Response and Recovery (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides students with an understanding of disaster response and recovery operations in emergency management. Students will examine the nature of emergencies and disasters, identify the human responses in the disaster process, assess current procedures for response operations, and review recovery policies, programs, and methods to promote the return to normalcy.

EM 106–Mitigation and Hazard Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides the student with a thorough understanding of mitigation for disaster management, and the application of hazard management. The student will investigate various methods of risk management, risk reduction, risk avoidance, risk acceptance, and risk transfer to address both structural and non-structural mitigation. The concept of sustainability and its role in local land-use planning is examined.

EM 110–Federal Emergency Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides the student with the understanding of the role of the federal government in emergency management on the national level, and the influence of the federal government on the local, regional, state, and international emergency management. Explores the historical development of the federal emergency management effort with emphasis on significant events that shaped existing policy.

EM 120–Homeland Security (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides students with a thorough understanding of the strategic, political, legal and organizational challenges associated with the protection of the U.S. homeland, including the historical foundation of terrorism. Introduces the roles of emergency management in the response to the growing threat of domestic and international terrorism. Addresses the implication of homeland security challenges and policies for constitutional rights, legal protections, and civil liberties.

EM 130–Integrated Emergency Management (3)

Prerequisite: EM 102

Provides students with an understanding of the concept of Integrated Emergency Response to disasters and other critical incidents. Students examine the role of Integrated Emergency Preparedness in the government environment, and expand the understanding to public-private cooperation in emergency management.

EM 201–Research and Technology in Emergency Management (3)

Prerequisite: EM 102

Provides students with an overview of research and technology applications in emergency management. The course examines the principles of scientific research; evaluates existing research and technology; and applies the methods and resources of research, science, and technology to emergency management. Students will examine scientific research, research methodology, technology, evaluation, and utilizing research and technology in emergency management.

EM 203–Social Impacts of Disaster (3)

Cultural Competence

Prerequisite: EM 102

Provides students with an enhanced awareness of the response planning and response challenges of diverse Individuals, groups, and communities to disaster. Students will discover how disasters influence structures, interactions, and subjective perceptions among community members. Examines how social inequality, including race, ethnicity, class, and gender, result in enhanced vulnerabilities in disasters. Students will analyze the diverse cultural rules and biases of response organizations and communities that converge during disasters.

EM 205–Emergency Management Leadership (3)

Prerequisite or Corequisite: EM 201

Provides the student with understanding of leadership theories, skills, and techniques for application in emergency management. The course introduces the concept of effective leadership in emergency management by identifying leadership models utilized in managing across the life-cycle of the incidents along with evaluating current emergency management leaders.

EM 210–Emergency Management Capstone (3)

Prerequisite: EN 101; Prerequisite or Corequisite: EM 205

As the culminating experience for the Emergency Management Track II major, this course enables students to exercise critical thinking and evaluation skills, while applying comprehension of the emergency management discipline. Students will write a research paper, under the supervision of a faculty mentor, which demonstrates the ability to analyze and synthesize the theories and practices to reduce vulnerability to hazards and mitigate disasters.

EG: Engineering

EG 100—Introductory Engineering Science (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 111

Develops basic concepts of engineering approaches to problem solving and the skills for the design and timely fabrication of the designed product.

EG 110—Engineering Statics (3)

Prerequisite: MA 210

Investigates that branch of physical science called mechanics. Mechanics deals with the state of rest or motion of bodies that are subjected to the action of forces. Statics is one branch of mechanics that deals with the equilibrium of bodies, i.e., those that are at rest or that move with a constant velocity. Includes theory and applications with an emphasis on developing ability to analyze problems.

EG 210—Mechanics of Materials (3)

Prerequisites: MA 211, PY 203

Includes analysis of systems of forces on a deformable body. Tools covered include geometrical relationships, free body diagrams, equilibrium equations and stress and strain properties of materials. Concepts are applied to beams, columns, shafts and covers other machine and structural parts.

EG 211—Engineering Dynamics (3)

Corequisite: MA 212

Includes the study of the motion of bodies relative to each other in two dimensions and in three dimensions. Analyzes systems both at rest and in motion. Includes force acceleration, work energy and impulse-momentum relationships.

EG 214—Engineering Thermodynamics (3)

Prerequisites: CH 102, EG 211, MA 212, PY 204

Examines basic thermodynamic principles including energy, entropy and free energy, and describes the macroscopic properties of various systems such as equilibrium states and phase transitions. Emphasizes applications to metals, polymers, ceramics and electronic materials.

EN: English & Literature

** Students in developmental courses may receive a Z grade at the end of a semester's work. The Z designates in progress toward the proper competency level to exit the course.*

*EN 50—Writing Skills I (0) [4]

Prerequisite: Placement in EN 51 or higher on reading placement exam

Develops basic writing skills. Emphasizes writing correct sentences and effective paragraphs. Includes English usage, punctuation and spelling. Placement based on the writing placement exam.

*EN 50A—Writing Skills II (0) [4]

Prerequisite: EN 50 or appropriate score on writing placement test; *Prerequisite or Corequisite:* EN 52

Develops writing skills in preparation for EN 101. Emphasizes writing well-organized paragraphs and essays. Includes review of grammar and punctuation and development of proofreading and editing skills. Placement based on the writing placement exam.

*EN 51—Effective College Reading I (0) [4]

Promotes the development of active reading approaches for use with a variety of materials. Stresses the development of background knowledge and its role in reader-text interaction. Upon satisfactory completion of EN 51, students will enroll in Effective College Reading II (EN 52). Placement based on the reading placement exam.

*EN 52—Effective College Reading II (0) [4]

Prerequisite: EN 51 or appropriate score on reading placement test

Promotes the development of active reading strategies for the tasks and texts students encounter in college. Stresses the interaction among the reader, the text and the context as applied to a variety of disciplines. Guides students to become independent readers who process information to enhance learning. Placement based on the reading placement exam.

*EN 60—Writing Skills II Part 1 (0) [2]

Prerequisites: EN 50 and EN 51 or placement based on the reading and writing placement exams

The first of a two-part sequence that develops writing skills in preparation for EN 61 and EN 101. Emphasizes writing well-organized paragraphs and essays. Includes review of grammar and punctuation and development of proofreading and editing skills.

*EN 61—Writing Skills II Part 2 (0) [2]

Prerequisite: EN 60 or results of writing placement exam

The second of a two-part sequence that develops writing skills in preparation for EN 101. Emphasizes writing well-organized essays. Includes review of grammar and punctuation and development of proofreading and editing skills.

EN 101—English Composition (3)

• GenEd English Composition

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73) OR (satisfactory performance on the writing assessment and satisfactory performance on the reading assessment)

Develops students' ability to use writing, reading, research, and thinking processes to create documented essays that demonstrate the conventions of academic writing.

EN 102—English Composition and Literature (3)

• GenEd Arts & Humanities/Humanities or Arts & Humanities/Communications

Prerequisite: EN 101

Reinforces, through an examination of literature, the reading, writing, critical thinking, and information literacy skills introduced in English Composition. By exploring literary texts from fiction, poetry, and drama, students learn to clarify their own values and identities as well as develop a better understanding of ideas and cultures beyond their own experience.

EN 115—Technical Writing (3)

Prerequisite: EN 101

Develops the skills necessary for effective business, scientific and technical communication through situational writing. Includes work in audience analysis, letter and resume writing, informal and formal reports, graphics and presentations.

EN 201—British Literature (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: EN 101

Surveys the literature of Great Britain from the Anglo-Saxon period to the eighteenth century.

EN 202—British Literature (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: EN 101

Surveys the literature of Great Britain from the eighteenth century through the present.

EN 203—American Literature (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: EN 101

Surveys the literature of the United States from the Colonial period to the Civil War.

EN 204—American Literature (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: EN 101

Surveys the literature of the United States from the Civil War period through the present.

EN 205—World Literature (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: EN 101

Surveys selected works of world literature from its beginnings through 1650 CE.

EN 206—World Literature (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: EN 101

Surveys major world writers from 1650 CE through the present.

EN 210—Creative Writing I (A,B, etc.) (3)

Prerequisite: EN 101

Introduces skills of writing narrative fiction and/or poetry and/or drama. The complexities of creative writing as a craft and an art are explored through analysis of representative works, study of techniques and extensive practice.

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EN 212–Journalism I (3)

Prerequisite: EN 101

Introduces principles of good reporting.

EN 216–The Short Story (3)

• GenEd Arts and Humanities/Humanities
Prerequisite: EN 101

Surveys a wide variety of short stories that explore themes relevant to life experiences. Analyzes the elements of the short story with emphasis on thematic development and relevance of the stories to life experiences in a variety of cultures and nations.

EN/CMM 218–Journalism Publication Practicum (3)

• GenEd Arts and Humanities/Humanities or Arts and Humanities/Communications; Cultural Competence
Prerequisite: EN 101

Provides instruction and laboratory experience in writing, editing, designing, and publishing print and digital content for 'The Commuter', Frederick Community College's Student Newspaper. Students receive practical experience in journalistic and social media content, curation, editing, design, photography and digital production using industry standard software. Students will create and produce 3 newspapers per semester.

EN 223–Classical Mythology (3)

• GenEd Arts and Humanities/Humanities
Prerequisite: EN 101

Surveys Greek and Roman mythology, emphasizing the impact it has had on Western literature, art, music and human culture throughout the ages. Attention will also be paid to the sites of the ancient world that have gained special significance through these myths.

EN 224–Special Topics in Literature (A,B, etc.) (3)

Prerequisite: EN 101

As an umbrella course, consists of a series of three credit courses dealing with various themes in literature. (Subdivisions in this course will be added to the curriculum as they develop.)

EN 226–Film as Literature (3)

• GenEd Arts and Humanities/Humanities
Prerequisite: EN 101

Surveys selected films and their counterparts in literature. Emphasizes narrative abilities of film.

EN 227–Literature: Multicultural Perspectives (3)

• GenEd Arts & Humanities/Humanities or Interdisciplinary & Emerging Issues/Multicultural Issues & Perspectives; Cultural Competence
Prerequisite: EN 101

Examines the diverse views of humankind and the human condition through the reading of selected works from a variety of cultures, both Western and Non-Western.

THR/EN 229–Modern Drama (3)

• GenEd Arts & Humanities/Arts or Arts & Humanities/Humanities

Prerequisite: EN 101

Presents selected works of drama that have gained prominence during the late nineteenth and twentieth centuries.

EN 230–African American Literature (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: EN 101

Surveys a wide variety of African American literature: fiction, drama and poetry. Analyzes the elements of each of the genres with emphasis on the literature as a response to people and events affecting African American life, culture and rights.

EN 231–English Language Studies (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: EN 101

Introduces English language studies through a linguistics perspective, promoting a systematic approach to the study of language. Focuses on prescriptive versus descriptive approaches to grammar and syntax; sub-disciplines of linguistics: phonology, morphology, semantics, stylistics, discourse analysis, and sociolinguistics; English language variation, change, and development; and the role of English language in a multicultural society.

ESL: English as a Second Language

ESL 70–Academic Reading I (0) [4]

Prerequisite: Placement on the college's ESL assessment (LOEP)

Designed for students whose native language is not English, but who have a working knowledge of the English language. This course focuses on developing the strategies, vocabulary, and fluency necessary for comprehension of academic texts.

ESL 71–Academic Grammar & Writing I (0) [4]

Prerequisite: Placement on the college's ESL assessment (LOEP)

Designed for students whose native language is not English, but who have a working knowledge and understanding of the English language. Includes integrated instruction in grammar and writing with emphasis on developing the grammar proficiency for academic writing necessary for success in subsequent ESL courses.

ESL 72–Academic Reading II (0) [4]

Prerequisites: (ESL 70 and ESL 71) or (ESL 98 and ESL 95) or placement on the college's ESL assessment (LOEP);
Corequisite: ESL 73

Designed for students whose native language is not English, but who have advanced knowledge of the English language. This course focuses on developing proficiency in the employment of reading strategies and usage, and comprehension of college-level vocabulary necessary for success in credit courses. Placement is based upon students' performance on the college's ESL assessment.

ESL 73–Academic Grammar & Writing II (0) [4]

Prerequisites: (ESL 70 and ESL 71) or (ESL 98 and ESL 95) or placement on the college's ESL assessment (LOEP);
Corequisite: ESL 72

Designed for students whose native language is not English, but who have advanced knowledge and understanding of the English language. Includes integrated instruction in grammar and writing with an emphasis on developing grammatical variety and sophistication for academic communication as well as an introduction to integrating sources in academic essay writing.

ESL 76–Academic Oral Communication Skills I (0) [3]

Prerequisite: Placement by the college's LOEP assessment into ESL Level I or higher

Designed to help students practice and improve academic listening and speaking skills as needed for functioning successfully in academic and professional settings. There will be exercises, practice, and small and large group activities designed to develop the academic listening/note-taking, pronunciation, and oral presentation skills necessary for the rigor of degree programs and/or professional communication. Credits are not applicable toward graduation. Placement is based upon students' performance on the college's ESL assessment.

FEM: Federal Emergency Management

See page 15 for more information on these courses.

FEM 102–Radiological Emergency Response (1)

Provides an introduction to radiological emergency response skills to provide a learning experience in which participants demonstrate a comprehensive understanding of radiological protection and response principles, guidelines, and regulations.

FEM 103–Community Disaster Exercise (1)

Introduces the basic principles of community disaster exercises. It builds a foundation for subsequent exercise courses. Included are the management of an exercise program, designing and developing of an exercise, conducting and evaluating an exercise, and developing and implementing an improvement plan.

FEM 104–Earthquake Structural Mitigation (1)

Provides students involved in state and local governments, and the building and financial industries, with knowledge concerning the requirements of federal and federally assisted or regulated new building construction. The course is also intended to provide the student with basic knowledge about earthquakes and how buildings can be built to be safe during an earthquake.

FEM 105–Retrofitting Flood-Prone Residential Structures (1)

Provides students with the essential, nontechnical background knowledge about retrofitting. The retrofitting measures presented are creative and practical, comply with applicable floodplain regulation, and are satisfactory to homeowners.

FEM 107–Hazardous Materials for Medical Personnel (1)

Designed to prepare hospital personnel to analyze hazardous materials situations, take the necessary steps to assure medical providers safety, and identify appropriate resources for decontamination and medical care. Additional training is required in order to diagnose and treat patients who have been involved in hazardous materials incidents.

FEM 108–Introduction to Disaster Assistance (1)

Provides students with a basic understanding of the roles and responsibilities of the local community, state, and the federal government in providing disaster assistance. It is appropriate for both the general public and those involved in emergency management who need a general introduction to disaster assistance.

FEM 109–Introduction to Animals in Disaster (1)

Intended to increase awareness and preparedness among animal owners and care providers. It includes sections on typical hazards, how these affect animals and what can be done by responsible owners to reduce the impact of disasters. It is also intended to help animal owners, care providers and industries to better understand emergency management. Course material will heighten awareness of the special issues that emergency managers need to consider when incorporating animal-care annexes into their emergency operations plans.

FEM 110–Animals in Disaster Planning (1)

Intended to guide emergency management officials and animal owners, care providers, and industries in preparing community disaster plans. The goal is to provide sufficient information for both groups to meet and develop meaningful and effective plans that improve the care of animals, their owners, and the animal-care industries in disasters. This course provides the basic background knowledge needed to develop a coordinated response to a disaster in which animals and their owners are affected. Further training with local or state emergency management programs is essential.

FEM 113–Emergency Manager: A Position Orientation (1)

Explores the position of emergency manager and includes a historical study of the guiding principles of emergency management and key areas of emphasis in the profession. Examines the areas of planning, development, coordination, implementation, and execution of comprehensive emergency preparedness programs.

FEM 115–Introduction to Radiological Emergency Management (1)

Provides students with the background and practical knowledge necessary to understand the fundamental concepts of radioactivity, the types of radiological emergencies, and the potential effects of these incidents upon the emergency responder as well as the general public. Included are the measures that need to be enacted to ensure safety for all affected.

FEM 116–Introduction to Hazardous Materials (1)

Intended to provide a general introduction to hazardous materials that can serve as a foundation for more specific studies in the future. No prior knowledge of the subject is required.

FEM 119–Volunteer Agencies in Emergency Management (1)

Provides students with the basic understanding of the history, roles, and services of disaster relief voluntary agencies in providing disaster assistance. It is appropriate for both the general public and those involved in emergency management operations.

FEM 122–Community Hurricane Preparedness (1)

Provides emergency managers and disaster coordinators with basic information about the nature of hurricanes and the hazards they pose, and how the National Weather Service (NWS) forecasts future hurricane behavior.

FEM 127–Emergency Management of Hazardous Weather (1)

Designed to provide the student with a solid background in understanding hazardous weather and community risks so they can communicate effectively with the local National Weather Service office and their community.

FEM 130–Introduction to Residential Coastal Construction (1)

Provides the student with a guideline of basic information concerning residential coastal construction. It identifies the best practices for improving the quality of construction and reducing the economic losses associated with coastal disasters. It also explains how the risk to coastal residential development can be reduced by employing best practices in site location, design, and construction.

FEM 131–Principles of Emergency Management (1)

Provides an introduction to the fundamentals of emergency management as an integrated system. Surveys how the resources and capabilities of organizations at all levels can be networked together in emergency management phases for effective hazard response.

FEM 132–Introduction to Leadership and Influence (1)

Provides an introduction to leadership and influence skills by addressing the following topics: leadership from within, how to facilitate change, how to build and rebuild trust, how to use personal and political influence, and how to foster an environment for leadership development.

FEM 133–Decision Making and Problem Solving (1)

Provides students with decision making and problem solving strategies and best practices that are vital requirements of the emergency manager, planner, and responder position. Explores a five-step problem-solving model. Examines effective methods for guiding group decision making during complex or significant events.

FEM 134–Effective Communication (1)

Provides an introduction to communication and interpersonal skills needed by local emergency managers, planners, and responders. Develops communication skills needed in emergency management situations.

FEM 135–Developing and Managing Volunteers (1)

Provides an introduction for working with volunteers and volunteer agencies (VOLAG) on emergency management projects. The need to work with volunteers before, during, and after emergency situations will be stressed.

FEM 136–Debris Operations (1)

Provides an introduction to the fundamentals of Debris Operations in an emergency management environment. Defines and describes the functions of individuals and organizations in debris operations. Identifies and discusses critical debris operations issues. Surveys funding, eligibility, and contracting issues related to debris operations.

FEM 138–Livestock in Disasters (1)

Provides an introduction to the issues farmers and emergency managers must deal with during an emergency management environment. Examines approaches that will mitigate the impact of disasters on livestock. Discusses emergency planning for farming communities. Defines different types of disasters and how each affects livestock.

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FEM 140–Emergency Planning (1)

Introduces the fundamentals of the emergency planning process, including the rationale behind planning. Presents reasons for effective participation in the all-hazard emergency operations planning process to save lives and protect property threatened by disaster. Designed for emergency management personnel who are involved in developing an effective emergency planning system.

FEM 141–Disaster Exercise (1)

Introduces the fundamentals of exercise design and prepares students to design and conduct a small functional exercise for an organization. Addresses the value of conducting exercises and the components of a comprehensive exercise program. Reviews the exercise development process including development tasks, organization of the design team, exercise documentation, and the steps in designing an exercise.

FEM 143–Tribal Governments and Emergency Management (1)

Provides basic knowledge to build effective partnerships with tribal governments and work in concert with tribal governments to protect native people and property against all types of hazards. Throughout this course, tribal representatives speak about their history, culture, and way of life, and how to develop good relationships with tribal communities. Several lessons are devoted to specific program challenges that individuals may encounter in working with tribal governments to provide financial and technical assistance through disaster relief programs.

FEM 144–Environmental and Historic Preservation (1)

Provides students with the background and practical knowledge needed to participate in FEMA's environmental and historic review process. The course will also cover how the environmental/historic preservation review process applies to various job responsibilities within FEMA's programs.

FEM 145–Hazardous Materials Preparedness (1)

Introduces the Hazardous Materials (HazMat) planning process. Discusses types of HazMat and methods of dealing with HazMat. Identifies some of the resources that are available to assist in HazMat mitigation.

FEM 146–Radiological Emergency Preparedness (REP) (1)

Provides an understanding of FEMA's Radiological Emergency Preparedness (REP) planning and preparedness procedures. Introduces the regulatory basis, philosophy, and methodology of exercise evaluation and an evaluator's role in the process. Describes the responsibilities of an evaluator before, during, and after an exercise. Explores the six evaluation areas that are examined during exercise evaluation.

FEM 150–Incident Command System (ICS) (1)

Describes the history, features, principles, and organizational structure of the Incident Command System (ICS). It also explains the relationship between the Incident Command System (ICS) and the National Incident Management System (NIMS). Additionally, it provides training on and resources for personnel who are likely to assume a supervisory position within the Incident Command System (ICS).

FEM 151–National Incident Management System (NIMS) (1)

Provides a comprehensive understanding of the National Incident Management System (NIMS); purpose, principles, key components and benefits, in conjunction with the Incident Command System (ICS). Provides specific instruction as to the Planning, Public Information and Resource Management functions of NIMS.

FEM 155–Emergency Radiological Response Transportation (1)

Provides an understanding of radiological basics and biological effects from radiation exposure. Details a comprehensive introduction into potential hazards and mitigation procedures in resolving Radiological Transportation related incidents including radioactive product packaging and containment, survey instruments, decontamination and disposal modalities.

FEM 156–Emergency Planning for Schools (1)

Describes methods utilized to assess potential hazards that schools may face. Provides a comprehensive understanding of emergency management operations utilizing the Incident Command System (ICS) detailing roles and responsibilities in the school setting. Explains how to develop and test an Emergency Operations Plan that addresses potential hazards.

