

## Program of Study Leading to an A.S. in Forensic Science at Hostos

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### Course Descriptions

#### ***First Year-Fall: 15 Credits***

##### ***ENG 110 Expository Writing - 3 Credits, 3hrs.***

##### **Pre-requisite: Passing CUNY/ACT Reading and Writing tests or Exemption**

English 110, a foundational writing course, is designed to strengthen students' composing skills so that they will produce increasingly complex and better-structured essays. Reading and responding to interdisciplinary texts representing various rhetorical modes, students will practice paraphrasing and summarizing these texts, enrich their vocabulary, and improve their writing, revision, and proofreading skills. Additionally, students will be introduced to the use of print and on-line secondary sources. Upon completion of the course, students will be able to respond critically in writing, to a variety of texts, integrating their own ideas with those presented in the readings.

##### ***CHE 210 General Chemistry I - 4 Credits, 3hrs. lecture/ 3hrs. lab/ 1hr. recitation***

##### **Pre-requisite: MAT 030**

##### **Co-requisite: MAT 160**

The students will analyze data and solve problems related to the principles of modern atomic theory, stoichiometry, oxidation-reduction reaction, gas laws, thermochemistry, electromagnetic radiation and quantum theory, chemical bonding and molecular structure, and properties of solutions. This course is intended for students preparing for careers in the sciences and engineering.

##### ***BIO 210 General Biology I – 4 Credits, 3hrs. lecture/ 3hrs. lab/ 1hr. recitation***

##### **Pre-requisite: ESL 91 or ENG 91; MAT 20 or Exempt**

This course, the first of two courses in biological science is intended for students preparing for careers in science. Lecture topics include basic properties of living organisms, metabolism, energy transformation, cellular reproduction, Mendelian genetics, molecular genetics and gene expression. Offered in English.

##### ***MAT 210 Calculus I - 4 Credits/ 6hrs.***

##### **Pre/requisite: MAT 160 or by placement**

##### **Pre/Co-requisite: ESL 035**

This course provides skills in calculus in one real variable. Topics: limits, continuity, differentiation, applications to motion problems, maximum-minimum problems, curve sketching, and antiderivatives, definite integrals, conic sections, polar coordinates and introduction to vectors.

## ***First Year- Spring 15 Credits***

### ***ENG 111 Literature and Composition - 3 Credits, 3hrs.***

#### **Pre-requisite: ENG 110 or Department permission**

English 111, the second semester of freshman composition and a foundational writing course, introduces students to techniques for close reading of literary texts. This course develops students' critical thinking skills through the study of literary elements such as plot, character, setting, point of view, symbolism, and irony. Additionally, students will learn the Modern Language Association (MLA) system of parenthetical citation and how to incorporate quotations into their analysis of literary texts; they will also complete a research paper by consulting both print and on-line sources. By the end of the semester, students will be able to interpret and write critically about each of the three major genres: poetry, fiction, and drama.

### ***BIO 220 General Biology II – 4 Credits, 3hrs. lecture/ 3hrs. lab/ 1hr. recitation***

#### **Pre-requisite: BIO 210**

This is the second part of two courses in biological science intended for students preparing for careers in science. Lecture topics include the theory of evolution by natural selection, the evolution and diversity of organisms and their classification into five kingdoms. The students will learn about animal nutrition, circulation, gas exchange, homeostasis, immunity, nervous control, reproduction and development and ecology. Offered in English.

### ***CHE 220 General Chemistry II - 4 Credits, 3hrs. lecture/ 3hrs. lab/ 1hr. recitation***

#### **Pre-requisite: CHE 210**

Students will work on laws, concepts and techniques of chemistry including chemical kinetics, ionic equilibria in aqueous solution, thermodynamics electrochemistry, nuclear chemistry, classes of organic and biochemical compounds. This course is intended for students preparing for careers in the sciences and engineering.

### ***MAT 220 Calculus II - 4 Credits, 4hrs.***

#### **Pre-requisite: MAT 210**

This course provides skills in differential and integral calculus. Topics: definite integral and its properties, numerical integration, applications of definite integrals to: areas between curves, volume of solids of revolution, arc length, trigonometric, logarithmic, exponential and inverse functions, conic sections, polar coordinates, parametric representations of curves, vectors in the plane, translations and rotation of axes.

## **Second Year –Fall 16 Credits**

### ***VPA 192 Fundamentals of Public Speaking - 3 Credits***

**Pre-requisite: ESL 035 or ESL 086**

**Co-requisite: ENG 091 or ESL 091**

The student will present introductions; present impromptu, extemporaneous, and manuscript speeches; perform exercises to improve public speaking technique; limit topics; create outlines; and present informative and persuasive speeches, as well as speeches for special occasions.

### ***Ethnic Studies—Select one of the following courses: 3 Credits, 3hrs.***

#### ***LAC 101 The Latino Experience in the United States\*: 3 Credits, 3hrs.***

**Pre/requisite: ESL 091 or ENG 091 when offered in English; SPA 121 when offered in Spanish**

The student will summarize colonial developments and view their effects upon the revolutionary struggle. The student will identify the different historical states of independent Latin America, analyzing the roles of revolution and reaction upon growth and stagnation. The student will view historical developments in 20th century Latin America, and will be able to relate and integrate national events and regional variables.

