The Liberal Arts and Sciences curriculum prepares a student to be an accomplished and productive human being. A liberal arts degree opens doors to the professions and to rewarding and responsible careers. Future physicians, teachers, scientists, lawyers, and businessmen, for example, develop themselves as well-rounded, individuals, in addition to completing their pre-professional work. The academic experiences in liberal arts and sciences provide the foundation for later specialization, graduate study, and professional school.

The Associate of Science (A.S.) degree is designed with a greater emphasis in mathematics and science than the Associate of Arts degree. A student interested in the Associate in Science (A.S.) degree in Liberal Arts and Sciences has to choose one of four options: Biology, Chemistry, Earth Systems and Environmental Science, or Physics. Each option prepares students for transfer to a complementary four-year degree program. Students in the Biology, Chemistry, or Earth Systems and Environmental Science options transfer to four-year science programs (biochemistry, biology, chemistry, earth and environmental science, etc.), teacher education programs, pharmacy schools, engineering programs (biomedical, chemical, environmental), or physician assistant or physical therapy programs. Students in the Physics option usually transfer to colleges offering bachelor’s degrees in engineering (civil, electrical, mechanical, etc.) or in the physical sciences. Enrichment programs are offered to encourage students to continue their education beyond the bachelor degree by attending graduate or other professional schools.

**Liberal Arts and Sciences Curriculum (Pathways)**

**60 Credits required for A.S. Degree**

**Required Core**

A. **English Composition** (6 Credits)

B. **Mathematical and Quantitative Reasoning**
   - MTH 30' Pre-Calculus Mathematics OR MTH 31 Analytic Geometry and Calculus I (4 Credits)

C. **Life and Physical Science**
   - CHM 11' General Chemistry I (4 Credits)

SUBTOTAL 14

**Flexible Core**

A. **World Cultures and Global Issues** (3 Credits)

B. **US Experience and its Diversity** (3 Credits)

C. **Creative Expression** (3 Credits)

D. **Individual and Society** (3 Credits)

E. **Scientific World**
   - CHM 12' General Chemistry II (4 Credits)

*Restricted Elective Select one course from Area A-E. (3 Credits)

SUBTOTAL 19

**Specialization Requirements**

- MTH 31 Analytic Geometry and Calculus I** (0 - 4 Credits)
- MTH 32 Analytical Geometry and Calculus II (5 Credits)
- Specialization requirements for option*** (17-18 Credits)
- FREE ELECTIVES (0 - 5 Credits)

SUBTOTAL 27

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1 This program has obtained a waiver to require STEM variant courses in Required Core Area B and Area C and Flexible Core Area E. If students transferring into this program complete different courses in these areas, they will be certified as having completed the Common Core requirements, but it may not be possible for them to finish their degree within the regular number (60) of credits.

* Restricted Elective: must select one course from Flexible Core A-E. No more than two courses in any discipline or interdisciplinary field.

***See your department advisor for the appropriate sequence of specialization courses. Students transferring to a college of pharmacy should complete BIO 11 and 12.

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**BIOLOGY AND MEDICAL LAB TECHNOLOGY DEPARTMENT**

Curriculum Coordinator: Dr. Charles Maliti

**Biology Option**

- BIO 11 General Biology I (4 Credits)
- BIO 12 General Biology II (4 Credits)
- CHM 31 Organic Chemistry I (5 Credits)
- CHM 32 Organic Chemistry II (5 Credits)

TOTAL 18

**DEPARTMENT OF CHEMISTRY AND CHEMICAL TECHNOLOGY**

Curriculum Coordinator: Dr. Nicolas Anuku

**Chemistry Option**

- CHM 31 Organic Chemistry I (5 Credits)
- CHM 32 Organic Chemistry II (5 Credits)
- CHM 33 Quantitative Analysis AND / OR
  - BIO 11 General Biology I AND / OR
  - PHY 11 Physics I (8 Credits)

TOTAL 18
DEPARTMENT OF CHEMISTRY AND CHEMICAL TECHNOLOGY
Curriculum Coordinator: Dr. Farnosh Saeedi

Earth Systems and Environmental Science Option

- CHM 27 Principles of Laboratory Safety (2 Credits)
- CHM 33 Quantitative Analysis (4 Credits)
- Choose two of the three courses below:
  - ESE 11 Earth Systems Science: The Earth OR
  - ESE 12 Earth Systems Science: The Atmosphere OR
  - ESE 13 Earth Systems Science: The Ocean (8 Credits)
- ESE 21 Earth Systems Science: The Environment (4 Credits)

TOTAL 18

PHYSICS AND TECHNOLOGY DEPARTMENT
Curriculum Coordinator: Dr. Akhil Lal

Physics Option

- PHY 31 General Physics I (4 Credits)
- PHY 32 General Physics II (4 Credits)
- PHY 33 General Physics III (4 Credits)
- MTH 33 Analytic Geometry and Calculus III (5 Credits)

TOTAL 17

The Biology Option fully articulates with Lehman's B.S. in Anthropology and B.A. in Biology. The Biology Option also articulates with SUNY Empire State College. Copies of these agreements may be found on the BCC Transfer Planning website.
LIBERAL ARTS AND SCIENCES
(PRE-PATHWAYS)

If you began studying at BCC in or after Fall 2013, Pathways applies. Pathways also applies to students who have returned to CUNY after an absence of more than one semester. If you are a continuing student who entered before Fall 2013, you will be able to choose whether you remain with your existing requirements or change to Pathways. You should consult with an academic advisor.