FEM 157–Hazard Mitigation (1)

Explains how to develop community support, identify potential hazards, assess risk, and utilize outside agency assistance with mitigation planning. Details the economic impact to communities that suffer disasters resulting in the need to address risk through the development and implementation of a Hazard Mitigation plan. Presents actual examples of successful hazard mitigation planning.

FEM 158–Protecting Your Home and Small Business from Disaster (1)

Presents in a non-technical format specific protective measures that can reduce the negative consequences of disasters upon homes or small businesses.

FEM 159–National Response Framework (NRF) (1)

Introduces students to the concepts and principles of the National Response Framework (NRF). Explores the roles and responsibilities of entities as specified in the NRF and the actions that support national response. Provides instruction on the NRF structures for implementing national-level policy and operational coordination for domestic incident response.

FEM 161–An Emergency Operation Center (EOC) (1)

Describes the role, design, and functions of Emergency Operation Centers and their relationships as components of a multi-agency coordination system. The course contains disaster related examples, activities, and case studies that relate to EOC's and multi-agency coordination systems at the local, state and federal levels of government.

FEM 170–Mitigation Grants Management (1)

Provides students with the basic knowledge about using the web-based Mitigation Electronic Grants (eGrants) Management System. Introduces the functions of the applicant and subapplicant and focuses on administration, application, and monitoring aspects of the eGrants system.

FEM 171–NIMS Communications (1)

Provides students with the basic knowledge about the primary functions of the NIMS multi-agency coordination systems, communication and information management and intrastate mutual aid.

FEM 173–Continuity of Operations Planning (1)

Provides a brief overview of continuity, including its definition, the legal basis for continuity planning, the Continuity Program Management Cycle, and essential elements of a viable continuity program. Describes the Continuity Management Cycle, how it should be used to develop sound continuity of operations plans, and the roles and responsibilities of the Continuity Program Manager and other key players. Identifies the unique aspects of designing a continuity exercise. This course is for students seeking additional instruction and practice in Continuity of Operations Planning (COOP) as prescribed in Federal Continuity Directive (FCD) 1.

FEM 174–Disaster Response Operations (1)

Covers the operational components of disaster response including public assistance, points of distribution, personnel deployment, and mission assignments.

FEM 175–Citizen Preparedness (1)

Provides a general introduction to emergency preparedness information and focuses on the role of the individual in being prepared. The study of the most common natural and manmade disasters, including the dangers of hazardous chemicals in the home are addressed.

FEM 176–Continuity of Operations Planning for Pandemics Exercise (1)

Introduces students to the characteristics of a pandemic influenza, the effects on every facet of society and the steps to minimize the effects. Covers fundamental continuity principles and processes with a pandemic focus. Describes strategies for social distancing and special protection for first responders, healthcare personnel, and others daily contact with the public.

FEM 178–Emergency Management Administrator (1)

Covers fundamental work place management principles and practices with the primary focus on administrative responsibilities relating to the emergency incident deployment. Topics covered include: FEMA employee and supervisor mandatory EEO policy, knowledge of ethical standards and the civil rights of those served during disaster assistance operations. Describes safety rights and manager responsibilities, as well as recognition and the prevention of potential work place violence. Covers the federal travel rules, regulations and deployment preparations essential to meet the unique needs of the disaster workforce while they serve our nation.

FEM 179–Emergency Management Recovery (1)

Rapid and effective damage assessments save lives, protect property and the environment, and begin the process of recovery and mitigation. This course allows participants to discover planning techniques and resources for an effective damage assessment program. Topics covered include risk and vulnerability assessments, the benefits of the Unified Hazard Mitigation Assistance grant programs and application procedures, and prepares students to conduct risk assessments using the FEMA 452 and FEMA 455 Rapid Visual Screening for Buildings.

FEM 180–Planning and Vulnerable Populations (1)

Provides an awareness of rules and regulations critical in creating and revising emergency plans for different vulnerable populations. This course allows participants to effectively create, update, and revise emergency operation plans for vulnerable populations. Topics covered include 508 awareness, the law, roles and responsibilities, and populations affected, preparing students to assess 508 compliance in emergency planning situations.

FEM 181–Integrated Public and Private Partnership Planning (1)

Prepares participants to effectively create, manage, and utilize public-private partnerships to improve preparedness, planning, and response. Topics covered include special events contingency planning, establishing and maintaining roles and responsibilities, Incident Command System, and defining specific events.

FEM 182–Local and Tribal Mitigation Planning (1)

Provides an awareness of rules, regulations, and responsibilities that are critical in creating and revising the hazard mitigation plan development. This course allows participants to effectively create, update, and revise hazard mitigation plans for local and tribal community populations. This course allows reviewers to interpret regulations affecting local and tribal hazard mitigation plans. Topics covered include locals plans as covered in 44 Code of Federal Regulations (CFR) §201.6 or for tribal plans as described in 44 CFR §201.7.

FEM 183–Public Works Role in Emergency Management (1)

Examines the details of the public works function in emergency management. Designed to help communities improve public works efforts prior to, during, and after disasters. This course is intended to help build local capacity for public works including planning for disasters, developing practices and procedures, conducting damage assessment, and participating in after-action reviews. This course also includes details of how the function of public works is integrated into the overall strategy for responding to disasters and its relationship to other emergency management functions.

FEM 184–Logistics and the Defense Priorities and Allocations System (DPAS) (1)

Provides an overview of the logistics functions and organizational relationships within logistics from a Presidential disaster declaration to close-out of FEMA field offices. It examines how the Defense Priorities and Allocations System (DPAS) supports FEMA's mission and describes how DPAS supports timely delivery of critical materials and services to meet requirements including priority ratings for contracts and orders, placement of rated orders, the roles of FEMA employees in the DPAS process, and how to address DPAS challenges.

FEM 185–Emergency Management Technical Writing and Graphic Communications (1)

Provides the emergency manager with an overview of research, writing, and graphic communications to effectively complete specific technical writing and graphic and visual communications projects as required by variable duty assignments. Focus is on the development of training materials, reports, evaluations, user instructions and graphic presentations for diverse audiences.

FEM 186–Hazard Mitigation and Disaster Workforce Basics (1)

Equips students with the necessary knowledge to understand and communicate to the public preparedness and prevention approaches that can reduce the impact of disasters. Students will also gain understanding of procedures for federal, state, local and private partners and the supporting role each agency plays in providing prevention and mitigation assistance for earthquakes, floods, hurricanes, tornados, and wildfires.

FEM 187–Local Mitigation Plan Review (1)

Equips students with the knowledge necessary to effectively review and determine if local mitigation plans meet federal mitigation planning requirements using the current FEMA Local Mitigation Plan Review Guide and developmental tools.

FEM 188–Critical Infrastructure Protection (1)

Enhances the knowledge of students in the field of critical infrastructure protection. Students will be exposed to the National Infrastructure Protection Plan (NIPPP) and the National Response Framework (NRF) Critical Infrastructure and Key Resources (CI/KR) Support Annex. Students also learn the importance of vertical and horizontal collaborations across security partners and the effective strategies for the sustainment of these relationships.

FEM 189–Workforce Preparedness (1)

Introduces basic preparedness concepts and strategies for improving workplace, business and community preparedness. The course provides guidance to students on how to contribute to improve workplace security in addition to best practices for responding to an active shooter situation. The course identifies surveillance activities and the indicators associated with them while outlining prevention steps aimed at identifying, monitoring, and reporting suspicious activities.

FEM 190–Federal Preparedness & Management (1)

Enhances student knowledge in the areas of emergency preparedness, health and safety, and performance management. Provides knowledge that will help students understand safety rights and responsibilities and the best methods to safeguard their own well-being. The information moves from personal preparedness and extends to emergencies that could threaten one's home, workplace, and community. For those tasked with the additional responsibilities of preparing business, agency or community, performance management is included to improve understanding of planning approaches through the application of results-oriented and SMART goals, progress reviews, and the annual review of existing approaches.

FEM 191–Emergency Management & Technical Tools Application (1)

Introduces students to preparedness communication tools to reach all members of their communities during an emergency. Explores the National Emergency Technology (NET) Guard program, how GIS technology can support emergency management, and the Integrated Public Alert and Warning System (IPAWS).

FEM 192–Geospatial Information Systems Specialist (1)

Introduces students to the disaster response role and responsibilities of a Geospatial Information System (GIS) Specialist. Explores what types of products need to be produced and what procedures must be followed to ensure that products are produced correctly and in a timely manner.

FEM 193–Resilient Accord: Exercising Continuity Plans for Cyber Incidents (1)

Introduces students to best practices for executing continuity operations during cyber-security incidents. Explores the importance of incorporating cyber security into continuity planning.

FEM 194–Critical Infrastructure Security: Theft and Diversion - What You Can Do (1)

Introduces students to the information they need to identify threats and vulnerabilities to critical infrastructure from the theft and diversion of critical resources, raw materials, and products that can be used for criminal or terrorist activities. Explores the actions that participants can take to reduce or prevent theft and diversion.

FEM 195–Protecting Critical Infrastructure Against Insider Threats (1)

Introduces students to critical infrastructure preparedness practices and measures to reduce the risk of insider threats. Explores methods for identifying and taking action against insider threats to critical infrastructure.

FEM 196–Preparing for Mass Casualty Incidents: A Guide for Schools, Higher Education and Houses of Worship (1)

Introduces students to recommended practices and resources for developing emergency plans to prepare for, respond to, and recover from mass casualty incidents.

FEM 197–CERT Supplemental Training: The Incident Command System (1)

Introduces students to principles of the Incident Command System (ICS) and helps learners understand how to effectively apply the principles through interactive real-life scenarios. Explores Community Emergency Response Team (CERT) activation, safety of disaster workers, acceptable leadership and organizational structures, and rescue effort approaches.

FEM 198–Benefit-Cost Analysis (BCA) Fundamentals (1)

Introduces students to fundamental Benefit-Cost Analysis (BCA) and concepts and theory and is the framework and prerequisite for the classroom, field or facilitated distance learning Benefit-Cost Analysis course.

FEM 199–Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures (1)

Introduces students to engineering design and economic guidance on what constitutes feasible and cost-effective retrofitting measures for flood-prone residential and non-residential structures. This course serves as an overview of the contents of the revised Federal Emergency Management Agency (FEMA) P-259, Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures.

FEM 200–Homeland Security Geospatial Operations & Management (1)

Introduces students to the relevance and importance of GeoCONOPS to federal policy, doctrine, and the professional roles of emergency manager, incident commander, and geospatial practitioner. Students will discover an array of managed geospatial data services, tools, and capabilities that support the full range of missions within the Department of Homeland Security (DHS).

FEM 201–National Disaster Recovery Framework (NDRF) Overview (1)

Introduces students to the National Disaster Recovery Framework (NDRF), which provides a new national framework for efficient and timely federal disaster recovery operations. This course will familiarize students with key concepts, core principles, and roles and responsibilities of NDRF leadership (including individuals and households; local, state, tribal, and federal levels; and between public, private, and nonprofit sectors).

FEM 202–External Affairs Program Liaison (1)

Introduces students to the skills needed to perform effectively as a program liaison within the Planning and Products component of External Affairs (EA). Explores the position requirements needed to collaborate with the Joint Field Office (JFO) while gathering information that EA may use in disaster response and recovery.

FEM 203–Dams Sector Security Awareness (1)

Explores methods for identifying potential security threats to the nation's dams and levees and indicators of those threats. Includes an overview of protective measures used to reduce and manage risk within the Dams Sector.

FEM 204–Emergency Food and Shelter National Board Program (1)

Explores the requirements, eligibility for funding, and participant responsibilities of the Emergency Food and Shelter National Board Program. Includes an overview of the responsibilities of the National Board and the Federal Emergency Management Agency (FEMA).

FEM 205–Fundamentals of Management and Support Coordination of Federal Disaster Operations (1)

Explores the fundamental incident management knowledge needed by personnel occupying support roles during disaster operations. Includes an overview of the Federal Emergency Management Agency (FEMA) Qualification System (FQS) in incident management or incident support.

FEM 206–The Substantial Damage Estimator 2.0 Tool (1)

Enables learners to successfully use the Substantial Damage Estimator 2.0 tool. Includes demonstrations that allow students to practice populating the electronic forms; saving individual-structure and community-wide data; running reports; and importing and exporting data to other formats, such as Excel.

FEM 207–Radiological Accident Assessment Concepts (2)

Explores the radiological consequences to the public following a release of radioactivity from nuclear power reactors and non-reactor incidents. Includes an overview of how to use this assessment as a basis for recommending protective actions to decision makers.

FEM 208–Including People with Disabilities, Access & Functional Needs in Disaster Operations (1)

Explores the benefits and importance of including people with disabilities and others with access and functional needs in disaster operations. Includes an overview of access and functional needs and explains how disaster staff can apply inclusive practices in their disaster assignments.

FEM 209–Guardian Accord - Terrorism and Continuity Operations (1)

Explores the importance of incorporating the specific risks of terrorism into continuity planning for Federal Department and Agencies, state, territorial, tribal and local jurisdictions. Includes an overview of the unique continuity planning considerations of terrorism.

FEM 210–Continuity of Operations (COOP) Planner's Workshop (1)

Provides students with the knowledge, skills, and tools necessary to develop and implement continuity plans according to established continuity requirements and guidance. Explores the four phases of continuity, important factors that affect planning and plan maintenance, best practices in managing those factors, and how to effectively assess and update existing plans and programs.

FEM 211–Mission Essential Functions (MEF) Workshop (1)

Provides an overview of continuity planning assistance with a specific focus on identifying and refining organizational essential functions. Explores essential supporting activities (ESAs); conducting business process analyses (BPAs) and business impact analyses (BIAs); evaluating the impacts of threats and hazards on Mission Essential Function (MEF) performance; and developing mitigation strategies to reduce disruptions and risk.

FEM 212–Homeland Security Building Design for Continuity of Operations (1)

Provides guidance to the building sciences community working for public and private institutions, including Continuity of Operations (COOP) planners/managers, building officials, etc. Explores tools to help decision-makers assess the performance of their buildings against terrorist threats and to rank recommendations.

FEM 213–Introduction to Community Emergency Response Teams (1)

Provides an introduction to Community Emergency Response Teams (CERT) for those interested in completing the basic CERT training or as a refresher for current team members.

FEM 214–Reconstitution Planning (1)

Provides guidance to Federal Executive Branch departments and agencies for developing Continuity of Operations (COOP) Plans and Programs. Explores the advantages of developing effective and comprehensive reconstitution planning.

FEM 215–Disaster Medical Coordination, Monitoring, and Surveillance (1)

Introduces students to the concepts and principles of the Emergency Responder Health Monitoring and Surveillance (ERHMS) system. The course provides instruction to leaders in organizations responsible for planning and executing an incident response that optimizes the health and safety of response, remediation, recovery, and volunteer workers.

FEM 216–National Emergency Management Information System (NEMIS) Hazard Mitigation Grant Program (HMGP) (1)

Introduces students to the National Emergency Management Information System (NEMIS) and the knowledge needed to complete Hazard Mitigation Grant Program (HMGP) applications. The course provides instruction on the database system used to track disaster data for the Federal Emergency Management Agency (FEMA) and grantee emergency management offices. Explores the modules or application areas that represent various functions within FEMA.

FEM 217–Flood Insurance Coverage Basics (1)

Introduces students to Increased Cost of Compliance (ICC) coverage concepts as part of the Standard Flood Insurance Policy. Explores the National Flood Insurance Program (NFIP) and covered and non-covered building and personal property items. Examines the unique requirements for insuring condominiums and key characteristics and special adjustment issues for basement coverage.

FEM 218–Flood Insurance Exposures Awareness (1) Introduces students to commercial exposures and how they are insured within the National Flood Insurance Program (NFIP). Explores the impact of mapping changes on property owners, insurance agents, lending institutions, and others. Examines the Coastal Barrier Resources System (CBRS) and Otherwise Protected Areas (OPAs).

FEM 219–Principles of Flood Insurance Evaluation (1)

Introduces students to Elevation Certificate (EC) and how EC's help floodplain administrators reduce flood risk. Explores lowest floor elevation for post-FIRM buildings in A or V zones as shown on the FEMA Elevation Certificate. Examines Biggert-Waters Flood Insurance Reform Act of 2012 (BW 12) legislation and the Homeowner Flood Insurance Affordability Act of 2014 (HFIAA).

FEM 220–Fundamentals of Flood Insurance Claims (1)

Introduces students to Commercial Claims procedures covered in the National Flood Insurance Program (NFIP). Explores small and large commercial claims, certification requirements and adjuster authority, the General Property Form, and adjustment standards and requirements. Examines the history and organization of the NFIP, the Standard Flood Insurance Policy (SFIP), and the key terms and concepts that flood claims adjusters must know in order to accurately handle flood claims.

FSA: Fire Service Administration

FSA 101–Fire Protection Systems (3)

Prerequisite or Corequisite: EN 101

Provides information relating to the design features and operation of fire alarm systems. Design principles involved in structural fire protection and automatic suppression systems, including fire resistance and endurance, flame spread evaluation, smoke control, special hazard fire suppression systems, water supply for fire protection, and evaluation of sprinkler system designs will be examined.

FSA 103–Fire Investigation and Analysis (3)

Prerequisite or Corequisite: EN 101

Examines technical, investigative, legal, and managerial approaches to arson. Includes the fundamentals needed for proper fire scene interpretation, recognition of origin and cause, preservation and documentation of evidence, scene security, motives of the fire setter, and types of fire causes.

FSA 105–Risk Assessment, Reduction, and Safety (3)

Prerequisite or Corequisite: EN 101

Examines the concepts of community sociology, the role of fire-related organizations within the community, and their impact on shaping community policy and master planning. Components of risk identification, risk evaluation, incident management, and accountability systems are examined.

Note: If student is not an active firefighter, they must establish a mentor who is a FD Chief Officer.

FSA 107–Disaster Planning and Response (3)

Prerequisite or Corequisite: EN 101

Examines concepts and principles of community planning and response to fire, emergency, and natural disasters, including the Incident Command System (ICS), mutual aid and automatic response, training and preparedness, communications, hazardous materials planning, and disaster recovery.

Note: If student is not an active firefighter, they must establish a mentor who is a FD Chief Officer.

FSA 109–GIS and Technology for Fire Services (3)

Prerequisite or Corequisite: EN 101

Provides a foundation for implementing geospatial technologies in a local emergency service agency, within the context of planning, mitigation, response, and recovery. GIS can be applied to each of the phases of crisis management and whole community planning. The value, application, and use of geospatial technologies in emergency services and the fundamental skills required for basic implementation will be addressed.

FSA 201–Fire and Emergency Services Administration (3)

Prerequisite: FSA 101

Introduces the student to the organization and management of a fire and emergency services department and the relationship of government agencies to the fire service. New technologies, changing organizational structures, personnel and equipment, municipal fire protection planning, manpower and training, and financial management are examined. Emphasis is placed on fire and emergency service, ethics, and leadership from the perspective of the company officer.

Note: If student is not an active firefighter, they must establish a mentor who is a FD Chief Officer.

FSA 203–Principles of Fire Service Leadership (3)

Prerequisite: FSA 201

Provides the student with the knowledge and skills to understand different styles of leadership and apply their impact on behavior in a Fire Service context. Applying appropriate decision-making styles to given situations, outlining problem-solving methods, and identifying available resources are examined.

Note: If student is not an active firefighter, they must establish a mentor who is a FD Chief Officer.

FSA 205–EMS Operations (3)

Prerequisite: FSA 105

Provides EMS personnel/officers/supervisors the knowledge and skills to apply proper scene command techniques for management of medium to large incidents involving multiple sick or injured patients. Topics covered include problem-solving and EMS functions within incident command, resource management, interagency and mutual aid, size-up and strategy, tactics and action plans, EMS company operations, pre-incident preparation, incident organization, and strategic command. Emphasis is placed on pre-incident planning and the use of standard operating procedures.

GG: Geography

GG 101–Elements of Geography (3)

• GenEd Social & Behavioral Sciences/Geography

Prerequisite: EN 52 or ESL 99 or ESL 72

Explores elements of man's environment and the changes resulting from natural and human agents. Includes map reading and interpretation.

GG 102–Cultural Geography (3)

• GenEd Social & Behavioral Sciences/Geography;

Cultural Competence

Prerequisite: EN 52 or ESL 99 or ESL 72

Studies man in his regional settings, with emphasis on the interrelationships of physical and cultural phenomena.

GG 201–Urban Social Geography (3)

• GenEd Social & Behavioral Sciences/Geography & Interdisciplinary & Emerging Issues/Multicultural Issues & Perspectives; Cultural Competence
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examining concepts of cities and how culture interacts with urban landscapes.

Health Care and Wellness Careers

(Continuing Education/Noncredit)

CAH 132–Certified Nursing Assistant Part I:
AH Pre-Reqs, Intro and Skills and EN52 OR ESL99 OR ESL72

Become a Certified Nursing Assistant in just a few weeks. Learn basic patient care skills, your role as a member of the healthcare team, disease processes, infection control and safety issues. Combined with the clinicals, this course meets all eligibility requirements for CNA certification in the state of Maryland and prepares you for the Geriatric Nursing Assistant (GNA) test. The program requires study time outside of class and includes tests, both written and practical (hands on) skills, which must be passed prior to starting the clinical sessions. *Prerequisites:* Placement into EN52 or ESL99; current American Heart Assn. Health Care Provider CPR card; CAH144 (Intro to Health Care Careers); CAH143 (Intro to Allied Health Skills). *Other Requirements:* Must be at least 18 years of age; Proof of negative TB test or chest X-ray; Physical Examination and proof of up-to-date immunizations; proof of health insurance; undergo background investigation and fingerprinting (fees included in course fees).

CAH 133–Certified Nursing Assistant Part II:
 Part II is a continuation of Part I.

CAH 114– Certified Nursing Assistant Clinical Practicum

Students will participate in supervised clinical rotations with experienced, certified nursing faculty in local health care facilities and will interact with residents performing all the duties and responsibilities of a nursing assistant. Individual skills and execution are evaluated daily.