#### ***BLS 114 The African-American Experience: 3 Credits, 3hrs.***

**Pre-requisite: none**

**Co-requisite: none**

The student will be introduced, through a series of guided readings, to the experiences of peoples of African descent from Africa's genesis through the middle passage, slavery, emancipation, the reconstruction and the aftermath of de jure slavery in the Americas. The literary, economic, socio-psychological, and cultural aspects of the African-American experience till the end of the 19th century will be discussed and analyzed.

#### ***SOC 140 Race & Ethnicity: 3 Credits, 3hrs.***

**Pre-requisite: none**

**Co-requisite: none**

The student will be exposed to an in-depth analysis of the diverse ethnic and racial structure of the urban community. The student will explore the different aspects of multi-pluralism, but also searching for common experiences, theories of assimilation, amalgamation, and prejudice and discrimination will be discussed.

### ***History—Select one of the following courses: 3 Credits, 3hrs.***

#### ***HIS 201 World History to 1500: 3 Credits, 3hrs. OR***

**Pre/ Co-requisite: ENG 110**

This course provides students with a global perspective on human history, from the emergence and migration of human populations, to the contact and connections of peoples of the world in the fifteenth century. Topics include the development of agriculture and cities, religious and political ideologies, and complex social systems; the impact of commerce; and the re-ordering of the world through religious and economic

expansion. Students will examine Africa, Asia, Europe, and the Americas from a comparative perspective and will explore the writing and representation of history in different cultures and over time.

***HIS 202 Modern World History - 3Credits, 3hrs.***

**Pre/Co-requisite: ENG 110**

This course provides students with a global perspective on the history of the modern world from the fifteenth century to the present. Students will study such pivotal developments as the commercial revolution, European expansionism, capitalist industrialization, imperialism and colonialism, global depression and war, and twentieth century revolutions and the struggle for social justice and democracy. Students will examine, from a comparative perspective, the changing economic, political, social, and cultural characteristics of the modern world in Africa, Asia, Europe, and the Americas.

***PHY 210 General Physics I - 4 Credits, 3hrs. lecture/ 2hrs. lab/ 1hr. recitation***

**Pre/Co-requisite: MAT 220**

Students will study vectors, Newton's Laws and their application to one-and two-dimensional motion, work and energy, momentum, collisions, torque, angular momentum, periodic motion, fluids, heat and thermodynamics processes. This course is intended for students preparing for careers in the sciences and engineering.

***CHE 310 Organic Chemistry I – 3 Credits, 3hrs lecture/ 1hr recitation***

**Pre/requisite: CHE 220**

This course will provide the student with a thorough understanding of the basic concepts of organic chemistry. Molecular structure and bonding will be introduced at a theoretical level. Students will become familiar with molecular orbitals and their use in understanding chemical phenomena, hydrocarbons, stereochemical (3-dimensional) aspects of structure; strategies of organic synthesis will be emphasized by means of problem solving. This course is intended for chemistry, biochemistry, molecular biology, chemical engineering, and other students on scientific or professional careers paths.

## **Second Year- Spring 14 Credits**

### ***CHE 312 Organic Chemistry I Lab – 2 Credits, 4hrs. lab***

#### **Pre/Co-requisite: CHE 310**

The student will perform exercise involving the preparation and purification of carbon compounds. For students majoring in Engineering.

### ***CHE 230 Quantitative Analysis\* - 4\* Credits, 4hrs. lecture/ 6 hrs. lab***

#### **Pre-requisite: CHE 220**

A balanced treatment of the theory and applications of classical methods of gravimetric and volumetric analysis including: acidbase, precipitation, complexometric, and redox titrations.

### ***CHE 322 Organic Chemistry II Lab\* - 1\*Credit, 3 hrs lab***

#### **Pre/Co-requisite: CHE 320**

The student will perform exercises involving the preparation, purification and characterization of organic compounds. This course is required for the dual admission/joint degree in Science for Forensic Science.

### ***PHY 220 Physics II - 4 Credits, 3hrs lecture/ 2hrs lab/ 2hrs recitation***

#### **Pre/requisite: PHY 210**

#### **Pre/Co-requisite MAT 310**

Students will study waves and acoustics, optics, diffraction, electricity, D.C. circuits, magnetism, electromagnetism and their application, power and A.C. circuits. This course is intended for students preparing for careers in the sciences and engineering.

### ***CHE 320 Organic Chemistry II - 3\* Credits, 3hrs lecture/ 1hr recitation***

#### **Pre-requisite: CHE 310 and CHE 312 or CHE 314**

#### **Co-requisite: CHE 322**

The objective of this course is to give students of chemical, physical sciences and molecular biological sciences a complete and in-depth understanding of organic chemistry. The chemistry of the remaining functional groups not covered in CHE 310 will be discussed including nomenclature, stereoisomerism, and stereoselectivity of reactions. Organic functional groups will be introduced and discussed in detail. Problem solving will be used to give the student a working understanding of multi-step reaction mechanisms, modern reagents used for organic synthesis, and synthetic strategy. Polyfunctional compounds and interactions between functional groups will also be covered, as well as applications of organic chemistry in biochemistry, biotechnology, and materials science. Modern organic analytical methods, such as mass spectrometry and nuclear magnetic resonance will be covered in detail.

***\*Course will be co-listed. Students will be given a permit until such time as there is sufficient enrollment to offer the course at Hostos***