**Associate in Science Degree | Transfer Degree**

### Core Requirements

- **ENG 10** Fundamentals of Composition and Rhetoric OR **ENG 11** Composition and Rhetoric I (3 Credits)
- **ENG 12** Composition and Rhetoric II (3 Credits)
- **CMS 11** Fundamentals of Interpersonal Communication (3 Credits)
- **HIS 10** History of the Modern World OR **HIS 11** Introduction to the Modern World (3 Credits)
- **PEA** Physical Education OR **HLT 91** Critical Issues in Health (1-2 Credits)

**TOTAL 13-14**

### Required Areas of Study

- **CHM 11** General Chemistry I (4 Credits)
- **CHM 22** General Chemistry II with Qualitative Analysis (5 Credits)
- **MTH 31** Analytic Geometry and Calculus I (4 Credits)
- **MTH 32** Analytic Geometry and Calculus II (5 Credits)
- **ART 11** Introduction to Art OR **MUS 11** Introduction to Music OR Humanities OR Social Sciences** (3 Credits)
- **MODERN LANGUAGE†** (0-8 Credits)

**TOTAL 21-29**

### Specialization Requirements # (17-18 Credits)

*Students in the Earth Systems and Environmental Science Option may also select from ENG 14, ENG 15, OR ENG 16.

**See your advisor to determine the appropriate course from an approved list of Humanities or Social Science courses.

†Modern Language is a requirement for students planning to transfer to a CUNY four-year college and major in biology, chemistry, earth science or physics. Students planning to transfer should see the language requirements for the four-year degree program at the senior college.

# See your department advisor for the appropriate sequence of specialization courses. Students transferring to a college of pharmacy should complete BIO 11 and 12.

‡Students may also select BIO 11 or PHY 11.

The Biology Option fully articulates with Lehman’s B.S. in Physical Anthropology and B.A. in Biology. The Biology Option also articulates with SUNY Empire State College. Copies of these agreements may be found on the BCC Transfer Planning website.

### BIOLOGY AND MEDICAL LAB TECHNOLOGY DEPARTMENT
Curriculum Coordinator: Dr. Charles Maliti

**Biology Option**

- **BIO 11** General Biology I (4 Credits)
- **BIO 12** General Biology II (4 Credits)
- **CHM 31** Organic Chemistry I (5 Credits)
- **CHM 32** Organic Chemistry II (5 Credits)

**TOTAL 18**

### DEPARTMENT OF CHEMISTRY AND CHEMICAL TECHNOLOGY
Curriculum Coordinator: Dr. Nicolas Anuku

**Chemistry Option**

- **CHM 31** Organic Chemistry I (5 Credits)
- **CHM 32** Organic Chemistry II (5 Credits)
- **CHM 33** Quantitative Analysis (4 Credits)
- **BIO 11** General Biology I OR **PHY 11** Physics I (4 Credits)

**TOTAL 18**

### DEPARTMENT OF CHEMISTRY AND CHEMICAL TECHNOLOGY
Curriculum Coordinator: Dr. Farnosh Saeedi

**Earth Systems and Environmental Science Option**

- **CHM 27** Principles of Laboratory Safety (2 Credits)
- **CHM 33†** Quantitative Analysis (4 Credits)
- **ESE 11** Earth Systems Science: The Earth OR **ESE 12** Earth Systems Science: The Atmosphere OR **ESE 13** Earth Systems Science: The Ocean (Choose two of the above three courses) (8 Credits)
- **ESE 21** Earth Systems Science: The Environment (4 Credits)

**TOTAL 18**

### PHYSICS AND TECHNOLOGY DEPARTMENT
Curriculum Coordinator: Dr. Akhil Lal

**Physics Option**

- **PHY 31** General Physics I (4 Credits)
- **PHY 32** General Physics II (4 Credits)
- **PHY 33** General Physics III (4 Credits)
- **MTH 33** Analytic Geometry and Calculus III (5 Credits)

**TOTAL 17**

**NOTE:** At least two courses must be taken from a list designated as “Writing Intensive” as published each semester in the Registration Guide and Schedule of Classes.