CAH 143–Introduction to Allied Health Skills

This course is designed to introduce you to the basic patient skills required as a health care professional. You will learn basic anatomy and physiology, the techniques of determining vital signs, blood pressure, respiration, pulse, and patient communications. These skills enable you to function more effectively as a professional in a healthcare setting. Required course for students entering Certified Nursing Assistant Program or Phlebotomy Technician Program.

CAH 144–Introduction to Health Care Careers

This course is designed to help you gain the knowledge and skills needed to perform effectively in a learning environment and work productively in a health care setting. You will learn basic competencies of workplace professionalism, communication and customer service, diversity, cultural competencies, task prioritization, and documentation specific to the health care environment. Required course for students entering Certified Nursing Assistant Program or Phlebotomy Technician Program.

CAH 244–Medical Billing and Coding Online (with Medical Terminology starting summer 2016)

Medical billing and coding is one of the fastest-growing careers in the healthcare industry today! The need for professionals who understand how to code healthcare services and procedures for third-party insurance reimbursement is growing substantially. Physician practices, hospitals, pharmacies, long-term care facilities, chiropractic practices, physical therapy practices, and other healthcare providers all depend on medical billing and coding for insurance carrier reimbursement. This billing and coding program delivers the skills students need to solve insurance billing and coding problems. This course is designed to prepare students to sit for various national certification exams including those from the American Academy of Professional Coders (AAPC) and the American Health Information Association (AHIMA). *Prerequisite:* Medical Terminology.

CAH 466–Phlebotomy Technician Clinicals

Participate in 100 hours of supervised clinical rotations with experienced phlebotomists in local health care facilities. Students will perform 100 supervised venipunctures. Individual skills and execution will be evaluated daily.

CAH 483–Phlebotomy Technician Preparation I: Theoretical Applications

In Part I, Theoretical Applications, students learn basic phlebotomy technical background and professional preparation for working as a phlebotomist. Students are introduced to anatomy and physiology with special emphasis on the cardiovascular and lymphatic system, applicable medical terminology and an overview of healthcare settings where phlebotomy services are performed. Students learn and apply professional ethics and behavior; interpersonal and written communications, including cultural competency; systems of documentation; and safety and infection control. Students will develop knowledge and comprehensive skills to prepare them to perform venipunctures completely and safely as they progress to Part II: Practical Applications. The full program includes classroom and both in-class and on-site clinical practice at local health care facilities. This program requires study time outside of class and includes both written and practical (hands-on) skills assessments, which must be passed prior to starting the clinical course. The program prepares students to take several national certification exams.

CAH 484–Phlebotomy Technician Preparation II: Practical Applications Phlebotomy Technician II:

Practical Applications is a continuation of Part I: Theoretical Applications. In this course students learn to perform venipuncture and specialized phlebotomy procedures. Students are familiarized with blood collection equipment and selection, specimen handling and identifying complications related to blood collection and medical errors. Students train on a variety of procedures and techniques for typical and special populations clients. Special topics in specimen uses for testing in forensics, workplace and sports are explored. Hands-on skills practicums prepare students for the clinical course. The full program includes classroom and on-site clinical practice with experienced phlebotomists at local health care facilities to give students hand-on professional experience and prepares students to take several national certifications. The program requires study time outside of class and includes both written and practical (hands-on) skills assessments, which must be passed prior to starting the clinical course

SAF 112 CPR: Healthcare Provider

Using the American Heart Association guidelines, this course is designed to teach the skills of CPR for victims of all ages. Includes ventilation with a barrier device, bag-valve mask device, oxygen, use of an automated external defibrillator (AED), and how to relieve foreign body airway obstruction. Intended for participants who work in a health care setting and are required to take a Health Care Provider course for their employment. Course completion card is issued for all participants in a Basic Life Support for Health Care Provider course who successfully complete the written examination and demonstration.

SAF 156 Heartsaver CPR/First Aid/AED

This Heartsaver, First Aid and AED course includes adult CPR and is designed for the lay person and first responder. The first aid section includes first aid basics, medical emergencies, injury emergencies and environmental emergencies applicable to all age categories. The CPR section presents basic techniques of Adult CPR, use of barrier devices during rescue breathing, and how to use an automated external defibrillator (AED).

Fee Disclaimer: The American Heart Association strongly promotes knowledge and proficiency in all AHA courses and has developed instructional materials for this purpose. Use of these materials in an educational course does not represent course sponsorship by the AHA. Any fees charged for such a course, except for a portion of fees needed for AHA course materials, do not represent income to AHA.

HE: Health Education

HE 102–Nutrition in a Changing World (3)

• GenEd Interdisciplinary & Emerging Issues/Wellness
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents the basic principles of human nutrition with emphasis on the nutrients and factors that affect their use in the human body.

HE 110–Nutrition Basics (1)

Applies a basic knowledge of nutrition to enable the students to make good dietary decisions. Provides a basis for discerning healthy diets.

HE 115–Stress Management Techniques (1)

Introduces the basic concepts of stress management and focuses on coping strategies and techniques to reduce stress.

HE 120–CPR/AED and Basic First Aid (1)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces the student to the basics of emergency first aid treatment and safety. Students successfully completing this course will receive the American Heart Association (AHA) HeartSaver certification in First Aid, Cardio Pulmonary Resuscitation (CPR), and Automated External Defibrillator (AED).

HE 130–Tai Chi: A Cultural Perspective (1)

• Cultural Competence

Introduces the traditional Chinese meditative exercise known as Tai Chi. While participating in the low intensity physical skills that comprise Tai Chi, students will be introduced to the culture, philosophy, history, and practice of the exercise.

HE 200–Principles & Application of Nutrition (3)

Prerequisites: One semester of college biology either BI 100, BI 101, BI 103 or BI 107

Introduces the principles of nutrition for the maintenance of good health throughout the life-cycle. Applications of nutritional principles are presented via the connection between diet and the prevention and treatment of disease. Investigates the socioeconomic, ecological and political factors that shape national nutritional policy and ultimately affect personal health.

HE 201–Stress Management (3)

• GenEd Interdisciplinary & Emerging Issues/Wellness
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines current theories regarding the nature and sources of stress in life. Students are introduced to the physiology and psychology of stress. A variety of stress management techniques are explored.

HE 204–Health Education (3)

• GenEd Interdisciplinary & Emerging Issues/Wellness
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers basic areas of health, including mental health, fitness, nutrition, weight control, sexual health, drugs and alcohol, disease and consumer and environmental health.

HI: History

HI 101–History of Western Civilization (3)

• GenEd Social & Behavioral Sciences/History
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Surveys the development of Western civilization from ancient times to 1500.

HI 102–History of Western Civilization (3)

• GenEd Social & Behavioral Sciences/History
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers Western history from 1500 to the present.

HI 106–Introduction to Historic Preservation (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides a general overview of the different aspects of historic preservation, including downtown revitalization, historic site management, preservation legislation and education, historic architecture, and the history of historic preservation in the United States. Research methodologies will include using library resources, public records, maps, historic documents, images, oral histories, and folklore. Students will make on site visits to historic preservation projects.

HI 107–Introduction to Archives and Manuscripts (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides an introduction to the role of archives and manuscript repositories in preserving and providing access to historical records, and will present an overview of the theory and practice of archives management. The student will approach research from the other side of the reference desk and learn how primary source material is arranged and made available to researchers. The course will also cover such research-related topics as copyright, privacy, fair use, and ethical standards. This course will benefit those interested in a potential career as an archivist, manuscripts curator, or special librarian, as well as those public historians likely to utilize archival collections in their work.

HI 201–History of the United States (3)

• GenEd Social & Behavioral Sciences/History
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines the economic, political and social forces that have shaped the patterns of life, institutions and thought in the United States through the Civil War.

HI 202–History of the United States (3)

• GenEd Social & Behavioral Sciences/History
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers United States history from Reconstruction to the present.

HI 212–Civil War (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines the causes of the Civil War, the constitutional crisis confronting the Union, the conduct of the war by both the Union and Confederacy, the economic and social conditions of the homefront, the status and condition of African Americans and the wartime origins of Reconstruction.

HI 213–History of the South (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

A history of the South from the Colonial period to the present. Examines the Golden Age of the Chesapeake, antebellum society, the institution of slavery, development of a regional identity, the War for Southern Independence, Reconstruction, readjustment of racial patterns and the rise of the New South and the Sun Belt.

HI 214–The Civil Rights Movement (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Explores the history of the Civil Rights movement in twentieth-century America. It begins with an overview of segregation, examines in detail the efforts of the movement to overcome Jim Crow discrimination, and concludes with an assessment of the movement's legacy.

HI 215–Constitutional History of the United States (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines the Constitution and its impact within the context of the government, law, and politics. Topics covered include the origins of the Constitution, the development of judicial nationalism, the impact of slavery, the conflict leading up to the Civil War, reconstruction, the 1890s, the creation of the modern state, the New Deal era, the 1960s, and the movement toward a conservative constitutionalism.

HI 217–African-American History (3)

• Gen Ed Social & Behavioral Sciences/History or Interdisciplinary & Emerging Issues/Multicultural Issues & Perspectives; Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Surveys African-American history from the arrival of the first Africans in 1619 to the present. Includes the major economic, political, and social forces that have helped shape the role of the African American in the history of America.

H: Honors College

Many courses available at Frederick Community College (FCC) are offered in an honors format. The courses have the same approved core learning outcomes and content requirements as regular courses. Honors courses are smaller, emphasize critical thinking/research projects, and typically stress a high level of reading, writing, and discussion. In addition to prerequisites listed for individual honors courses, prerequisites for all honors courses include testing placement or the recommendation of a faculty member or the student's advisor. Course descriptions and prerequisites for courses being offered in a given semester are listed under their academic area in this catalog.

ID 200H–Honors Seminar: Special Topics in Interdisciplinary Studies (3)

Prerequisites: EN 101, MA 82

Operates as an interdisciplinary seminar designed for honors students and open to other qualified students with permission of instructor. Topics vary from semester to semester but will synthesize work from at least two different academic content areas and focus on issues of importance to society.

IS: Honors Independent Study

Provides in-depth study of a particular subject. Students work closely with a faculty mentor to conduct original research or produce an artistic work, which is presented to the campus community at the end of the semester. See Honors Coordinator for guidelines and course permission. Honors independent study courses currently available include the following:

Corequisite: IS 912H. Contact the Honors Coordinator for an application, 301.846.2535.

IS 900H–IS: Biology Honors (3)

IS 901H–IS: Communication Honors (3)

IS 902H–IS: English Honors (3)

IS 903H–IS: Mathematics Honors (3)

IS 904H–IS: Psychology Honors (3)

IS 905H–IS: Sociology Honors (3)

IS 909H–IS: Art Honors (3)

IS 910H–IS: Physical Science Honors (3)

IS 911H–IS: History Honors (3)

IS 912H–Honors Forum (1)

Prerequisites: Completion of honors course in discipline of independent study and completion of 15 credits at FCC.

HOS: Culinary Arts & Hospitality

HOS 109–Introduction to Culinary Arts (2)

Concentrates on skills and attributes needed to fill entry level culinary and food service positions. Instruction will assist students in practicing communication skills, utilizing listening skills to follow directions, practicing basic math skills as applied to a culinary arts setting, and reading to gain information and to perform assignments and tasks as directed. Through discussion students will gain insight into a career in restaurants and food/beverage operations. Students will also learn resume writing and job interviewing techniques.

HOS 110–Introduction to Hospitality Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Develops an understanding of the hospitality industry and introduces the student to the career opportunities available. Provides a basic understanding of the organizational structure and departmental functions within hotel and foodservice establishments. Examines the forces and issues that are shaping the current and future hospitality industry. Develops an understanding of competition and the role of management in providing product and service excellence. Various types of operations will be discussed emphasizing value chain analysis and defining service as competitive advantage.

HOS 111–Culinary Fundamentals (1)

Prerequisite: EN 52 or ESL 99; *Corequisite:* HOS 112

Examines the basic concepts related to the preparation of food and introduces culinary terms. Demonstrates skills in knife usage, equipment identification and handling. Reviews issues related to menu planning, recipe development and cost control. Identifies skills and attributes needed to fill entry level culinary and food service positions. Discusses careers in restaurants and food/beverage operations. Students learn resume writing and job interviewing techniques.

HOS 112–Culinary I (3)

Prerequisite: EN 52 or ESL 99 or ESL 72; *Corequisites:* (HOS 109 or HOS 111) and HOS 121

Introduces the fundamental concepts, skills, and techniques involved in basic food preparation and cookery. Emphasis is placed on recipe conversion, measurements, terminology, knife skills, safe food handling, cooking methods, flavorings, seasonings, stocks, sauces, soups, vegetables and starches. Extra fees required.

HOS 113–Culinary II (3)

Prerequisites: HOS 112 and grade of C or better in HOS 121 or permission of program manager

Emphasizes meat, poultry and seafood fabrication and cookery; small sauces; and plate presentation. Recipe conversion, measurements, terminology, knife skills, sanitation and safe food handling, cooking methods, seasoning, vegetable and starch cookery are reinforced. Extra fees required.

HOS 114–Culinary Baking (3)

Prerequisite: EN 52 or ESL 99 or ESL 72; *Corequisite:* HOS 121

Applies the fundamentals of baking science to the preparation of a variety of products. Examines the use and care for equipment normally found in the bake shop or baking area. Extra fees required.

HOS 116–International Cuisine (3)

Corequisites: HOS 115, HOS 117 and HOS 250, or permission of program manager

Provides advanced training in the preparation of selected ethnic and foreign cuisines. Students will study the relationship and influence of foreign cuisine on today's more popular ingredients and dishes. Extra fees required.

HOS 121–Sanitation and Food Safety (2)

Develops an understanding of basic principles of sanitation and safety in hospitality operations. The course focuses on prevention of foodborne illnesses and introduces the student to HACCP planning and implementation. Successful passing of the National Restaurant Association exam provides certification as a 'ServSafe Food Protection Manager'. Students will develop a HACCP plan.

HOS 123–Purchasing & Cost Control (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines food purchasing as a process and emphasizes the dynamics of managing the flow of food through the operation. Provides an introduction to food recognition and basic menu planning and their effects on production, service, labor and other financial control procedures. Emphasizes establishing operating standards, monitoring actual results and taking corrective action to account for variances. Introduces students to the budgeting process with strong emphasis placed on control of prime costs. Offers discussion on selection, training and retention of employees and the effect of Human Resource functions on daily operations and cost control.

HOS 210–Garde Manger (4)

Prerequisite: HOS 113 or permission of program manager

Provides students with skills and knowledge of the organization, equipment, and responsibilities of the 'cold kitchen.' Students prepare appetizers, canapés, hors d'oeuvres, cold sauces, and salads. Introduces preparation of basic butchery and charcuterie items while focusing on the total utilization of product. Introduces modern culinary techniques and cooking methods. Extra fees required.

HOS 214–Advanced Baking & Pastry (3)

Prerequisite: HOS 114

Builds on previous knowledge and increases proficiency in baking and pastry techniques for production. Students will explore and demonstrate a broad spectrum of classical vs. modern applications of cakes, French pastries, and tarts. Students will sharpen their skills in mixing and shaping of breads, including artisan breads. The focus of the course will be on artistry and innovation in baked goods merged with practical skills.

HOS 215–Catering and Event Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides both practical knowledge and a comprehensive understanding of the catering and event management industry. Equips students with the knowledge to advance in the field if you are currently working in the field or will prepare you to enter the profession with an understanding of the industry. Provides the foundation for which students can build their careers in catering and special events or start their own business, and will examine the complex role of catering in the event management process. Topics include planning and development for special events such as weddings and anniversaries, menu planning, service planning, room selection, setup and operation, and coordination and management of the event from the inception phase to the post-evaluation of the event.

HOS 216–Food and Beverage Operations (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides an analysis of different types of food service operations, beginning with an overview of the food service segment of the hospitality industry. Detailed consideration is given to food and beverage operations, food service marketing, menu planning, nutrition concerns, menu cost and pricing strategies, production, service, beverage management, sanitation and safety issues, facility design and equipment, accounting and food service automation.

HOS 218–Hospitality Information Systems (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* CIS 101

Provides an overview of the information needs of lodging properties and food service establishments; addresses essential aspects of computer systems, such as hardware, software, and generic applications; focuses on computer-based property management systems for both front office and back office functions; examines features of computerized restaurant management systems; describes hotel sales computer applications, revenue management strategies, and accounting applications; addresses the selection and implementation of computer systems; focuses on managing information systems; and examines the impact of the Internet and private intranets on the hospitality industry.

HOS 219–Foundations of Lodging Management (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Explores lodging facilities and the services provided throughout the guest cycle. Included are the analysis of front desk operations, front office management, marketing, reservations, data processing, guest services, security, executive housekeeping, and night auditing.

HOS 230–Applied Culinary Nutrition (3)

Prerequisite: HOS 113 or permission of program manager

Applies basic nutrition concepts to the development of recipe modification and menu planning for special diets and healthy cooking. Emphasizes the role of the foodservice professional in providing nutritious foods that meet the needs of today's diverse customer groups. Extra fees required.

HOS 250–À La Carte Cooking and Service (3)

Corequisites: HOS 115, HOS 116 and HOS 117, or permission of program manager

Provides the student with the opportunity to work in a simulated restaurant setting. Students rotate through the dining room and kitchen in this intensive capstone course. Front-of-the-house students learn various styles of table and beverage service. Back-of-the-house students learn à la carte preparation, cooking, and plating techniques. Customer relations and timing of service are emphasized.

HS: Human Services**HS 102–Human Relations (3)**

• GenEd Social & Behavioral Sciences/Human Services; Cultural Competence

Prerequisite: EN 52 or ESL 99 or ESL 72

Introduces students to the fundamentals of interpersonal communication and examines such communication in the context of culture, ethnicity, gender, age, and race in particular. As an experiential course, it seeks to increase the skills and sensitivity necessary for successful human relationships in a diverse global, national and local community. The impact of the increasing use of interactive technologies is also examined.

HS 103–Introduction to Social Work and the Human Services (4)

Prerequisite: EN 52 or ESL 99 or ESL 72

Surveys the philosophies of the field of social work and all of the human services. Examines the historical and theoretical approaches to the understanding of social work and the agencies that deal with delivery of services to members of society. Includes the interrelationship of human services and examines the knowledge, values and skills of the helping process. Particular emphasis is placed on the concept of human diversity and the impact of oppression and discrimination. This course will highlight the human needs that social workers address across the life span with particular emphasis on the needs of older adults.

HS 104–Mediation: Theory and Practice (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Explores mediation as a conflict resolution method used in today's society. Students will learn the skill set necessary to use the mediation process in formal and informal situations.

HS 203–Introduction to Counseling & Interviewing (3)

Prerequisite: PS 101

Presents an overview of counseling theory, with focus on the development of specific helping behaviors.

HS 204–Ethics and Practice Issues in the Human Services (1)

Prerequisite: HS 203; *Corequisite:* INTR 102

Integrates a study of ethical and practice issues in the human service field with the student's experience in the internship education practicum. Special attention will be given to the special ethical issues in the addictions field.

HS 205–Fundamentals of Addictions (3)

Prerequisite: HS 203

Presents major theoretical approaches to the field of addictions, and introduction to the twelve core functions of the alcohol and drug abuse counselor. This course will include skill development training for the beginning alcohol and drug counselor.

HS 206–Pharmacology of Psychoactive Drugs (3)

Prerequisite: PS 101

Presents the basic pharmacological and neurophysiological fundamentals of licit and illicit drug use. The primary focus of the course is the explanation of how drugs may alter body and brain function and how these alterations influence and mediate human behavior. Suggested for human service majors, especially those interested in addictions, current or potential health care professionals.

HS 207–Theory and Practice of Group Counseling (3)

Prerequisite: HS 203

Presents the theory and practice of using groups as a counseling intervention in the human services. There will be a presentation of types of groups, general principles of groups, stages of evolution of groups, ethical and professional issues, and special emphasis on the use of groups in the drug and alcohol field.

HU: Humanities

HU 104–Introduction to Digital Humanities (3)

• GenEd Arts and Humanities/Humanities
Prerequisites: (EN 50A or EN 61) and EN 52 OR ESL 95 and ESL 99 OR ESL 72 and ESL 73

Introduces the student to the digital tools that are transforming the study of the humanities as well as the processes for planning, managing, and evaluating digital humanities projects. Equips the student to apply digital tools and techniques to a variety of disciplines including English, History, Philosophy, and Social Sciences.

HU 201–Humanities I: Culture & Human Experience (To the Renaissance) (3)

• GenEd Arts and Humanities/Humanities
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Surveys Western culture through a study of philosophy, the visual, literary and performing arts from the Ancient World to the Renaissance.

HU 202–Humanities II: Culture & Human Experience (Renaissance to the Present) (3)

• GenEd Arts and Humanities/Humanities
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Surveys Western culture through study of art, music, literature and philosophy from the sixteenth century to the present.

HU 203B–Civilization & Culture: Britain (3)

Corequisite: Participation in London Work/Study Abroad

Discover key social, cultural, and political characteristics of contemporary British society. Compare and contrast British and American assumptions and practices. The course structure is based on a series of seminars led by the core instructor with complementary lectures delivered by guest speakers specializing in specific topics.

Information Technology

(Continuing Education/Noncredit)

CCO 110–Introduction to AutoCAD I

Students are introduced to the architecture, structure, functions, components, and models of the Internet and other computer networks. The OSI and TCP layered models are used to examine the nature and roles of protocols and services at the application, network, data link, and physical layers in conjunction with the Cisco Networking Academy. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. Introductory router/switch device configuration skills are also included. Prerequisites: A+ certification or equivalent work experience. Most class lessons, materials, and labs are accessed via the Web; however, students and instructor also will interact at scheduled times via online classroom and will require two Saturday meetings. Meeting dates and times will be scheduled by the instructor and enrollees. Students must have a personal computer and Internet access (broadband is recommended) to complete online assignments and exams.

CCO 111–CCNA: Networking II

Prerequisite: CCO 110

Participants will examine the architecture, components, and operation of routers, and apply the principles of routing and routing protocols. Students analyze, configure, verify, and troubleshoot the primary routing protocols RIPv1, RIPv2, EIGRP, and OSPF. By the end of this course, students will be able to recognize and correct common routing issues and problems. Offered in conjunction with the Cisco Networking Academy. Required: CCNA Networking I. Most class lessons, materials, and labs are accessed via the Web; however, students and instructor also will interact at scheduled times via online classroom and will require two Saturday meetings with the instructor. Meeting dates and times will be scheduled by the instructor and enrollees. Students must have a personal computer and Internet access (broadband is recommended) to complete online assignments and exams.

CCO 112–CCNA: Networking III

Prerequisite: CCO 111

This course provides a comprehensive, theoretical, and practical approach to learning the technologies and protocols needed to design and implement a converged switched network. Students learn about the hierarchical network design model and how to select devices for each layer. The course explains how to configure a switch for basic functionality and how to implement Virtual LANs, VTP, Inter-VLAN routing, and Spanning Tree Protocol in a converged network. In conjunction with the Cisco Networking Academy, students also develop the knowledge and skills necessary to implement a WLAN in a small to medium network. Most class lessons, materials, and labs are accessed via the web; however, students and instructor also will interact at scheduled times via online classroom and will require two Saturday meetings. Meeting dates and times will be scheduled by the instructor and enrollees. Students must have a personal computer and Internet access (broadband is recommended) to complete online assignments and exams. Students must take Networking II before registering into this course.

CCO 113–CCNA: Networking IV

Prerequisite: CCO 112

This course covers the WAN technologies and network services required by converged applications in Enterprise Networks. Students learn how to implement and configure common data link protocols and how to apply WAN security concepts, principles of traffic, access control and addressing services. Natural Address Translation (NAT) and DHCP services are also covered. Most class lessons, materials, and labs are accessed via the web; however, students and instructor also will interact at scheduled times via online classroom and will require two Saturday meetings with the instructor. Meeting dates and times will be scheduled by the instructor and enrollees. Students must have a personal computer and Internet access (broadband is recommended) to complete online assignments and exams. Networking III must be successfully completed to enroll in the Networking IV course.

CNS 214–CompTIA A+

If you are getting ready for a career as an information technology (IT) professional or personal computer (PC) service technician, the CompTIA A+ preparation course is a great first step on your path to certification. The course will build on your existing user-level knowledge and experience with PC software and hardware and present fundamental skills and concepts that you will use on the job. In this course, students will acquire the essential skills and information needed to install, upgrade, repair, configure, troubleshoot, optimize, and perform preventive maintenance of basic PC operating systems and hardware. This course has been expanded to include more skills practice and hands-on experience. Students enrolling in the following DRF courses should be familiar with the Microsoft Windows operating system.

DRF 104–Introduction to AutoCAD I

Prerequisite: EN 51 or ESL 97

Introduces AutoCAD software and its application as a drawing tool. Students will utilize basic AutoCAD commands to create a two-dimensional production and architectural drawings. Students will use templates, layer control, dimensioning, editing, text, symbol creation, and blocks to create and magnify geometrical designs and print/plot drawings for presentation. Also offered for credit as CAD 101.

DRF 106–Introduction to AutoCAD II

Prerequisite: DRF 104 or CAD 101

Continues the study of AutoCAD at an intermediate level. Students will create pictorial views and three dimensional drawings. Students will be introduced to additional CAD systems (Autodesk Architecture, Revit, Civil3D, and Microstation). Also offered for credit as CAD 102.

DRF 124–Introduction to Revit

Prerequisite: EN 51 or ESL 97

Introduces Autodesk Revit software, a Building Information Modeling (BIM) program, and its application as a design/drawing tool throughout the design process. Allows students to design structural components in 3D, annotate with 2D drafting elements and access building information from the building models database. Also offered for credit as CAD 130.

ID: Interdisciplinary Studies**ID 110–Media and Human Values (3)**

• GenEd Interdisciplinary & Emerging Issues/
Interdisciplinary

Prerequisite: EN 101 or EN 101H

This team-taught honors seminar explores media and human values as interdisciplinary concepts. These concepts will be examined in their social, literary and visual environments, and an emphasis on synthesizing conclusions reached. Students will be expected to conduct independent study and present results of research to the class.

ID 113–Introduction to Leadership (3)

• GenEd Interdisciplinary & Emerging Issues/
Interdisciplinary

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines leadership through an analysis of various leadership qualities and styles in the fields of business, government, the law, and the military. By utilizing a wide variety of sources, including readings, films, and experiential exercises, students will explore the concept of leadership as well as developing/improving their own leadership skills.

ID 209–Ethnic Diversity (3)

• GenEd Interdisciplinary & Emerging Issues/
Interdisciplinary; Cultural Competence

Prerequisite: EN 52 or ESL 99 or ESL 72

A survey of the status and treatment of ethnic groups in the United States; patterns of dominant and subordinate relations, prejudice and discrimination; historical and current problems, demographic and social background, political and social policies.

ID 220–World War II Through Film (3)

• GenEd Interdisciplinary & Emerging Issues/
Interdisciplinary

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Surveys the major military and social developments of WWII through films and selected readings. Multicultural and multinational perspectives are included.

ID 222–The Sixties (3)

• GenEd Interdisciplinary & Emerging Issues/
Interdisciplinary

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Examines one of America's most turbulent decades: the 1960s. This course explores the Civil Rights Movement, the Vietnam War, the Anti-War Movement, and changing cultural and social mores. Emphasis will include an examination of the history, politics, literature, and music of the era.

ID 225–Disaster, Crisis and Emergency Management (3)

• GenEd Interdisciplinary & Emerging Issues/
Interdisciplinary

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces students to the dynamic and relevant world of disaster, crisis and emergency management. Through the review of the history, social, political, and economic implications of disasters, students have the opportunity to explore the world of Emergency Management and experience the thrill of serving and the heartache of devastation. Students gain experience with effective writing, critical thinking skills, historical and social awareness as they travel through the emergencies of past, present and future.

ID 250–Global Scholar Experience (3)

• GenEd Interdisciplinary & Emerging Issues/
Multicultural or Interdisciplinary & Emerging Issues/
Interdisciplinary; Cultural Competence

Prerequisite or Corequisite: EN 101

Develop cultural competency through short-term study abroad using a 'learn, travel, teach' model. The pre-trip component will introduce the concept of cultural competency, elements of culture, and an overview of the destination country's/ies' culture(s). During the study abroad portion, daily journaling or blogging will record and analyze the travel experience. Post-trip, a multimedia cultural competency project will be completed with faculty supervision and presented to an audience. Students who successfully complete all course requirements will be awarded a Global Scholar Certificate.

ID 260–The Language of Hip Hop (3)

• GenEd Interdisciplinary & Emerging Issues/
Interdisciplinary; Cultural Competence

Prerequisite or Corequisite: EN 101

Examines the role of language, both verbal and non-verbal, in the aesthetics, intercultural communication, and cultural practices of hip hop through the study of the origins and evolution of the culture, moving on to key topics including authenticity, class, and language ideology. Students will identify current and historical elements of hip hop culture in the US. Through multimedia analysis, critical reading and listening, and student led discussion, students will develop skills necessary to critically analyze and explore the language of hip hop and survey its historical development, political significance, and social influence.

INTR: Internship**INTR 101,102,103–Internship (1,2,3)**

Provides the student with an opportunity to gain knowledge and skills from a planned work experience in the student's chosen career field. In addition to meeting Core Learning Outcomes, jointly developed Specific Learning Outcomes are selected and evaluated by the Faculty Internship Advisor, Work-Site Supervisor, and the student. Internship placements are directly related to the student's program of study and provide learning experiences not available in the classroom setting. Internships provide entry-level, career-related experiences, and workplace competencies that employers value when hiring new employees. Internships may also be used as an opportunity to explore career fields. Students must meet with the Internship Coordinator prior to registering.

LAR, LC, LF, LG, LI, LL, LR, LS: World Languages

Students with prior knowledge of the language must call the World Languages program manager at 301.624.2843 for an assessment of your current proficiency level.

LAR 101–Introductory Arabic I (3)

• GenEd Arts and Humanities/Humanities

Covers the fundamentals of the Arabic language both written and spoken pertinent to the first semester. Offers a strong foundation in the language through development of vocabulary, grammar, reading and conversational skills. Offers insights into Arabic culture and customs.

LAR 102–Introductory Arabic II (3)

• GenEd Arts and Humanities/Humanities

Continues the fundamentals of the Arabic language, both written and spoken, pertinent to the second semester. Offers a strong foundation in the language through further development of vocabulary, grammar, reading, and conversational skills. Provides insights into Arabic culture and customs.

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LC 101–Introductory Chinese I (4)

• GenEd Arts and Humanities/Humanities

Covers fundamentals of the Mandarin Chinese written and spoken language. Offers a strong foundation in the language through development of vocabulary, grammar, reading, and conversational skills. Offers insights into Chinese culture and customs.

LF 101–Introductory French I (3)

• GenEd Arts and Humanities/Humanities

Presents study of French grammar and vocabulary with selected readings in contemporary literature. Develops competence in and knowledge of French language and culture.

LF 102–Introductory French II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LF 101

A continuation of LF 101 with increased emphasis on literature and idiomatic speech.

LF 201–Intermediate French I (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: LF 102

Covers advanced grammar and composition with selected readings.

LF 202–Intermediate French II (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: LF 201

A continuation of LF 201. Readings in representative French prose and poetry form the basis of class discussion.

LG 101–Introductory German I (3)

• GenEd Arts and Humanities/Humanities

Introduces German grammar and vocabulary. Develops oral and reading skills in the language and competence in answering basic questions. Through the reading of lifelike dialogs, students gain insight into German culture, thought and expression.

LG 102–Introductory German II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LG 101

Continuation of LG 101. Introduces more complicated readings.

LG 201–Intermediate German I (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LG 102

Covers advanced grammar and composition with selected readings.

LG 202–Intermediate German II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LG 201

A continuation of LG 201. Introduces and discusses readings in representative German prose and poetry.

LI 101–Introductory Italian I (3)

• GenEd Arts and Humanities/Humanities

Presents the fundamentals of the Italian written and spoken language. Develops a firm foundation in the language with emphasis on the development of vocabulary, grammar, reading and conversational skills. Offers insight into Italian culture and customs.

LI 102–Introductory Italian II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LI 101

Serves as a continuation of the previous introductory course in Italian, with intensive oral work and a study of grammar with emphasis on reading and comprehension.

LI 201–Intermediate Italian I (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LI 102

Presents advanced grammar and composition with selected readings pertinent to intermediate level. Group discussions in Italian.

LL 101–Introductory Latin I (3)

• GenEd Arts and Humanities/Humanities

Introduces classical Latin language. Presents the study of Latin grammar and vocabulary with the goal of developing reading skills in the language. Offers insight into Roman literature, thought and expression through the reading of Latin sentences and passages derived from ancient authors.

LL 102–Introductory Latin II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LL 101

Provides a continuation of LL 101. Introduces elementary readings in Latin literature.

LL 201–Intermediate Latin I (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LL 102

Presents Latin grammar through lecture, practice, review and the reading of ancient authors. Includes medieval Latin and the Vulgate Roman and Greek culture appropriate to the readings. Increases English vocabulary by recognition of English words derived through Latin.

LL 202–Intermediate Latin II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LL 201

Reviews Latin grammar. Presents Virgil's Aeneid, Books I, II, IV and VI. Includes Roman and Greek culture and mythology appropriate to the readings.

LR 101–Introductory Russian I (3)

• GenEd Arts and Humanities/Humanities

Covers fundamentals of the Russian written and spoken language. Offers a strong foundation in the language through development of vocabulary, grammar, reading and conversational skills. Offers insights into Russian culture and customs.

LR 102–Introductory Russian II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LR 101

Covers fundamentals of the Russian written and spoken language pertinent to the second semester. Offers a strong foundation in the language through development of vocabulary, grammar, reading and conversational skills. Offers insights into Russian culture and customs.

LR 201–Intermediate Russian I (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LR 102 or two years of high school Russian

Continues development of reading, conversational, and translational skills and habits with emphasis on proper use of grammar and knowledge of vocabulary.

LS 101–Introductory Spanish I (3)

• GenEd Arts and Humanities/Humanities

Introduces Spanish grammar and vocabulary. Develops oral and reading skills in the language and competence in answering basic questions. Through the reading of lifelike dialogs, students gain insight into Spanish culture, thought and expression.

LS 102–Introductory Spanish II (3)

• GenEd Arts and Humanities/Humanities

Prerequisite: LS 101

Serves as a continuation of Introductory Spanish I. Introduces more complicated readings.

LS 201–Intermediate Spanish I (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: LS 102

Presents advanced grammar and composition with selected readings pertinent to the intermediate level. Group discussions in Spanish.

LS 202–Intermediate Spanish II (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: LS 201

A continuation of LS 201. Students discuss readings in representative Spanish prose and poetry.

LS 211–Spanish Conversation I (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence

Prerequisite: LS 102

Develops oral fluency and language skills through interpretation and discussion of select readings, videos, songs and cultural experiences.

MA: Mathematics

Students may substitute higher level mathematics courses in their programs with advisor permission.

MA 80–Pre-Algebra (0) [1]

Prerequisite: Placement in EN 51 or ESL 70 or higher on the reading placement test

Develops foundational math skills needed for Algebra. Topics include whole numbers, factors, fractions, signed numbers, and basic Algebra skills such as working with variables and solving one step equations. Technology is integrated with traditional skill practice throughout the course.

MA 81–Introductory Algebra (0) [4]

Prerequisites: Placement into EN 51 or ESL 70 or higher on the reading placement test AND a grade of B or better in MA 80 or Accuplacer placement score of 30 or greater on the Beginning Algebra section

Develops introductory algebra skills. Topics include variables and algebraic expressions, order of operations, graphing and solving linear equations, like terms, the distributive law, applications of linear equations, systems of linear equations, polynomials, factoring, and rational expressions. Technology is integrated with traditional skill practice throughout the course.

MA 82–Intermediate Algebra (0) [4]

Prerequisites: A grade of B or better in MA 81 or appropriate score on mathematics placement test, and placement in EN 51 or ESL 70 or higher on the reading placement test

Develops intermediate algebra skills with a graphing approach. Topics include linear equations, systems of equations, quadratic equations, functions, exponents, radical functions, exponential functions, logarithmic functions, polynomial functions, and rational functions. Technology is integrated with traditional skill practice throughout the course.

MA 85–Introductory and Intermediate Algebra (0) [6]

Prerequisites: Placement into EN 51 or ESL 70 or higher on the reading placement test AND a grade of B or better in MA 80 or Accuplacer placement score of 30 or greater on the Beginning Algebra section

Develops introductory and intermediate algebra skills. Topics include algebraic expressions, linear expressions and equations, exponents, polynomials, factoring, rational expressions and equations, graphing and solving linear, quadratic, radical, exponential, and logarithmic functions. Technology is integrated with traditional skill practice throughout the course.

MA 103–Foundations of Mathematics (3)

• GenEd Mathematics

Prerequisites: MA 82 or MA 85 or BU/MA 205 or BU/MA 205A or MA 206 or MA 206A or MA 207 or MA 207A or appropriate score on mathematics placement test

Covers various topics within mathematics for those who need a survey of mathematical principles rather than the in-depth analysis required for a mathematics or science-related program. Areas covered may include problem-solving strategies, logic, numeration systems, set theory, classification of numbers, algebra, financial management, geometry, measurement and right triangle trigonometry, probability, statistics, graphs, systems of equations, linear programming, graph theory, and voting theory. Students cannot receive credit for both MA 103 and MA 103A.

MA 103A–Foundations of Mathematics with Algebra (3) [5]

• GenEd Mathematics

Prerequisites: A grade of C or better in MA 81 or appropriate score on mathematics placement test AND placement in EN 51 or ESL 70 or higher on the reading placement test

Covers various topics within mathematics for those who need a survey of mathematical principles rather than the in-depth analysis required for a mathematics or science-related program. Areas covered may include problem-solving strategies, logic, numeration systems, set theory, classification of numbers, algebra, financial management, geometry, measurement and right triangle trigonometry, probability, statistics, graphs, systems of equations, linear programming, graph theory, and voting theory. Students cannot receive credit for both MA 103 and MA 103A.

MA 105–Fundamental Concepts of Mathematics I (4)

Prerequisite: A grade of B or better in MA 81 or appropriate score on mathematics placement test

Note: MA105 is designed and recommended for Education majors in the Early Childhood Education and Elementary Education A.A.T. degrees only.

A study of the real number system for early childhood education and elementary education students. Provides a comprehensive conceptually-based background in elementary mathematics. Topics include historical development of numeration systems, decimal notation, arithmetic algorithms in decimal and other bases, elementary set theory and number theory. Emphasizes problem-solving strategies.

MA 106–Fundamental Concepts of Mathematics II (4)

Prerequisite: A grade of B or better in MA 81 or appropriate score on mathematics placement test. It is recommended that students pass MA 105 before taking this course.

Note: MA106 is designed and recommended for Education majors in the Early Childhood Education and Elementary Education A.A.T. degrees only.

A study of the fundamentals of geometry for early childhood education and elementary education students. Provides a conceptually-based background in geometry including plane and solid, metric and non-metric, dimensional analysis, congruence and similarity, coordinate and transformational geometry. Emphasizes problem-solving skills and the appropriate use of technology including calculators and computers.

MA 111–Precalculus (4)

• GenEd Mathematics

Prerequisite: A grade of B or better in MA 85

Includes topics from college algebra and trigonometry with a graphing approach such as right triangle trigonometry, circular trigonometric functions, inverse trigonometric functions, exponential functions, power functions, logarithmic functions, and polynomial functions and their zeros.

MA 130–College Algebra (3)

• GenEd Mathematics

Prerequisite: A grade of C or better in MA 82 or MA 85, or appropriate score on mathematics placement test

This class can be taken as a single semester course in College Algebra or as the first part of a two semester sequence (MA 130 and MA 131) to prepare for Calculus. Topics covered include a study of function behavior, composition, and inverse using linear, polynomial, rational and radical functions; definition and analysis of exponential and logarithmic functions, complex numbers, formulae of midpoint, distance and average rate of change, and right triangle trigonometry. Two of the following courses: MA 111, MA 130 and MA 131 may be taken for a maximum of 7 credits.

MA 131–Trigonometry with Analytic Geometry (3)

• GenEd Mathematics

Prerequisite: A grade of C or better in MA 130

This class can be taken as a single semester course in Trigonometry with Analytic Geometry or as the second part of a two semester sequence (MA 130 and MA 131) to prepare for Calculus. Topics covered include a study of right triangle trigonometry, circular trigonometric functions, inverse trigonometric functions, trigonometric and inverse trigonometric identities, polar coordinates, parametric equations, Euler's formula, vectors and conic sections. Two of the following courses: MA 111, MA 130 and MA 131 may be taken for a maximum of 7 credits.

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MA 201–Applied Calculus (3)

• GenEd Mathematics

Prerequisite: A grade of B or better in MA 82 or MA 85, or appropriate score on the mathematics placement test

A one-semester course for students in business, biology, social sciences, and technical programs. Covers methods for finding the derivatives and integrals of algebraic and transcendental functions with applications in each program.

MA 202–Introduction to Discrete Mathematics (3)

Prerequisite: A grade of B or better in MA 82 or MA 85, or appropriate score on the mathematics placement test

For the mathematics and computer science student. Develops problem solving skills. Topics include sets and logic, elementary number theory, graph theory, matrices, algorithm design, mathematical induction and recursion.

BU/MA 205–Business Statistics (3)

• GenEd Mathematics

Prerequisites: MA 82 or MA 85 or MA 103 or MA 103A or MA 206 or MA 206A or MA 207 or MA 207A or appropriate score on mathematics placement test and (CIS 101 or CIS 111E or CIS 116E) and placement in EN 51 or ESL 70 or higher on the reading placement test

Introductory non-calculus statistics course for business. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, chi-square tests and non-parametric tests. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A. Business Administration students must take BU/MA 205 (not BU/MA 205A).

BU/MA 205A–Business Statistics with Algebra (3) [5]

• GenEd Mathematics

Prerequisites: A grade of "C" or better in MA 81 or appropriate score on mathematics placement test, and (CIS 101 or CIS 111E or CIS 116E), and placement in EN 51 or ESL 70 or higher on the reading placement test

Introductory non-calculus statistics course for business. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, chi-square tests and non-parametric tests. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A. Business Administration students must take BU/MA 205 (not BU/MA 205A).

MA 206–Elementary Statistics (3)

• GenEd Mathematics

Prerequisite: MA 82 or MA 85 or MA 103 or MA 103A or BU/MA 205 or BU/MA 205A or MA 207 or MA 207A or appropriate score on mathematics placement test

An introductory non-calculus statistics course. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, chi-square tests and non-parametric tests. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A.

MA 206A–Elementary Statistics with Algebra (3) [5]

• GenEd Mathematics

Prerequisites: A grade of C or better in MA 81 or appropriate score on mathematics placement test AND placement in EN 51 or ESL 70 or higher on the reading placement test

An introductory non-calculus statistics course. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, chi-square tests and non-parametric tests. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A.

MA 207–Elementary Statistics with Probability (4)

• GenEd Mathematics

Prerequisite: A grade of C or better in MA 82 or MA 85 or MA 103 or MA 103A or BU/MA 205 or BU/MA 205A or MA 206 or MA 206A or appropriate score on mathematics placement test

An introductory non-calculus statistics course with additional topics in elementary probability. Statistical topics include descriptive analysis and treatment of data, statistical inference, linear regression and correlation, and chi-square tests. Topics from Elementary Probability include basic event and outcome concepts, fundamental rules of probability, random variables and their distributions, and expectation. Practical applications of the course concepts are explored through team projects. Students may not take both MA 206 and MA 207 for credit. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A. Early Childhood Education and Elementary Education majors should take MA 207 (not MA 207A).

MA 207A–Elementary Statistics with Probability and Algebra (4) [6]

• GenEd Mathematics

Prerequisites: A grade of C or better in MA 81 or appropriate score on mathematics placement test AND placement in EN 51 or ESL 70 or higher on the reading placement test

An introductory non-calculus statistics course with additional topics in elementary probability. Statistical topics include descriptive analysis and treatment of data, statistical inference, linear regression and correlation, and chi-square tests. Topics from Elementary Probability include basic event and outcome concepts, fundamental rules of probability, random variables and their distributions, and expectation. Practical applications of the course concepts are explored through team projects. Students may not take both MA 206 and MA 207 for credit. Students can only receive credit for one of the following: BU/MA 205, BU/MA 205A, MA 206, MA 206A, MA 207, or MA 207A. Early Childhood Education and Elementary Education majors should take MA 207 (not MA 207A).

MA 210–Calculus I (4)

• GenEd Mathematics

Prerequisite: A grade of C or better in MA 111 or grades of C or better in both MA 130 and MA 131

Presents the first course in the three-semester calculus sequence (MA 210, MA 211, MA 212). Designed for students in mathematics, science, engineering, medical and other technical programs. Topics covered include: functions, limits, continuity, the derivative concept, differentiation techniques (including product rule, quotient rule, chain rule and implicit differentiation), applications of the derivative, and definite and indefinite integral concepts. The Fundamental Theorem of Calculus is discussed and used in the context of introductory integration.

MA 211–Calculus II (4)

• GenEd Mathematics

Prerequisite: MA 210

Presents the second of three courses in the calculus sequence. Topics include methods and applications of integration, improper integrals, sequences and series, Taylor approximations, polar functions, introduction to differential equations.

MA 212–Calculus III (4)

Prerequisite: MA 211

Presents the final course in the three-semester calculus sequence. Topics include functions of several variables and their graphs, vectors, parametric equations, partial derivatives, multiple integrals and applications, Green's Theorem, Stokes Theorem and the fundamental theorem of line integrals.

MA 213–Differential Equations (3)

Prerequisite: MA 211; *Prerequisite or Corequisite:* MA 214

Presents differential equations of order one; linear differential equations with constant coefficients; non-homogenous equations with undetermined coefficients; variation of parameters; differential operators; Laplace Transforms and their inverses; systems of differential equations; nonlinear equations; elementary applications.

MA 214–Introduction to MatLab (3)

Prerequisite or Corequisite: MA 210

Provides an introduction to MatLab. It is designed to give students fluency in MatLab, including popular toolboxes. The course consists of interactive workshops with students doing sample MatLab problems in real time. Problem-based MatLab assignments are given which require significant time on MatLab.

MA 218–Linear Algebra (3)

Prerequisite: MA 210

Includes systems of linear equations, determinants, vectors in 2- and 3-space, vector spaces, linear transformations, eigenvalues and eigenvectors and applications.

MDA: Medical Assistant

MDA 101–Foundations of Medical Assisting I (3)

Prerequisite or Corequisite: MDA 109

Introduces the professional responsibilities of the administrative and clinical medical assistant. Emphasizes interpersonal communication, records management, administrative responsibilities, financial administration and patient care activities for the physician's office.

MDA 102–Foundations of Medical Assisting II (3)

Prerequisite: MDA 101; Prerequisite or Corequisite: MDA 109

Introduces the theory and skills necessary for a clinical medical assistant. Skills include (but are not limited to): medical asepsis, knowledge and/or performance of blood borne pathogens/OSHA regulations, general patient care, assisting with patient care activities, position and measurement of vital signs, health histories.

MDA 104–Medical Assisting Clinical I (1)

Prerequisites: MDA 102, MDA 112

Provides supervised placement in a contracted facility for guided experience in application of knowledge and skill of business and administrative skills in a medical office. Emphasis is placed on enhancing competence in medical skills necessary for comprehensive patient care and strengthening professional communications and interactions.

MDA 105–Medical Administration Clinical I (1)

Prerequisites: MDA 109, MDA 112

Provides supervised placement in a contracted facility for guided experience in the application of business and administrative skills in a healthcare office. Emphasis is placed on enhancing competence in medical office skills for comprehensive patient care and strengthening professional communications and interactions.

MDA 107–Phlebotomy for Allied Health Professionals (1)

Prerequisite: EN 52 or ESL 99

Develops skills in blood collection procedures using vacuum collection devices, syringes, capillary skin puncture, butterfly needles, blood culture, and syringe and IV collection. Collection of specimens from adults, children, and infants is discussed.

MDA 108–Basic Medical Terminology (1)

Prerequisite or Corequisite: EN 52 or ESL 99 or ESL 72

Provides students with the basic medical terminology framework needed before advancing to a more comprehensive medical terminology or anatomy and physiology based course.

MDA 109–Medical Terminology (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Teaches the basic principles of building and defining medical words. Students use techniques learned to develop an extensive medical terminology vocabulary. No previous knowledge of anatomy, physiology or pathology is necessary.

MDA 110–Pharmacology for Medical Office Practice (3)

Prerequisite: EN 52 or ESL 99 or ESL 72; Prerequisite or Corequisite: MDA 109

Introduces students interested in medical office practices to the field of pharmacology. Students will be completing clinical and multimedia applications encountered in a clinic/doctor's office setting. Applications include handwritten and electronic prescriptions, drug forms, drug labels, patient photographs, and clinical scenarios. Each anatomical system will be the subject of a unit in this course. This course is not intended for the nursing student.

MDA 112–Medical/Administrative Office Applications (3)

Prerequisite or Corequisite: MDA 109

Covers the general flow of information in a medical office and the role that computers play in administrative tasks. Simulation software is used to reflect today's office environment such as variety in fee schedules, patient scheduling, and office hour organization. Students will perform additional office procedures including Insurance claims and financial tasks.

MDA 115–Phlebotomy Skills (3)

Prerequisite: EN 52 or ESL 99

Develops skills in a variety of blood collection methods using proper techniques and standard precautions. Blood collection procedures performed include vacuum collection devices, syringes, capillary skin puncture, butterfly needles and blood culture, and specimen collection on adults. Collection of specimens from children and infants is discussed. Emphasis will be placed on infection prevention, patient identification, specimen labeling, quality assurance, specimen handling, processing, accessioning, professionalism, ethics, and medical terminology.

MDA 201–Medical Assisting Laboratory Procedures (3)

Prerequisite: MDA 102; Prerequisite or Corequisite: MDA 104

Introduces the basic routine laboratory skills and techniques required for assisting with patients in the medical office. Emphasizes laboratory activities and responsibilities of the medical laboratory technician for a physician's office. Skills include (but are not limited to): collecting, handling, and examining laboratory specimens and using phlebotomy procedures according to OSHA regulations.

MDA 202–Medical Assisting Clinical Skills (3)

Prerequisite or Corequisite: MDA 201

Introduces the basic routine clinical skills and techniques required for assisting with patients in the medical office. Presents proper clinical techniques and theory behind each technique. Skills include (but are not limited to): collecting, handling, and examining laboratory specimens and using phlebotomy procedures according to OSHA regulations. Demonstrating use of clinical equipment including a centrifuge and audiometer.

MDA 204–Medical Assisting Clinical II (2)

Prerequisite or Corequisite: MDA 202

Provides students with supervised patient-care experience in the medical office. Emphasis is placed on enhancing competence in clinical and laboratory skills necessary for comprehensive patient care and strengthening professional communications and interactions.

MDA 205–Medical Administration Clinical II (2)

Prerequisites: MDA 216

Provides students with supervised patient-care experience in the medical office. Emphasis is placed on enhancing competence in medical office administration for patient care and strengthening professional communications and interaction including accounting, billing and coding procedures.

MDA 210–Medical Transcription (3)

Prerequisite: MDA 109, CIS 103A or CIS 103C

Provides practical experience in taking dictation from electronically recorded sources and preparing reports like those encountered in a clinic/doctor's office setting. Reports include chart notes, history and physical reports, procedure notes, progress notes, x-ray reports, and letters. Medical terminology and dictation shortcuts are introduced and emphasized.

MDA 216–Medical Coding Basics (3)

Prerequisite or Corequisite: CIS 101

Introduces the structure and conventions of diagnostic ICD (International Classification of Diseases) and procedural CPT (Current Procedural Terminology) coding. Covers a variety of medical specialties and coding issues encountered in healthcare providers offices. Broadens medical coding knowledge and enhances medical coding skills with hands-on simulations using a widely accepted medical coding software package.

MDA 218–Health Insurance Billing and Reimbursement (3)

Prerequisite or Corequisite: MDA 216

Introduces processing of health insurance claims including plan options, payer requirements, state and federal regulations, abstraction of source documents, accurate completion of claims, coding of diagnoses, and procedures/services. Includes the following types of insurance: Commercial Insurance, Blue Cross Blue Shield, Medicare, Medicaid, TRICARE, and Workers' Compensation. Emphasis on CMS Reimbursement Methodologies will be incorporated in the curriculum.

MDA 220—Electronic Health Records (3)

Prerequisites or Corequisites: MDA 109, CIS 101

Introduces students to Electronic Health Records (EHR) through an examination of existing transitions and structures between medical facilities. Practical applications and guided exercises will enable the student to be prepared for changes in the healthcare field.

MDA 222—Introduction to Federal Healthcare Programs and Laws (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Prepares students in allied health programs to enter the workforce with a basic understanding of federal healthcare programs and federal healthcare laws. The course will provide students with a knowledge of the populations receiving assistance from the government as well as identifying the federal laws that govern workers' provisions of health services laws.

Medical Billing and Medical Coding (CAH)

(Continuing Education/Noncredit)

CAH 244—Medical Billing and Coding

Prerequisite: Medical Terminology

Medical billing and coding is one of the fastest growing careers in the healthcare industry today. The need for professionals who understand how to code healthcare services and procedures for their-party insurance reimbursement is growing substantially. Physician practices, hospitals, pharmacies, long term care facilities, chiropractic practices, physical therapy practices and other healthcare providers all depend on medical billing and coding for insurance carrier reimbursement. This billing and coding course delivers the skills students need to solve insurance billing and coding issues with updated ICD 10 codes. This course is designed to prepare students to sit for various national certification exams including those from the American Academy of Professional Coders (AAPC) and the American Health Information Association (AHIMA). Course prerequisite is Medical Terminology.

MGT: Project Management

(Continuing Education/Noncredit)

MGT 367 - Project Management Essentials

No Experience Required! Begin your journey to becoming a Project Management Professional! You will learn the art and science of project management from a practical perspective. Taught by experienced PMPs, the instructors lead you through the world of project management from the soft people skills needed to integrate project elements to management techniques needed to drive a project to successful conclusion. A fun and easy-to-read textbook and plenty of hands on activities provide a real sense of this growing profession. Attendees will be eligible for 30 Category A PDUs. This course is applicable toward the 35 hour formal education requirement for the PMP exam and the 23 hour formal education requirement for the CAPM exam. Become familiar with the material needed to sit for the CAPM exam, be introduced to the world of technical project management and learn invaluable skills that are transferable across many industries and market segments.

MGT 368- Impactful Project Management

Examine the principles of Project Management skills by taking an in-depth look at the essential elements of scheduling, budgeting, and risk analysis. The course is taught by experienced PMPs who will help you bring Project Management tools and techniques to life. Discover the utility and effectiveness of earned value management techniques and gain valuable insight into the process of scheduling using the critical path method. Attendees will be eligible for 15 Category A PDUs. This course is applicable toward the 35 hour formal education requirement for the PMP exam and the 23 hour formal education requirement for the CAPM exam. This course is recommended for students in pursuit of the PMP Certification.

Note: A textbook is required for this course.

MGT 366- Project Management Professional Exam Prep

Prepare to become a certified Project Management Professional (PMP)! Taught by experienced PMPs, the instructors lead you through the world of knowledge areas and process groups while providing practical applications that you can apply immediately. The course will include study tips and techniques to help you prepare for the exam. Topics include: Preparation for the PMP or CAPM certification examination; MBOK Guide, including project phases, knowledge areas, and process groups; Principles of Project Integration Management including the project management lifecycle from conception to close-out; Impact of organizational structure and study issues associated with organization types and change management.

MGT 369- Creative Problem Solving for Project Managers

Problems come to Project Managers in many forms and from multiple directions. Are common problems such as scope creep and under-defined goals, or more difficult and complex challenges such as meeting client and stakeholder expectations in a dynamic and fast-moving development environment threatening the success of your project? Utilization of a Creative Problem Solving (CPS) process can lead to ideas and solutions which would have otherwise been overlooked. This course will help you identify situations in which CPS may be beneficial and develop a process for employing CPS that can be applied immediately. In-class exercises will provide hands-on experience and practice. Whether you are currently PMP® certified or simply working in the field with project management responsibilities, you will be honing skills Project Managers need to have at their disposal in order to improve project execution results.

CMS 327- Microsoft Project

Learn the principles of project scheduling using Microsoft Project. Students will examine the critical path method, task and milestone structure, resource utilization and Gantt chart analysis. Learn to create, modify and report on project schedules and to use the schedule to drive the project to successful completion.

MU: Music

MU 101—Introduction to Music History & Appreciation (3)

• GenEd Arts and Humanities/Arts

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents a study of music masterpieces of the past and present through reading, listening and analysis.

MU 103—Fundamentals of Music (3)

• GenEd Arts and Humanities/Arts

Prerequisites or Corequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers the basic elements of music for the interested student or prospective classroom teacher. Includes study of musical notation, terminology, major and minor scales, simple and compound meters, familiarity with the piano keyboard, intervals, triads, sight-singing, ear-training and simple dictation.

MU 106—Aural & Keyboard Skills I (1)

Prerequisite: MU 103

Converts theoretical knowledge into practical application through sight-singing, ear-training, keyboard work and rhythmic exercises. Study concepts are derived from material introduced in Music Theory I, including major and minor scales, intervals, sequential patterns and simple melodies, rhythmic patterns, tempos, cadences, harmonization and figured bass.

MU 107–Aural & Keyboard Skills II (1)

Prerequisite: MU 106

A continuation of Aural and Keyboard Skills I, coordinated with material presented in Music Theory II, including more difficult triad types and seventh chords, non-harmonic tones, part-singing, syncopated rhythms, cadences, harmonic progressions and modulations.

MU 108–Survey of World Music (3)

• GenEd Arts and Humanities/Arts or GenEd Interdisciplinary & Emerging Issues/Multicultural Issues & Perspectives; Cultural Competence
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides an introduction to the indigenous musical expressions of countries around the world, including African, Asian, Latin American, native North American and the Caribbean, emphasizing a global perspective and artistic interaction of world cultures. Considers origins, unique instruments, significant genres, notable artists, and cultural functions. Selected pieces are examined in detail through directed listening. Topical writing assignments are required. Music reading skills unnecessary.

MU 109–History of American Popular Music (3)

• GenEd Arts and Humanities/Arts
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Surveys the development of American popular music in the 20th and 21st centuries, including the origins of both pop/rock styles, significant artists, cross-pollination with other genres, and impact on American culture. Selected pieces are examined in detail through directed listening. Topical writing assignments are required. Music reading skills unnecessary.

MU 111–Music Theory I (3)

Prerequisite: MU 103

Presents a study of diatonic harmony through four-part writing and analysis of music. Includes sight-singing, rhythmic and melodic dictation. Private instruction is recommended concurrently.

MU 112–Music Theory II (3)

Prerequisite: MU 111

A continuation of Theory I, with more advanced harmony. Introduces contrapuntal technique. Offers more advanced dictation skills, beginning composition using course skills.

MU 117-118–Choral Ensemble I (2,2)

Presents a variety of choral literature as the basis for study and presentation. Students participate as members of the Choral Arts Society of Frederick. Three rehearsal hours weekly. Open to all students.

MU 119-120–Jazz Ensemble I (2,2)

Prerequisite: Permission of instructor

Presents great jazz literature as the basis for study and presentation. Three rehearsal hours weekly. Applied music in chosen instrument recommended concurrently.

MU 121-122–Orchestral Ensemble I (2,2)

Prerequisite: Permission of instructor

Presents great orchestral music of the Baroque, Classical, Romantic and/or Contemporary musical eras. Applied music in chosen instrument recommended concurrently. Students participate as members of the Frederick Orchestra. Two rehearsal hours weekly.

MU 123-124–Wind Ensemble I (2,2)

Prerequisite: Permission of instructor

Presents a variety of wind ensemble literature as the basis for further study and presentation. Three rehearsal hours weekly. Applied music instruction in chosen instrument recommended concurrently.

MU 130–Foundations of Audio Technology (3)

Prerequisite or Corequisite: EN 52 or ESL 99 or ESL 72

Introduces components of the recording process including a detailed analysis of the nature of sound, human hearing, and basic principles of electricity. Students will learn basic digital audio workstation operation and other skills required to work in the studio.

MU 135–Audio Recording Techniques (3)

Prerequisite: MU 130

Provides an in-depth exploration of microphone technology, analog and digital theory, and recording systems. Students will explore techniques for recording in the tonmeister style of engineering, particularly as it relates to microphone techniques and editing using a digital audio workstation.

MU 141–Class Voice I (1)

Offers class instruction in singing with emphasis on basic techniques of voice production, including correct breathing, posture, vowel production and vocal problems. Various repertoire will be studied. Open to beginners. One class hour per week.

MU 142–Class Voice II (1)

Prerequisite: MU 141

A continuation of Class Voice I, including more advanced techniques of vocal production and technique. Repertoire from classical, folk and Broadway styles included.

MU 145–Publishing, Licensing, and Copyrighting (3)

Prerequisite or Corequisite: EN 52 or ESL 99 or ESL 72

Examines music publishing, licensing, and copyright procedures used by the professional musician, music administrator, and music producer.

MU 151–Class Piano I (1)

Offers beginning piano study in a classroom-lab setting. An electronic piano is available for class use. Introduces basic keyboard and musicianship skills, including selected elementary pieces. Enrollment is limited to ten people.

MU 152–Class Piano II (1)

Prerequisite: MU 151

A continuation of the material presented in Class Piano I. Explores elements of theory, technique and improvisation. Topics include major and minor scale building, harmonizing scale degrees, accompaniment patterns, cadences and more. Includes solo and ensemble pieces and standard scale fingerings.

MU 171–Class Strings I (1)

Offered first semester for beginning students. One hour weekly.

MU 206–Aural & Keyboard Skills III (1)

Prerequisite: MU 107; *Corequisite:* MU 211

A continuation of Aural and Keyboard Skills II, coordinated with material presented in Music Theory III, including secondary dominants, Neapolitan sixth chords, augmented sixth chords, ensemble work, conducting and more complex chord progressions.

MU 207–Aural & Keyboard Skills IV (1)

Prerequisite: MU 206; *Corequisite:* MU 212

A continuation of Aural and Keyboard Skills III, coordinated with material presented in Music Theory IV, including synthetic scales, quartal and quintal harmonies, tone rows, chromaticism, changing meters and polychords.

MU 211–Music Theory III (3)

Prerequisite: MU 112; *Corequisite:* MU 206

A continuation of Music Theory II, with further work on modulations, dominant relationships, cadential identifications, extended part-writing procedures, four-part chorale analysis and writing, leading tone triads and diatonic seventh chords. Includes binary and ternary forms, characteristics of instrumental writing, the Neapolitan sixth chord and augmented sixth chords, harmonizations with all types of chords and figured bass symbols.

MU 212–Music Theory IV (3)

Prerequisite: MU 211; *Corequisite:* MU 207

A continuation of Music Theory III. Includes chords of the ninth, eleventh and thirteenth, evaded cadences, complex harmonic progressions, whole-tone scale and pentatonic scale, impressionistic techniques, twelve-tone writing, atonality, new sound sources, twentieth-century uses of melody, rhythm, harmony and form, extended uses of chromaticism, new notational methods, score reading and listening.

MU 217-218 Choral Ensemble II (2,2)

Continuation of MU 117-118. Three rehearsal hours weekly.

MU 219-220–Jazz Ensemble II (2,2)

Prerequisite: MU 119 or MU 120

Continuation of MU 119-120. Three rehearsal hours weekly.

MU 221-222–Orchestral Ensemble II (2,2)

Prerequisite: MU 121 or MU 122

A continuation of MU 121-122. Three rehearsal hours weekly.

MU 223-224–Wind Ensemble II (2,2)

Prerequisite: MU 123 or MU 124

A continuation of Wind Ensemble I. Three rehearsal hours weekly. Applied instruction in chosen instrument recommended concurrently.

MU 230–Studio Recording Techniques (3)

Prerequisite: MU 135

Focuses on contemporary recording techniques associated with popular music production. Topics include multi-track recording, overdubbing, MIDI, and project management.

MU 235–Advanced Audio Production (3)

Prerequisite: MU 130; *Prerequisite or Corequisite:* EN 52 or ESL 99 or ESL 72

Provides in-depth study and practical application of the tools and techniques used in professional audio recording in a variety of musical styles at a professional level. Includes advanced practical training in signal processing, mixing, and mastering. Additional topics include audio for video and product delivery.

MU 240–MIDI Music Production Techniques (3)

Prerequisite or Corequisite: MU 103

Explores electronic music production. Students will produce electronic music using a variety of software and techniques. Topics will include notation, MIDI and controller programming, sampling, sequencing, virtual instruments, synthesizers, and production techniques.

MU 251–Class Piano III (1)

Prerequisite: MU 152

A continuation of the material presented in Class Piano II. Students will work on greater hand independence and facility, arpeggios, chord progressions, new types of scales and secondary dominants. Includes a study of easy classics.

MU 252–Class Piano IV (1)

Prerequisite: MU 251

A continuation of Class Piano III, emphasizing development of a greater repertoire and enhancement of performance skills. Students become more fluent in hand control, rhythmic ability and accompaniment patterns. Includes a study of standard national and holiday pieces, as well as additional drills in functional piano playing.

MU: Applied Music Courses

First Year Courses: Fall Semester

MU 172–First Year Piano (1)

MU 174–First Year Voice (1)

MU 178–First Year Brass (1)

MU 180–First Year Woodwinds (1)

MU 182–First Year Strings (1)

MU 184–First Year Guitar (1)

MU 186–First Year Percussion (1)

First Year Courses: Spring Semester

MU 173–First Year Piano (1)

MU 175–First Year Voice (1)

MU 179–First Year Brass (1)

MU 181–First Year Woodwinds (1)

MU 183–First Year Strings (1)

MU 185–First Year Guitar (1)

MU 187–First Year Percussion (1)

Second Year Courses: Fall Semester

All second-year courses carry a prerequisite of corresponding first-year courses.

MU 272–Second Year Piano (1)

MU 274–Second Year Voice (1)

MU 278–Second Year Brass (1)

MU 280–Second Year Woodwinds (1)

MU 282–Second Year Strings (1)

MU 284–Second Year Guitar (1)

MU 286–Second Year Percussion (1)

Second Year Courses: Spring Semester

MU 273–Second Year Piano (1)

MU 275–Second Year Voice (1)

MU 279–Second Year Brass (1)

MU 281–Second Year Woodwinds (1)

MU 283–Second Year Strings (1)

MU 285–Second Year Guitar (1)

MU 287–Second Year Percussion (1)

Description of Applied Music Courses

Thirteen hour lessons of instruction that encompasses technique, theory, style, interpretation and performance of selected literature. Additional required repertoire and performance classes.

Specific dates for these classes are announced at the beginning of the semester. A jury examination is held at the end of the semester and is to be regarded as the final exam. Additional instructor fee: see fee schedule in the credit schedule.

NM: Nuclear Medicine

NM 100–Physics and Radiation Safety in Nuclear Medicine Technology (5)

Prerequisite: acceptance into the clinical program

Introduces the atom and its structure within the context of Nuclear Medicine focusing on nuclear structure, stabilities, radioactive series, radioactive decay, and conversion laws and decay schemes. Radioactivity will be studied in terms of the exponential decay law, calculation of the mass of a radioactive sample, specific activity, half-life, and statistics of radioactive decay. The production of radionuclides will be presented with emphasis on methods of production and principles of a generator. Includes regulations, principles and practices of radiation protection, and information particular to each radiologic specialty and/or modality.

NM 102–Nuclear Medicine Technology (3)

Prerequisite: acceptance into the clinical program

Orientation to clinical nuclear medicine, includes medical terminology, professional ethics and conduct, patient care, radiation safety, and effect of radiation on living organisms.

NM 103–Nuclear Medicine Techniques I (4)

Prerequisite: acceptance into the clinical program

Introduces all aspects of nuclear imaging related to skeletal, cardiac, respiratory, gastrointestinal, genitourinary, endocrine system, nervous system, and hematopoietic system as well as therapy procedures, oncology imaging, and infection imaging procedures. The procedures, protocols, instrumentation, and radiopharmaceuticals used in nuclear medicine imaging of these systems will be studied in detail. Some of the pathologic conditions imaged in Nuclear Medicine will also be presented.

NM 104–Clinical Nuclear Medicine Technology I (1)

Prerequisite: acceptance into clinical program

Directed practice in a clinical affiliate hospital. Emphasizes routine diagnostic and therapeutic procedures. Daily image critiques by a licensed/certified technologist. On-site lectures by board certified nuclear medicine physicians supplement clinical experience.

NM 105–Nuclear Medicine Techniques II (3)

Prerequisites: NM 100, NM 102, NM 103, and NM 104

Introduces all aspects of advanced imaging techniques utilized in nuclear medicine and molecular imaging. Acquisition procedures, radiopharmaceuticals, standard uptake values, and other quantitative data related to imaging will be covered. Information on pathologic conditions related to all advanced imaging areas will be encompassed.

NM 107—Instrumentation and Computers in Nuclear Medicine Technology (4)

Prerequisites: NM 100, NM 102, NM 103, and NM 104

Introduces both non-imaging and imaging instrumentation in nuclear medicine and the use of digital electronics and computer technology in medical imaging. Includes monitoring equipment, dose calibrators, well counters, uptake probes, liquid scintillation systems, and the gamma probe. Incorporates information on the components, use, and quality control of the various types of systems used for gamma and positron imaging. Includes digital image acquisition, reconstruction, post-processing, advanced visualization, decision support, computer networking and PACS, information systems, and industry standards.

NM 202—Clinical Nuclear Medicine Technology II (2)

Prerequisites: NM 100, NM 102, NM 103, and NM 104

Provides directed practice in a clinical affiliate hospital/imaging center. Students will develop their individual clinical techniques. Daily imaging critiques by licensed/certified technologists and on-site lectures by board certified nuclear medicine physicians supplement clinical experiences.

NM 203—Radiopharmacy and Radiation Chemistry (2)

Prerequisites: NM 100, NM 102, NM 103, and NM 104

Presents basic skills necessary for the operation of a radiopharmacy. Includes production of radionuclides, FDA approval, quality control, adverse reactions, and transportation of radiopharmaceuticals.

NM 204—Clinical Nuclear Medicine Technology III (4)

Prerequisites: NM 105, NM 107, NM 202, and NM 203

Provides directed practice in a clinical affiliate hospital/imaging center. Students continue to develop their individual clinical techniques and create a clinical procedures manual. Daily imaging critiques by licensed/certified technologists and on-site lectures by board certified nuclear medicine physicians supplement clinical experiences.

NM 205—Professional Development in Nuclear Medicine (2)

Prerequisites: NM 105, NM 107, NM 202, and NM 203

Prepares students for their board certification exam. Teaches students how to develop a resume, prepare for an interview, and develop the professional knowledge, skills, and attitudes to prepare for professional employment and lifelong learning.

NM 220—CT Principles & Instrumentation (3)

Prerequisites: NM 204 and NM 205 OR graduate of NMT program

Provides in-depth study of the physical principles and instrumentation in computed tomography. Covers the production of x-rays and their interactions with matter. Provides information on data acquisition and image reconstruction, processing, and quality. Addresses CT scanner components and operation, scanning factors, and their applications.

NM 222—Cross-sectional Anatomy (3)

Prerequisites: NM 204 and NM 205 OR graduate of NMT program

Provides in-depth coverage of cross-sectional anatomy to include the head, neck, chest, abdomen, pelvis, spine, and extremities. Students will become accustomed to viewing anatomy of regions of the body in the different anatomical planes typically produced in cross-sectional imaging. In addition, pathology will be covered as it relates to its presentation on axial images. Special emphasis will be placed upon correlating and recognizing anatomical structures as they appear on medical images produced with CT, MRI, nuclear medicine, and ultrasound.

NM 224—CT Protocols & Applications (3)

Prerequisites: NM 204 and NM 205 OR graduate of NMT program

Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the central nervous system, neck, musculoskeletal system, abdomen and pelvis, musculoskeletal system, thorax, and interventional and special procedures. The student will also become familiar with contrast administration guidelines and timing issues related to dynamic imaging. Spiral CT, 3D reconstruction procedures, and vascular imaging are discussed and compared with routine imaging on the same anatomical regions.

NM 226—Computed Tomography Clinical Practicum (3)

Prerequisites: NM 204 and NM 205 OR graduate of NMT program

Covers imaging of anatomic structures and pathology and recording the information needed to provide optimal examinations. Provides intensive, hands-on practice under the supervision of the clinical staff. Evaluation is based on clinical competency in all aspects of CT imaging procedures and patient care.

NU: Nursing

NU 50—Preparation for Nursing (0) [1]

Prerequisite: Acceptance into clinical nursing program

Serves as a basis for developing proficiency and accuracy in dosage calculation. Includes computations for oral, parenteral, and intravenous routes of administration for adults and children using the apothecaries, metric, and household systems of measurement.

NU 51—Transition to Registered Nursing—Introduction to Clinical Nursing (0) [2]

Prerequisite: Permission of director of nursing education; passing score on the Math for Medication Safety test

Introduces concepts of professional nursing. Emphasis is on the acquisition and application of basic knowledge, skills, and professional behaviors needed for the delivery of comprehensive care to the adult client.

NU 52—Transition to Registered Nursing—Reproductive Health Nursing (0) [1]

Prerequisite: NU 51

Introduces the study of the reproductive phase of family life and the specific health needs of women from adolescence to menopause. Pregnancy, labor and delivery, as well as commonly occurring alterations in women's health are presented, along with the study of the newborn. Emphasis is on assimilation of knowledge, skills, and professional behaviors needed for the delivery of family-centered, comprehensive care.

NU 54—Transition to Registered Nursing—Medical-Surgical Nursing I (0) [3]

Prerequisite: NU 51

Introduces the study of the adult client with acute and chronic alterations in wellness. Emphasis is on assimilation of knowledge, skills and professional behaviors needed for the delivery of comprehensive care.

NU 101—Introduction to Clinical Nursing (6)

• Cultural Competence

Prerequisites: BI 103, BI 104, BI 120; passing score on the Math for Medication Safety test

Introduces concepts of professional nursing. Emphasis is on the acquisition and application of basic knowledge, skills, and professional behaviors needed for the delivery of comprehensive care to the adult client.

NU 105—Pharmacology for Nurses (2)

Prerequisite: Passing score on the Math for Medication Safety test

Provides instruction in basic pharmacology necessary for providing safe and effective medication administration. Content includes essential drug knowledge needed to adequately assess, administer, and evaluate drug effects in clients. Emphasis is on the acquisition and application of basic knowledge needed for the delivery of comprehensive care to clients in all healthcare settings.

NU 210—Reproductive Health Nursing (3)

Prerequisite: NU 101; passing score on the Math for Medication Safety test

Introduces the study of the reproductive phase of family life and the specific health needs of women from adolescence to menopause. Pregnancy, labor and delivery, as well as commonly occurring alterations in women's health are presented, along with the study of the newborn. Emphasis is on assimilation of knowledge, skills, and professional behaviors needed for the delivery of family-centered, comprehensive care.

NU 211—Medical-Surgical Nursing I (7)

Prerequisite: NU 101; passing score on the Math for Medication Safety test

Introduces the study of the adult client with acute and chronic alterations in wellness. Emphasis is on assimilation and knowledge, skills, and professional behaviors needed for the delivery of comprehensive care.

NU 212—Medical-Surgical Nursing II (4)

Prerequisites: NU 210, NU 211; passing score on the Math for Medication Safety test

Continues study of the adult client with increasingly complex acute and chronic alterations in health. Emphasis is on assimilation of knowledge, skills, and professional behaviors needed for the delivery of comprehensive care.

NU 213—Medical-Surgical Nursing III (4)

Prerequisites: NU 212, NU 214; passing score on the Math for Medication Safety test

Continues study of the adult client with acute, complex, and critical alterations in health. Emphasis is on the adaptation of knowledge, skills, and attitudes needed for the delivery of comprehensive care.

NU 214—Psychiatric/Mental Health Nursing (3)

Prerequisites: NU 210, NU 211; passing score on the Math for Medication Safety test

Examines the impact of mental illness on the individual, family, and community. Explores treatment options and issues; and reviews the evidence-based principles and practice of psychiatric-mental health nursing. Emphasis is placed on the adaptation of knowledge, skills, and attitudes related to caring for clients with alterations in mental health.

NU 215—Nursing Care of Children (3)

Prerequisites: NU 212, NU 214; passing score on the Math for Medication Safety test

Introduces the study of the pediatric client experiencing acute alterations in health. Client care in acute and community care settings will be explored with a focus on wellness, health promotion, and safety. Emphasis is on assimilation of knowledge, skills, and professional behaviors needed for the delivery of family-centered, safe, and comprehensive care.

NU 216—Preparation for Practice (2)

Prerequisites: NU 212, NU 214; passing score on the Math for Medication Safety test

Facilitates the student's adaptation into professional nursing practice. Explores current trends in nursing and concepts related to the nurse as a professional, a member of the health care team, and manager of client care.

NU 218—Maternal, Child, and Family Nursing (5)

Prerequisites: NU 211; passing score on the Math for Medication Safety test

Introduces maternal, child, and family nursing. Focuses on the reproductive phase of family life, the specific health needs of women from adolescence to menopause, the healthy newborn, and pediatric clients with acute alterations in health. Emphasis is on assimilation of knowledge, skills, and professional behaviors needed for delivery of family-centered, comprehensive care.

LA: Paralegal

LA 100—Introduction to Law (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents an overview of the legal profession. Covers responsibilities of the legal assistant professional. Includes structure of the American Legal System, law office management, standard operating procedures, office automation and computerization, interviewing and investigation, and basic legal theories, concepts, research and writing.

LA 103—Ethics for the Legal Professional (3)

Prerequisite or Corequisite: LA 100

Concentrates on the ethical responsibilities that have been established by statutes, courts decisions, court rules, and professional associations affecting legal assistants/paralegals and lawyers. Includes conflict of interest, confidentiality, competence, solicitation, fees and billing, obligations of attorneys to clients, and protection of client funds. Covers the nature of supervision in order to avoid unauthorized practice of law.

LA 104—Contracts (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers the fundamental principles of contract law; the manner in which contracts are formed; the elements of a valid contract; the rights and obligations of various parties to a contract, as well as the rights of third parties; and available remedies when a contract is breached.

LA 105—Torts (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers the fundamental principles of tort law. Includes intentional torts, negligence, and strict liability. Examines the various types of damages that can be awarded and what needs to be established to collect such damages.

LA 106—Law & Technology (3)

Prerequisites: LA 100, CIS 103A

Prepares students for the increasing levels of computer literacy demanded by the legal profession. Covers the basic features of at least one commonly used word processing program, database program, spreadsheet program and legal specific programs for calendaring, timekeeping and billing. Offers basic features of computer-assisted legal research and other electronic resources. Incorporates current technological trends used by the legal profession.

LA 110—Legal Research (3)

Corequisite: LA 100

Offers working knowledge of techniques of legal research. Includes assigned problems in legal research and basic knowledge of Shepard's Citation, West's Digest System and Key Numbers; American Law Reports; legal periodicals; federal and state statutes; legislative history resource materials; and other legal research tools. Stresses proper citation forms, along with briefing of cases and memo preparation. Includes the use of computers in legal research.

LA 120—Legal Writing & Documents (3)

Prerequisites: EN 101, LA 110

Offers working knowledge of techniques of legal writing in the preparation of legal documents. Specifically for the legal assistant, course covers various types of legal documents including leases, contracts, wills, memoranda, pleadings, trial briefs, legal correspondence and legislative drafting.

LA 210—Estates and Probate (3)

Prerequisite: LA 100

Covers basic legal concepts and fundamental principles of law as applied to the more common forms of wills, trusts, and intestacy, as well as organization and jurisdiction of the probate court.

LA 220—Evidence & Procedure (Civil) (3)

Prerequisite: LA 100

Covers rules governing the admission of evidence at a trial or administrative proceeding. Considers both federal and Maryland law. Explores procedural aspects of civil actions.

LA 230—Law of the Real Estate Business (3)

Prerequisite: LA 100

Reviews the essentials of real estate law and the processes and procedures for which the paralegal is responsible, including discussion of landlord/tenant matters; easements and covenants; analysis of real estate contracts; types and sources of mortgage financing; ordering title work; preparation of closing documents; settlement statements; closing; and coordination of closing.

LA 240—Family Law (3)

Prerequisite: LA 100

Develops skills necessary to become an effective legal assistant/paralegal working with family law matters. Explores the fundamentals of family law including: the regulation of marriage; law of divorce; annulment and legal separation; child custody and support; children of unmarried parents; child abuse and neglect; domestic violence; and adoption.

PH: Philosophy

PH 101—Introduction to Philosophy (3)

• GenEd Arts and Humanities/Humanities
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Surveys the major intellectual problems faced by great philosophers of all ages.

PH 204—World Religions (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Introduces the historical background, beliefs, scriptures and practices of the world's major religious traditions including Hinduism, Jainism, Buddhism, Sikhism, Taoism, Confucianism, Shintoism, Judaism, Zoroastrianism, Christianity and Islam.

PH 205—Ethics (3)

• GenEd Arts and Humanities/Humanities
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Introduces the problems and possibilities of moral philosophy and ethical decision making.

PH 206—Logic (3)

• GenEd Arts and Humanities/Humanities
Prerequisite: EN 52 or ESL 99 or ESL 72
 Introduces basic problems in the use of logic and language. Improves the use of language and sound principles of reasoning.

PH 207—Biomedical Ethics (3)

• GenEd Arts and Humanities/Humanities
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Explores some of the most troubling problems that health care professionals, physicians and lawyers as well as individual patients and their families are called upon to solve. Examines principles in biomedical ethics, as well as general ethical theories in major problem areas, including euthanasia and prolongation of life, genetic intervention, behavior control, experimenting with human subjects, etc.

PH 208—Business Ethics (3)

• GenEd Arts and Humanities/Humanities
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Introduces business ethics. Clarifies moral obligations and ethical dilemmas for managers who make business decisions.

PH 209—Environmental Ethics (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Identifies the most troubling ethical dilemmas in the field of environmental protection and explores the applicability of traditional ethical theories in areas such as the depletion of non-renewable resources, population growth, responsibilities to the non-human world, responsibilities to future generations and environmental cost/benefit analysis.

PH 210—Ethics and Film (3)

• GenEd Arts and Humanities/Humanities; Cultural Competence
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Introduces philosophical reasoning through classic literature and film about morality (what one should do or be), ethics (why), the meanings of moral terms (called meta-ethics) in a variety of applied ethical issues (good character, global health, justice, neocolonialism, genocide, environmentalism, war, consumerism) and disciplines (bioethics, business ethics).

PE: Physical Education

PE 108—Body Mechanics (1)

Examines the application of physical laws to the human body at rest or in motion, including concepts of effective, efficient and aesthetic postures, both static and dynamic. Emphasizes joint motions, care of the back and components of fitness including body compositions, flexibility, strength, muscular endurance and cardiovascular endurance.

PE 131—Aerobics (1)

Offers muscular and cardiovascular endurance exercises performed to music.

PE 153—Introduction to Health and Exercise Sciences (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Theory course for physical education majors. Includes an orientation to the profession, including the relationship of physical education to education, current trends and practices, career opportunities and areas of research. * This course is offered only in the Fall semester

PE 154—Fitness for Living (3)

• GenEd Interdisciplinary & Emerging Issues/Wellness
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 Covers the components of physical fitness, stress, care of the back, nutrition and weight control. Evaluations in all areas included through laboratory experiences.

PE 160—Elementary Fencing (1)

Introduces the history, safety, rules and etiquette of fencing. Teaches basic skills required to participate in a fencing match, as well as skills in directing and scoring a match.

PE 161—Psychology of Sport (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)
 An exploration of the personality factors, including, but not limited to, motivation, aggression and emotion as they affect sports participation and motor skill performance. * This course is offered only in the Fall semester

PE 165—Volleyball (1)

Includes orientation, instruction and participation in specific skills, rules and etiquette of the sport.

PE 166—Weight Training (1)

Provides orientation, instruction and participation in specific weight training skills, rules, safety and etiquette of the sport.

PE 179—Tennis I (1)

Introduces the basic skills of tennis, including the basic grips, forehand and backhand groundstrokes, volleys and serves; covers the rules of etiquette and sport.

PE 181—Golf (1)

Introduces the basic skills of golf, including the grip, stance, addressing the ball, aiming, putting, chipping, pitching, and the basic full swing; covers the rules and etiquette of the sport.

PE 182—Golf II (1)

Prerequisite: PE 181
 Provides instruction in maintaining a consistent golf swing. Teaches advanced golf shots, correction of golf swing flaws, and techniques of reading greens. Extra fees required.

PE 183—Beginning Snowboarding/Skiing (1)

Introduces the regulations, safety and etiquette of snowboarding/skiing. The beginner student will learn skills required to safely traverse the beginner slopes. Fees based on actual rental costs and to be paid at site.

PE 184—Intermediate Snowboarding/Skiing (1)

Introduces the regulations, safety and etiquette of snowboarding/skiing. The intermediate student will learn the enhanced techniques to improve their current skill levels. Fees based on actual rental costs and to be paid at site.

PE 185—Advanced Snowboarding/Skiing (1)

Introduces the regulations, safety and etiquette of snowboarding/skiing. The advanced student will learn the enhanced techniques to improve their current skill levels. Fees based on actual rental costs and to be paid at site.

PE 187—Social Dance (1)

Provides instruction in the basic partner dance forms including such dances as the waltz, swing, two-step, cha-cha, polka and fox-trot. Other contemporary dances may be included.

PE 188—Yoga (3)

Provides a holistic approach to understanding some of the fundamental principles and philosophies of yoga while also providing a weekly experiential Hatha (physical) practice.

PE 189—Outdoor Skills (A,B, etc.) (1)

As an umbrella course, consists of a series of one credit courses dealing with various topics in outdoor skills. (Subdivisions in this course will be added to the curriculum as they develop.)

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PE 189A–Outdoor Skills: Backpacking (1)

Instructs students in the basics of outdoor skills required to survive in relative comfort in an outdoor wilderness setting. Also instructs students in the selection and usage of proper equipment, clothing, and meals in the outdoor wilderness setting. A field trip (up to three days) is required.

PE 190–Pilates (1)

Introduces the history of Pilates and describes the physiological basis of exercises that promote core body strength. Includes demonstration and active student participation of Pilates movements.

PE 191–Body Sculpting (1)

Offers muscular strength and endurance exercises through the use of free weights, balls, and resistance tubes.

PE 193–Social Dance II (1)

Prerequisite: PE 187 or permission of instructor

Social Dance II builds on the dance rhythms learned in Social Dance. The patterns to be learned will incorporate the body mechanics and technique that enable creation of body swing in the Waltz, and smoothness and polish in all the dances: Fox Trot, Swing, Cha-Cha, Rumba and Tango.

PE 195–Tai Chi (1)

Tai Chi is an unique and traditional Chinese exercise. The benefits of practice include strengthening health, preventing illness, and slowing the effects of aging. The class is designed to provide students with a basic knowledge and history of Tai Chi, and to provide an opportunity to learn and master Tai Chi skills.

PE 196–Kickboxing (1)

Provides basic fundamentals of Lethwei (Burmese Kickboxing). Basic principles, history, and styles and linguistics of the fighter will be covered. This course emphasizes safety for the students and the instructor. There will be no competitive fights or hard physical contact between students during this course. Mental and physical control as well as proper training etiquette will always be maintained.

PE 198–Fitness (A,B, etc.) (1)

Engages students in full body exercises to improve fitness. Course will strive to dramatically change participant's level of activity, muscle tone and strength. Students will be able to integrate research to understand the effectiveness of exercise, and plan and implement exercise programs.

PE 198A–Fitness: Boot Camp (1)

Engages students in full body exercises, especially utilizing body weight. The course strives to dramatically increase the participant's level of muscular activity to affect positive changes in fitness levels. It also integrates fitness research with practical application for understanding the effectiveness of exercise.

PE 198B–Fitness: Advanced Tai Chi (1)

Provides students an opportunity to strengthen physical and mental health, improve muscular coordination and relaxation through deep breathing and movement exercises unique to Tai Chi. Advanced Tai Chi continues to build on the movement forms that were learned in the basic Tai Chi course.

PE 198C–Fitness: Zumba (1)

Zumba Fitness is a Latin-inspired, high-energy, cardio-dance workout that uses music and various easy-to-follow choreographed steps. Along with music styles such as Latin, Hip-Hop, Jazz, Pop, and other genres, Zumba incorporates interval training, alternating fast and slow rhythms, and resistance training.

PE 198D–Fitness: Soccer (1)

Introduces students to the foundations of soccer including history, principles, rules, skills, and game tactics. Students will participate in skill development and game play.

PE 236–Coaching Principles (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Provides student with the knowledge to become an effective coach. Foundational areas of coaching are presented, including coaching philosophy, sport psychology, sport pedagogy, sport physiology and sport management. Coaching certification is possible through the American Sports Education Program.

** This course is offered only in the Spring semester*

PE 237–Exercise of Psychology (1)

Introduces the psychological factors that affect exercise participation and performance.

PE 241–Methods of Fitness and Conditioning (1)

Designed for those who will be assisting others with exercise. Integrates fitness research and application, and emphasizes teaching methodologies employed in training programs that focus on group exercise. Students will apply teaching methodologies through individual and group training.

PE 247–Methods of Strength Training (1)

Designed for students who will be assisting others in a training program emphasizing muscular fitness. Emphasizes teaching methodologies employed in training programs that focus on muscular fitness. Students will apply teaching methodologies as they practice training with individuals or small groups.

PE 249–Fitness Assessment and Business Practices (3)

Prerequisite or Corequisite: BI 103 or BI 107 or BI 117

Investigates the various modes and protocols used in fitness assessment and the relationship of assessment to the Personal Training business.

PE 250–Care and Prevention of Athletic Injuries (3)

Prerequisite or Corequisite: EN 52 or ESL 99 or ESL 72

Introduces the basic principles for care and prevention of athletic injuries. Emphasis will be placed on scientific applications for recognition, diagnosis, classification, treatment and rehabilitation of body.

PE 252–Essentials of Personal Training (4)

Prerequisites: PE 241, PE 247, PE 249; Prerequisites or Corequisites: PE 108 and PE 154

Capstone course in the Personal Training Program that leads to the NASM Personal Trainer certification. Course combines 3-credit lecture and 2-credit lab.

PC: Physical Science

PC 103–Elements of Physical Science (3)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Covers selected aspects of earth science, physics, chemistry and the quantitative relationships involved in the behavior of matter. Uses simple experiments to introduce scientific topics as needed. Restricted to non-science majors. Students cannot receive credit for both PC 103 and PC 114.

PC 104–The Water Planet: Introduction to Oceanography (3)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Presents a study of the ocean as a dynamic and changing entity. Emphasizes connections among disciplines in and outside the areas of science. Provides a basic understanding of scientific questions, complexities and uncertainties involved with the study and use of oceans.

PC 105–Introduction to the Science of Weather (3)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Surveys the basic physics of the atmosphere and the diagnostic tools of the meteorologist. Includes some discussion of applied meteorology, forecasting, pollution, aviation and agriculture. Students cannot get credit for both PC 105 and PC 106.

PC 106–Introduction to Meteorology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Surveys the basic physics and chemistry of the atmosphere and applies the diagnostic tools of the meteorologist. Includes some discussion of applied meteorology, forecasting, pollution, and climatology. This course includes a lab. Students cannot get credit for both PC 106 and PC 105.

PC 107–Introductory Astronomy (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Presents a survey of astronomy that includes a study of the physical nature of the universe, the solar system, stars, nebulae and galaxies. The laboratory includes sky observations for collection and analysis of data, photographic analysis and laboratory experiments.

PC 108–Historical Geology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Traces the history of the earth through time. Presents scientific theories on the origin of the earth and the evolution of life. Provides an overview of geologic time, radiometric dating, fossils, dinosaurs, and significant events in earth's history. Provides students with the tools to interpret the rock and fossil record with a focus on the geologic history of North America.

PC 109–Physical Geology (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Introduces the physical and chemical processes that occur along the surface of the earth and within the earth's interior. Topics include plate tectonics, earthquakes, volcanoes, the rock cycle, and the origin and continual modification of surface features. Laboratory investigations include rock and mineral identification, data analysis, and map interpretation.

PC 114–Contemporary Physical Science (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Presents basic principles of physics and chemistry as they relate to our modern technological society. An activities-oriented approach is used that focuses on model building. These models are developed as a method of building both conceptual and quantitative understandings of the physical world. Students cannot receive credit for both PC 114 and PC 103.

PC 115–Introduction to Geoscience (4)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* MA 82 or MA 85 or MA 103A or BU/MA 205A or MA 206A or MA 207A

Presents an overview of the solid and fluid parts of the earth system and investigates their interactions with human culture and society. An inquiry-based, activities-oriented approach is used in the course.

PC 121–Energy and Society (3)

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73); *Prerequisite or Corequisite:* MA 82 or MA 85 or MA 103A or BU/MA 205A or MA 206A or MA 207A

Explores the nature and properties of energy. Emphasizes a scientific understanding of energy and its role in the global society. Examines current and alternative energy sources used to meet the needs of a growing and developing society. Some Friday or Saturday field trips.

PY: Physics**PY 101–Survey of Physics (3)**

• GenEd Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 82 or MA 85

Gives students a general background in physics and prepares those who must take a two-semester physics course who have not had high school physics.

PY 201–Fundamentals of Physics (4)

• GenEd Science

Prerequisites: Completion of high school physics or PY 101 strongly recommended, and [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 111 or (MA 130 and MA 131)

Presents an introductory study of physics, with the fundamental principles of mechanics, dynamics and mechanical waves. Emphasizes problem solving and modeling of physical systems.

PY 202–Fundamentals of Physics (4)

• GenEd Science

Prerequisite: PY 201

Continues the study of basic principles of physics. Topics include thermodynamics, electricity and magnetism, optics and modern physics.

PY 203–Introductory Physics I (4)

• GenEd Science

Prerequisites: Completion of high school physics or PY 101 strongly recommended, and [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73), and MA 210

Presents an introductory study of physics covering the fundamental principles of mechanics, dynamics and mechanical waves. Emphasizes problem solving and modeling of physical systems. Physical laws and theories are developed by the application of calculus. Prepares students for advanced work in the physical sciences. An analytical course primarily for majors in science or mathematics.

PY 204–Introductory Physics II (4)

• GenEd Science

Prerequisites: PY 203, MA 211

Continues the study of fundamental principles of physics. Topics include thermodynamics, electricity and magnetism, optics and modern physics. The theoretical approach and use of calculus are continued.

PY 205–Modern Physics (4)

Prerequisite: PY 204

Continues from the calculus-based sequence PY 203-204, with emphasis on modern physics. Includes topics in relativity, electromagnetic theory, physical optics, quantum theory and atomic and nuclear physics.

PI: Political Science**PI 104–American Government: National (3)**

• GenEd Social & Behavioral Sciences/Political Science

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Covers basic principles of the national government: structure, powers and operations of Congress; the presidency and the Supreme Court; citizenship, elections, political parties and pressure groups.

PI 206–Civil Liberties (3)

Prerequisite: EN 52 or ESL 99 or ESL 72

Provides historical background, social and political issues and leading cases establishing the present rules regarding civil liberties today.

PN: Practical Nursing

***Practical Nursing will only be offered Summer 2016 and will not be offered Fall 2016 or Spring 2017.**

PN 112–Nursing Throughout Developmental Stages (8)

Prerequisites: NU 210, NU 211; *Corequisite:* PN 113

Prepares practical nursing students to provide care for adult and pediatric clients systems with commonly recurring physiological, psychological and developmental health problems. The Neuman Systems Model is used as the framework for the course. Supervised clinical experiences on medical, surgical and pediatric units in the hospital as well as observation in community-based centers are provided.

PN 113–Issues in Practical Nursing (1)

Prerequisites: NU 210, NU 211; *Corequisite:* PN 112

Focuses on the effective transition from student to licensed practical nurse. Emphasis is on the responsibilities associated with licensure, ethical and legal issues, employment strategies, continuing professional growth and leadership and management principles. Relevant trends in the development of the discipline of practical nursing are also emphasized.

PS: Psychology**PS 101–General Psychology (3)**

• GenEd Social & Behavioral Sciences/Psychology

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Emphasizes the major factors that influence human behavior, including behavioral neuroscience, perceptual processes, consciousness, intelligence, personality and psychological disorders.

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PS 104—Issues of Drug/Alcohol Use (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents a comprehensive study of the use of legal and illegal drugs; an analysis of the addictive and recovery process for individuals and families; a study of treatment modalities and 12-step groups; a study of the physiological and legal consequences of substance use and abuse.

PS 202—Social Psychology (3)

• GenEd Social & Behavioral Sciences/Psychology
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Explores the effects of the social environment upon the human organism through the study of interpersonal relationships, and the social influences on cognitive processes such as social perception, attribution, persuasion, prejudice and discrimination, aggression, prosocial behavior and group interaction.

PS 204—Psychology of Adolescence (3)

Prerequisite: PS 101

Explores physiological, psychological and social dilemmas of the adolescent. Considers relevant contemporary research and behavioral determinants.

PS 205—Psychology of Aging (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces the normal physiological, psychological and sociological changes that occur during the life span. Emphasis on consequent behavior patterns and changing needs of the elderly. Includes study of adaptive processes, intervention techniques, strategies and availability of services.

PS 206—Abnormal Psychology (3)

Prerequisite: PS 101

Explores the nature, etiology, diagnosis, prognosis, treatment and possible prevention of the major classifications of psychological disorders including anxiety, mood, eating, substance-related, schizophrenic, dissociative, personality and childhood disorders.

PS 207—Death and Dying (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces the origins and development of death attitudes and behavior. Topics include euthanasia; suicide; grief and mourning processes; the funeral system; legal rights; and coping strategies. Emphasis on death as a normal developmental event.

ED/PS 208—Human Growth & Development (3)

• GenEd Social & Behavioral Sciences/Education
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents central concepts related to parameters of human development through the life span. Includes physical, social, emotional and mental development at the various stages of life. Considers the influence of culture as well as individual differences. (This course satisfies the Maryland State Department of Education professional education course work in child or adolescent development.)

PS 209—Women's Studies: A Multicultural Perspective on the Psychology & Sociology of Women (3)

• GenEd Interdisciplinary & Emerging Issues/
Multicultural Issues & Perspectives; Cultural Competence

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces the scientific study of women as a multicultural group. Reviews material from the fields of psychology, sociology, anthropology, and medicine as it related to women. Particular effort will be made to address the experiences of women of varied races, ethnic groups, classes, national origins, and sexual orientations so that the whole concept of gender may be broadened to take these different experiences and different concerns into account.

Real Estate

(Continuing Education/Noncredit)

REA 203—Principles and Practices of Real Estate for Maryland

If you are planning to take the Maryland Real Estate Licensing Examination, you need this course. If you attend all of the classes and receive a 70% or better on the final examination, you will receive a certificate that enables you to take the state examination. 100% attendance will be required to earn the CEU's for this course. Textbooks are required for this course.

CPD 323—Home Inspection Pre-Licensure

This course meets the requirements for home inspection pre-licensure for the State of Maryland as a provision of law under the Business Occupational and Professions Article, Annotated Code of Maryland, § 16-3A-03(1). The home inspection profession has grown rapidly over the last several years. More and more homebuyers use home inspectors to evaluate the condition of their prospective purchases. This course covers the basics of home inspection as required to be a licensed home inspector in the State of Maryland. The topics include the following systems: structural, exterior, interior, roofing, plumbing, electrical, air conditioning, insulation and ventilation, fireplace and solid burning, and heating.

TRD 200—Maryland Home Improvement Contractors License Exam Prep

For individuals planning to sit for the MHIC exam. Covers laws, regulations, Home Improvement Law, Door-to-Door Sales Act, business and employee laws.

RC: Respiratory Care

RC 100—Introduction to Respiratory Care (2)

Prerequisite: BI 103

Introduces respiratory care as a profession, including the healthcare environment and the respiratory care practitioner's role on the healthcare team. Specific topics include the holistic concept of patient care, psychosocial issues with particular attention to death and dying, medicolegal and ethical considerations of respiratory care, and professional interpersonal relationships. Topics also include medical terminology, infection control techniques, and physical assessment methods.

RC 102—Fundamentals of Respiratory Care (4)

Prerequisite: BI 103

Introduces basic respiratory care modalities, including medical gas therapy, aerosol and humidity therapy, hyperinflation therapy, and bronchial hygiene therapy. Laboratory portion of the course provides practical experience performing procedures presented in the didactic portion of the course in a controlled laboratory setting.

RC 103—Pharmacology (3)

Prerequisites: BI 104, RC 100, RC 102, RC 104

Introduces the various classifications of drugs, including drug action and effects, site of activity, recommended dosages and toxicity. Emphasis on anesthetics, bronchodilators, mucokinetics, cardiovascular agents and drugs affecting the nervous system as they apply to respiratory therapy.

RC 104—Gas Exchange Physiology (2)

Prerequisite: BI 103

Focuses on the structure and function of the lung as related to gas exchange, diffusion, perfusion and ventilation-perfusion relationships. Emphasizes oxygen and carbon dioxide transport abnormalities in the gas exchange mechanisms. This will lead to and be integrated with clinical applications and interpretations of arterial blood-gas analysis.

RC 105—Cardiopulmonary and Renal Anatomy and Physiology (3)

Prerequisites: BI 104, RC 100, RC 102, RC 104

Emphasizes the structure and function of the pulmonary, cardiovascular and renal systems as they relate to respiratory therapy.

RC 107—Principles of Mechanical Ventilation (4)

Prerequisite: BI 104, RC 100, RC 102, RC 104

Explores general principles of gas physics, principles of airway management, intubation and the theory and operation of mechanical ventilators. Includes special problems associated with both short-term and long-term care of patients requiring artificial ventilation. Integrates arterial blood gas studies with course topics. The laboratory portion of the course takes the principles and procedures presented in lecture and apply them via procedure competency testing and simulated clinical situations.

RC 109–Clinical Practicum I (2)*Prerequisites: RC 100, RC 102, RC 104, BI 104*

Introduces the hospital environment and patient care, including patients charts and record-keeping. Includes practical experience in using basic respiratory therapy equipment and applying it to patient care. Students perform basic respiratory therapy modalities such as oxygen therapy, aerosol therapy, IPPB, incentive spirometry and chest physiotherapy and postural drainage.

RC 110–Clinical Practicum II (2)*Prerequisites: RC 103, RC 105, RC 107, RC 109*

Teaches proficiency in administering basic respiratory care procedures and handling every aspect of general care. Introduces the intensive care environment and the theory and practical use of mechanical ventilators. Includes practical experience in obtaining arterial blood gases.

RC 202–Neonatal and Pediatric Respiratory Care (3)*Prerequisites: RC 103, RC 105, RC 107, RC 110*

Provides an in-depth perspective of pediatric and neonatal respiratory care. Includes high-risk deliveries, abnormalities and diseases, and the interventions used. Discusses mechanical ventilation for the neonatal and pediatric patient. Students must satisfactorily complete competency tests on the operation of neonatal and pediatric ventilators.

RC 203–Pulmonary Rehabilitation and Home Care (2)*Prerequisites: RC 202, RC 204, RC 206, RC 208*

Reviews all of the assessment skills, equipment, and interventions presented throughout the program, and applies them to the care of patients in alternative settings. Focus is on teaching patients to live with their diseases. A capstone course for the respiratory care program.

RC 204–Cardiac Monitoring and Diagnostics (4)*Prerequisites: RC 103, RC 105, RC 107, RC 110*

Presents the theory, equipment, and techniques involved in cardiac monitoring. Recognition of normal values and normal waveforms will be emphasized as a reference for identifying abnormal and life threatening changes. Students must satisfactorily complete competency tests, including EKG monitoring and assembly of fluid filled monitoring systems.

RC 205–Professional Seminar (2)*Prerequisites: RC 202, RC 204, RC 206, RC 208*

Prepares students for entry into clinical practice. Emphasizes preparation for the entry level and registry examinations given by the National Board for Respiratory Care. Provides familiarization with the prospective test matrices and uses both text and computer review materials. Reviews and discusses assigned current readings from various journals related to respiratory therapy.

RC 206–Pulmonary Diagnostics (2)*Prerequisites: RC 103, RC 105, RC 107, RC 110*

Includes a detailed analysis of all major parameters of ventilatory measurement as well as diagnostic significance of deviations from predicted normal values.

RC 207–Cardiopulmonary and Renal Pathophysiology Review (3)*Prerequisites: RC 202, RC 204, RC 206, RC 208*

Examines the effects of various diseases upon the cardiopulmonary and renal systems. Discusses both acute and long-term aspects of ventilatory-circulatory impairment. Emphasis on diseases that cause insult to the respiratory system.

RC 208–Clinical Practicum III (2)*Prerequisites: RC 103, RC 105, RC 107, RC 110*

Develops advanced skills in the critical care environment regarding management of the patient dependent upon mechanical ventilation. Practical experiences gained in hemodynamic monitoring. Students will rotate through operating rooms to observe thoracic and cardiovascular surgeries and intubations.

RC 209–Clinical Practicum IV (2)*Prerequisites: RC 202, RC 204, RC 206, RC 208*

Provides clinical experience in the pediatric/neonatal environment as well as advanced adult critical care. Students rotate through neonatal and pediatric intensive care units and gain practical experience with mechanical ventilator management and various therapeutic techniques for this patient population. Students also rotate through various adult critical care areas.

SO: Sociology**SO 101–Introduction to Sociology (3)**

• GenEd Social & Behavioral Sciences/Sociology
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces the student to the study of society and the impact of society upon the individual. Exemplifies social processes in cultural patterns and institutions. Examines group values at various levels of human relationship.

SO 102–Social Problems (3)

• GenEd Social & Behavioral Sciences/Sociology;
Cultural Competence
Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Offers the study of community problems and sociological processes involved in the analysis of universal and local sociological phenomena.

SO 201–Criminology (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Explores criminal behavior and the methods of its study, causation, types of criminal acts and offenders, punishment, correction and incarceration and prevention of crime.

SO 202–Marriage and Family (3)

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Presents a comparative analysis of family organization in different societies, with reference to the urban family of Western society. Explores basic causes of change and trends in family structure and function. Topics include mate selections, marriage vows, marital prediction and child-rearing practices.

SO 207–Sociology and Sexuality (3)

Prerequisites or Corequisites: EN 101 and (SO 101 or SO 102 or SO 202 or PS 202 or PS 209 or permission of instructor)

Introduces sexuality as a political, cultural and social issue. Examines how societies influence the development of sexual scripts, what is considered 'normal' and 'abnormal', 'moral' and 'immoral', and explores how these beliefs influence social responses to current social problems related to sexuality.

SD: Student Development (see ACE: Academic and Career Engagement)**ST: Surgical Technology**

Additional fees required for ST 100 and ST 200. See the current class schedule. Fees are subject to change.

ST 100–Fundamentals of Surgical Technology I (6)*Prerequisite: ST 120*

Develops concepts, skills and attitudes needed by students to perform as members of a surgical team. Demonstration of competence in basic skills is essential. Simulated practice time in FCC's lab and in operating room settings along with didactic instruction prepare the student for the clinical practicum component of this course.

ST 101–Introduction to Surgical Technology (6)

• Cultural Competence
Provides an overview of the functions of the surgical technologist in the perioperative environment. Develops the fundamental concepts and principles of microbiology, asepsis, pharmacology, anesthesia, ethical and legal considerations, patient care, all-hazards preparation, and teamwork.

ST 105–Clinical Practicum (5)*Prerequisite: ST 100*

Develops surgical technology concepts, attitudes, and skills needed by students to perform as professional members of a surgical team. Demonstration of proficiency is essential during the perioperative phases of surgical procedures.

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ST 120--Surgery Essentials (3)

Prerequisites: MDA 108 or MDA 109, BI 103 and BI 104

Provides an introduction to the surgical environment and to the essential skills required of a surgical technologist. Emphasizes the fundamental concepts of sterile technique, critical thinking, and professionalism. Application and demonstration of essential surgical technology skills and concepts are required to advance in the program.

ST 200--Fundamentals of Surgical Technology II (12)

Prerequisites: ST 100

Provides the student with theory and practice related to the dynamic role of the surgical technologist in classroom, laboratory, and clinical settings. Preceptored clinical experiences focus on participation during complex surgical procedures, advancement of skill level, and critical thinking.

THR: Theatre

THR 101--Introduction to Theatre (3)

• GenEd Arts and Humanities/Arts

Prerequisites: [(EN 50A or EN 61) and EN 52] OR (ESL 95 and ESL 99) OR (ESL 72 and ESL 73)

Introduces the history of drama and the theatre through reading, viewing and discussing plays.

THR 102--Introduction to Acting (3)

Offers a basic study of acting, through both a historical perspective and in-depth exercises.

THR 110--Theatre Workshop (3)

Examines the socio-cultural-political context for the development of different approaches to the process of devising a piece of theatre from the ground up and performing genres (e.g. story-telling, political, etc.). Students will work together as a group to build an original theatre piece. Students of performance, design, direction, and technical will work together to build theatre from the common interest of the class group.

THR 121--Stagecraft (3)

Explores all technical aspects of play production, with emphasis on set construction, scene painting, properties and stage lighting. Provides laboratory experience in conjunction with campus theater productions.

THR 203--Fundamentals of Directing (3)

Addresses problems in playwriting, directing and acting. Students work on scenes and/or one-act plays.

THR 204--Production Survey (1)

Students participate in a campus theater production as a member of the production crew. May be taken for credit three times.

THR 205--Acting Survey (1)

Prerequisite: Permission of the instructor

Students participate in a campus theater production as a member of the cast. May be taken for credit three times.

THR 206--Advanced Acting (3)

Concentrates on characterization and dramatic improvisation.

THR 212--Theatre Internship (3)

Offers an intensive study of theatrical performance, including both acting and stagecraft assignments. Students prepare a theatrical production for presentation during the summer.

THR/EN 229--Modern Drama (3)

• GenEd Arts & Humanities/Arts or Arts & Humanities/ Humanities

Prerequisite: EN 101

Presents selected works of drama that have gained prominence during the late nineteenth and twentieth centuries.

Veterinary Assistant

(Continuing Education/Noncredit)

VET110--Preparation for Veterinary Assistant Program

This course is a prerequisite to the Veterinary Assistant Certificate program. Learn the roles, responsibilities and limitations for being a veterinary assistant. Strengthen your verbal and written communication skills as well as customer service skills and ability to solve problems using critical thinking. Perform simple math calculations for applications that may be used in a veterinary office. Ethical issues concerning the care and treatment of animals will also be reviewed and discussed. *Prerequisites:* AccuPlacer testing into MA82 and EN52 or C or higher in college level Math and English courses. Minimum age of 18. High School Diploma or GED required.

VET111--Veterinary Assistant: Outpatient Care

Begin veterinary assistant training in this first in the series of four courses designed to provide you with a Veterinary Assistant Certificate. An orientation to the veterinary profession, office procedures and client relations. Learn how to take medical history, keep medical records, and handle and restrain animals. Exam room procedures and the anatomy and physiology of various animals are covered, as well as animal diseases and vaccinations. The physical examination of animals is reviewed, including the exam equipment and body systems. You will complete 30 hours of classroom training. You must also successfully complete 8 hours of practicum with an approved veterinary office/hospital site to fulfill the requirements for this course. *Prerequisite:* VET110; Minimum age of 18. High School Diploma or GED required.

VET112--Veterinary Assistant: Diagnostics and Pharmacy

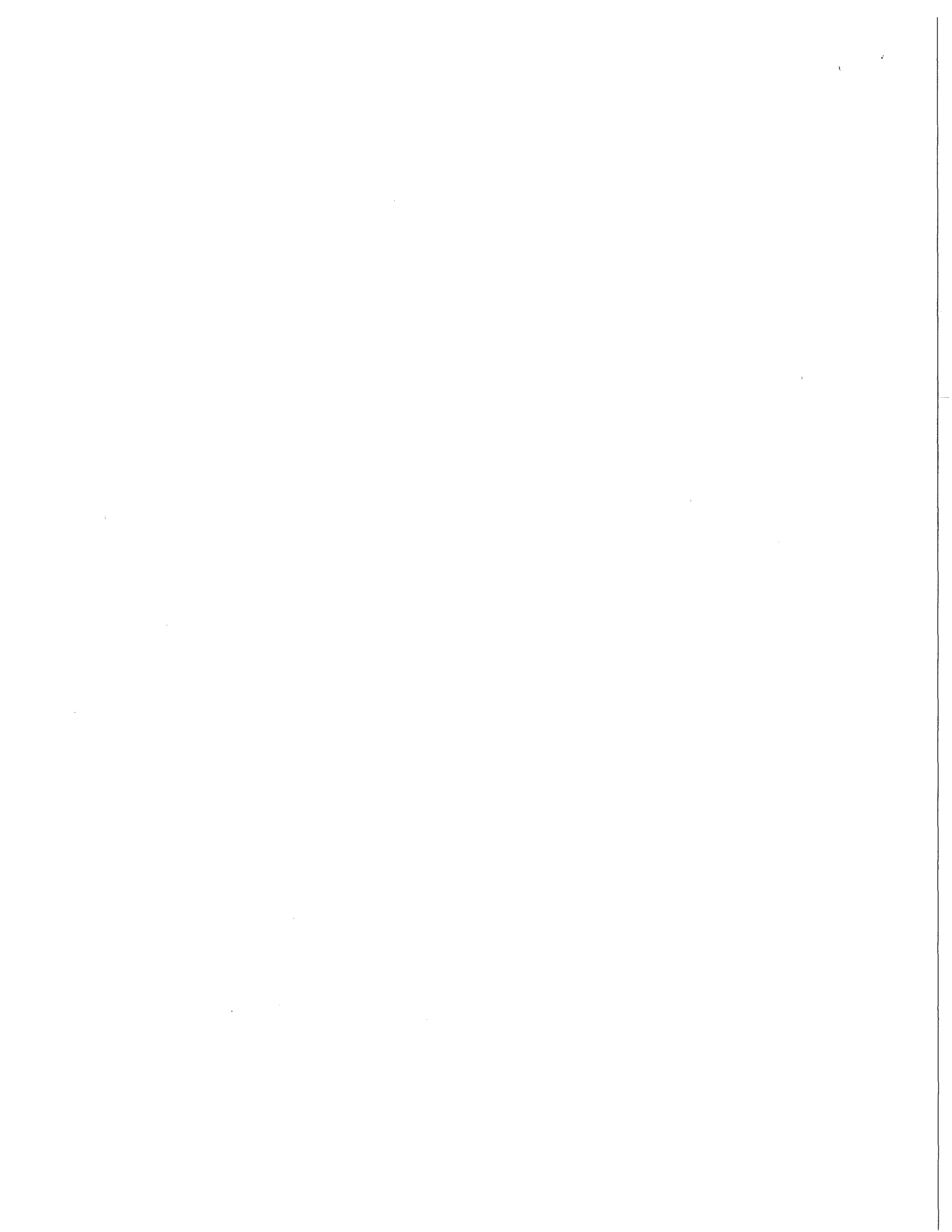
This is the second in the series of four courses. Learn basic lab procedures on how to collect blood and urine samples and how to use the microscope. Also learn about parasites and perform heartworm examinations. The classification and label of drugs, including controlled substances, is covered along with drug abbreviations and terminology. Radiology materials and safety is reviewed, including radiation safety, and the physics, labeling, filing and processing of radiographs. Basic patient positioning and measuring of the patient and setting the radiographic machine are included. You will complete 15 hours of classroom training. You must also successfully complete 12 hours of practicum with an approved veterinary office/hospital site to fulfill the requirements for this course. *Prerequisite:* VET111; Minimum age of 18. High School Diploma or GED required.

VET113--Veterinary Assistant: Patient Care and Treatment

Third in the series of four courses. Learn how animals are medicated, including routes of medication administration and calculation of drug dosages. Also learn the six essential food nutrients related to veterinary medicine and types of food. Intravenous catheters and catheterization placements and techniques are covered. Learn the types of fluids used in therapy and routes and rates of fluid administration. Therapeutic techniques of oxygen therapy, physical therapy, bandaging, nail trimming, bathing, administering enemas, orphan animal care and preventing decubitus sores are also covered topics. You will complete 18 hours of classroom training. You must also successfully complete 16 hours of practicum with an approved veterinary office/hospital site to fulfill the requirements for this course. *Prerequisite:* VET112

VET114--Veterinary Assistant: Surgery, Anesthesia and Emergency Care

Final in the series of four courses. Learn about anesthesia, including the equipment and its machine systems and monitoring the anesthetic patient while under anesthesia and recovering from anesthesia. Also learn common surgical procedures and the operating room equipment and instrumentation and surgery packs associated with those common surgeries. Learn the cleaning, sterilization and caring for surgical instruments and the operating room. Preparing the animal for surgery and post-surgical patient care are covered. Emergency care includes triage, common emergencies, first aid and in-hospital cardiopulmonary resuscitation (CPR). You will complete a total of 24 classroom hours. You must also successfully complete 18 hours of practicum with an approved veterinary office/hospital site to fulfill the requirements for this course. *Prerequisite:* VET113.



Frederick Community College

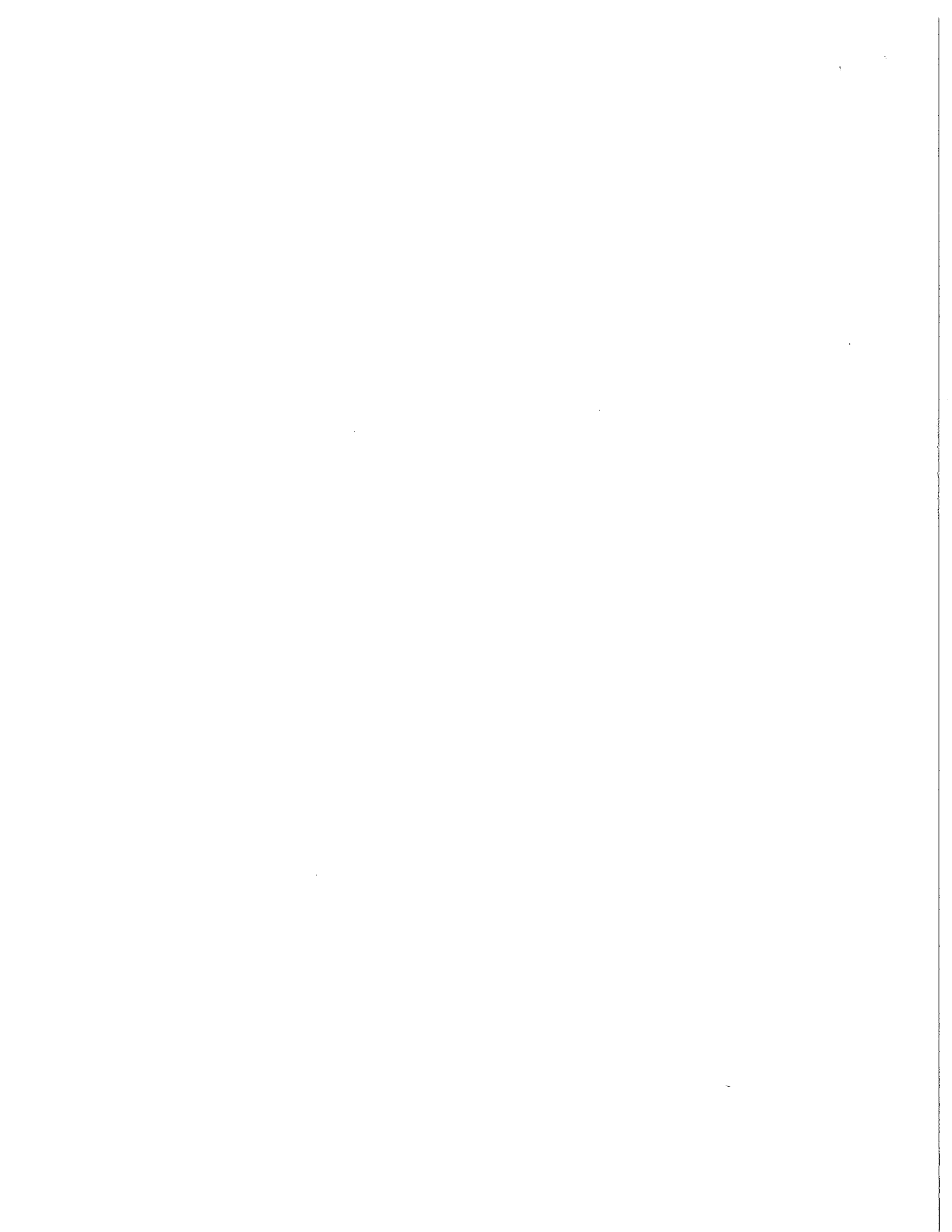
Chemistry Area of Concentration within the A.S. in STEM

Offers a variety of science and math courses for students pursuing a course of study in chemistry. Students planning to transfer to a four-year college should check the requirements of that institution. If there are significant differences, the student should consult an advisor for guidance.

- Students must complete their credit English and Mathematics within the first 24 credits.
- One general education course must meet the cultural competence graduation requirement (list page 43).
- CORE: The General Education CORE (page 42) is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements.
<http://artsys.usmd.edu/>
- Students must take at least nine credits at the 200-level.

CORE

<i>Course</i>	<i>Credits</i>
English	
EN 101 English Composition	3
Mathematics	
MA 210 Calculus I	4
Social & Behavioral Sciences	
Two courses selected from different disciplines	6
Arts & Humanities	
Arts Elective (Gen Ed Course List)	3
Humanities Elective (Gen Ed Course List)	3
Communications Elective (Gen Ed Course List)	3
Biological & Physical Sciences	
CH 101 General Chemistry	4
BI 101 General Biology	4
General Education elective	3
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PE/Health Requirement	1/3
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Concentration Courses	
CH 102 General Chemistry II	4
MA 211 Calculus II	4
CH 201 Organic Chemistry I	4
PY 203 Introductory Physics I	4
CH 202 Organic Chemistry II	4
Electives	6
Choose electives in consultation with an advisor. MA 212 (Calculus) and MA 214 (Introduction to MatLab) recommended.	
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TOTAL	60



Frederick Community College

Engineering Area of Concentration within the A.S. in STEM

Intended to provide the basis for transfer to a four-year college engineering course of study. Every course is not applicable to all engineering fields and different schools vary in their transfer requirements. Students entering the program who lack precalculus must satisfy this requirement before taking MA 210, Calculus I. Therefore, it is imperative that each student meets regularly with an advisor to establish and/or confirm a personal direction for future study.

- Students must complete their credit English and Mathematics within the first 24 credits.
- One general education course must meet the cultural competence graduation requirement (list page 43).
- CORE: The General Education CORE (page 42) is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements.
<http://artsys.usmd.edu/>
- Students must take at least nine credits at the 200-level.

CORE

<i>Course</i>	<i>Credits</i>
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English

EN 101	English Composition	3
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Mathematics

MA 210	Calculus I	4
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Social & Behavioral Sciences

Two courses selected from different disciplines		6
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Arts & Humanities

Arts Elective (Gen Ed Course List)		3
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Humanities Elective (Gen Ed Course List)		3
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Communications Elective (Gen Ed Course List)		3
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Biological & Physical Sciences

CH 101	General Chemistry	4
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PY 203	Introductory Physics I	4
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General Education elective		3
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PE/Health Requirement	1/3
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Concentration Courses

EG 100	Introductory Engineering Sciences	3
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MA 211	Calculus II	4
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MA 213	Differential Equations	3
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MA 214	Mat Lab	1
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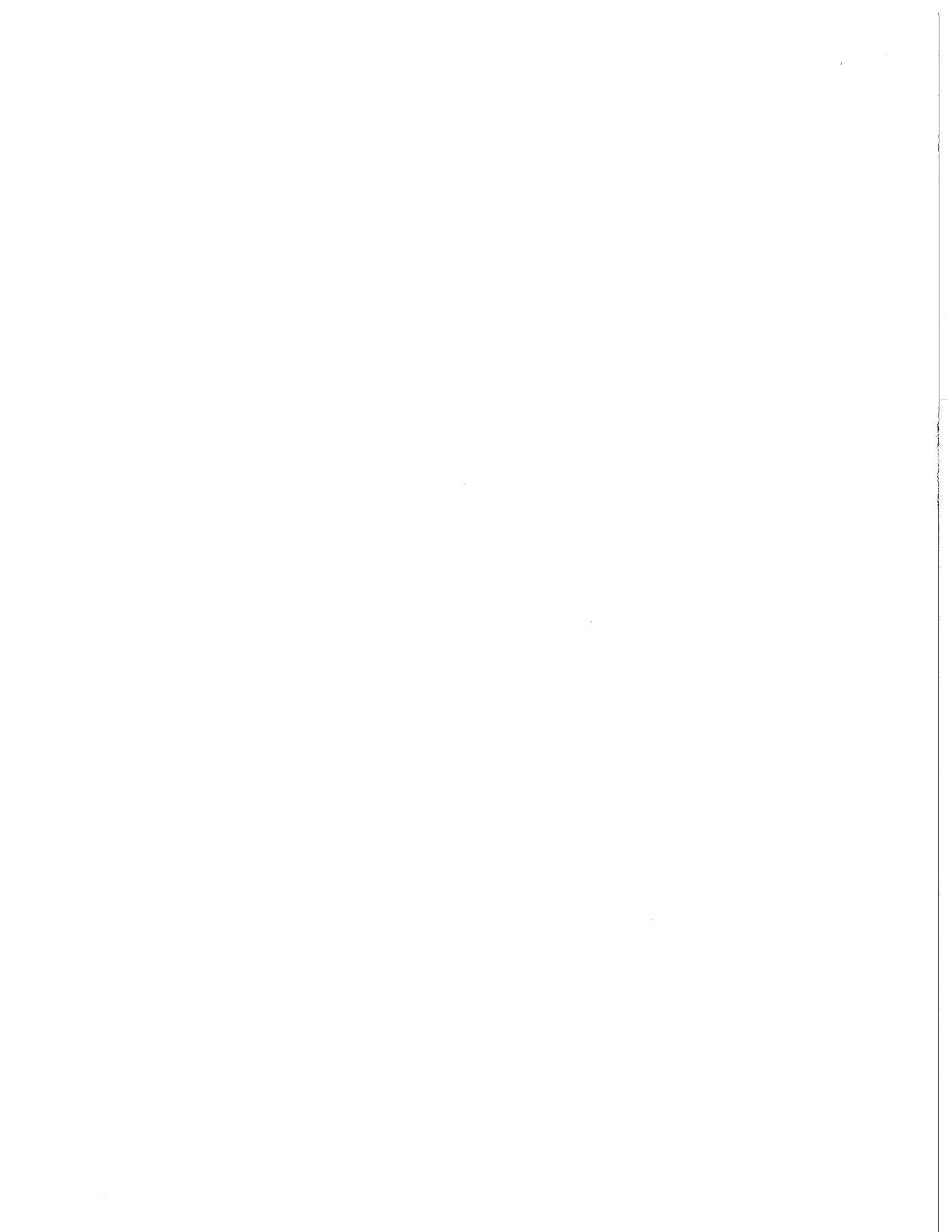
STEM Electives	8
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Choose courses in consultation with an advisor. Depending on a student's transfer goals, recommended courses may include EG 110 Engineering Statistics, EG 210 Mechanics of Materials, EG 211 Engineering Dynamics, MA 212 Calculus III, or PY 204 Introductory Physics II). STEM Electives must be from Biology, Chemistry, Computer & Information Sciences, Engineering, Mathematics, or Physics.

Unrestricted Electives	7
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Choose two or more courses in consultation with an advisor.

TOTAL	60
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Frederick Community College

Mathematics Area of Concentration within the A.S. in STEM

Provides a diversity of courses for students pursuing a course of study in mathematics. Students planning to transfer to a four-year institution should check requirements. If there are significant differences, the student should consult an advisor for guidance.

- Students must complete their credit English and Mathematics within the first 24 credits.
- One general education course must meet the cultural competence graduation requirement (list page 43).
- CORE: The General Education CORE (page 42) is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements. <http://artsys.usmd.edu/>
- Students must take a minimum of nine credits at the 200-level.

CORE

<i>Course</i>	<i>Credits</i>
English	
EN 101 English Composition	3
Mathematics	
MA 210 Calculus I	4
Social & Behavioral Sciences	
Two courses selected from different disciplines	6
Arts & Humanities	
Arts Elective (Gen Ed Course List)	3
Humanities Elective (Gen Ed Course List)	3
Communications Elective (Gen Ed Course List)	3
Biological & Physical Sciences	
Choose Biological and Physical Science courses; one course must include a lab (Gen Ed Course list)	7/8
PY 203 Physics I and PY 204 Physics II are required at the University of Maryland-College Park and recommended for students transferring to other institutions.	
General Education elective	3
PE/Health Requirement	
	1/3
Concentration Courses	
MA 211 Calculus II	4
MA 214 Introduction to MatLab	1
MA 212 Calculus III	4
MA 213 Differential Equations	3
MA 218 Linear Algebra	3
CIS 106 Introduction to Object Design & Programming	3
Choose one in consultation with an advisor:	3/4
MA 202 Discrete Math	
Or	
CIS 201 Computer Science I	
Electives	
Choose electives in consultation with an advisor.	6
(PY 205 is required at the University of Maryland-College Park. Depending on transfer school CIS 202 may be recommended).	
TOTAL	60

