

# PHYSICAL SCIENCES

## Curriculum Guide for Academic Year 2020-2021

### Table of Contents

Associate in Arts or Associate In Science Degree, p. 1  
 Career Opportunities, p. 2  
 Program Mission and Outcomes, p. 2  
 Legend, p. 3

Students planning to **transfer** to a four-year college or university should refer to the ASSIST web site at [www.assist.org](http://www.assist.org) and **consult a counselor** before beginning a program of study. Please call 562-938-4561 for the LAC, or (562) 938-3920 for PCC to schedule a meeting with a counselor. Students may also wish to visit the Transfer Center on either campus.

Program of study leading to:  
**Associate in Arts (A.A.) or Associate in Science (A.S.) Degree**

**REQUIRED COURSES:**

**Complete THIRTEEN - FIFTEEN (13 - 15) UNITS** from the following disciplines:

- |  |  |  |  |
|--|--|--|--|
| <p><b>ASTRONOMY (ASTR)</b><br/>All Courses</p>   | <p>†<b>CHEMISTRY</b>—Choose from: CHEM 2 OR CHEM 3 OR CHEM 1A (but limited to only one of these courses), any among CHEM 1B, CHEM 12A, or CHEM 12B</p>         | <p><b>ENVIRONMENTAL SCIENCE (ENVR 1)</b></p> | <p><b>PHYSICAL GEOGRAPHY</b><br/>All Courses</p> |
| <p><b>GEOLOGY (GEOL)</b><br/>Choose From: GEOL 1 OR 1H OR GEOL 2 &amp; 2L<br/>Any other GEOL course offered at LBCC.</p> | <p>† <b>PHYSICS (PHYS)</b><br/>Choose from: PHYS 2A or 3A but not both PHYS 2B or PHYS 3B but not both, PHYS 3C<br/>Any other PHYS course offered at LBCC.</p> |  |  |

COURSE NO.	COURSE TITLE	UNITS	In Progress	Completed Grade
<b>Subtotal Units</b>		<b>13 - 15</b>		

**IN ADDITION, Complete a Computer Class**

Computer Class—Any class which satisfies the Technology portion of the Information Competency requirement for graduation. See the current General Education Course Pattern Guide for a complete listing of acceptable courses.

COURSE NO.	COURSE TITLE	UNITS	In Progress	Completed Grade
<b>Subtotal Units</b>		<b>1 - 4</b>		

**Associate Degree requirements continue on the following page:**

Associate Degree requirements continued from the previous page:

**IN ADDITION, Complete FIVE – SIX (5 – 6) UNITS from any Mathematics course which has a prerequisite of Intermediate Algebra (MATH 130) or higher**

COURSE NO.	COURSE TITLE	UNITS	In Progress	Completed Grade
		<b>Subtotal Units</b>	<b>5 – 6</b>	
		<b>TOTAL UNITS</b>	<b>19 - 25</b>	

**NOTE:** Courses are offered each semester excluding the following:  
 PHYS 3C is offered once each year, usually in the second semester.  
 GEOL 3 is offered once each year, usually in the second semester

For graduation with an **A.A. or A.S. Degree with a major in Physical Sciences:**

- Minimum Unit Requirements:** §Any course that appears on a curriculum guide and the General Education Pattern (Plan A) may fulfill both major and general education requirements (Approved by College Curriculum Committee Spring 2012). For this degree, complete a minimum of 60 units in courses numbered 1-599. Please note that additional elective units may be required to meet this minimum based upon courses selected to fulfill General Education for the Associate Degree.

**A.A. Degree      Physical Sciences Major:**      19 - 25 units  
**General Education/A.A. §**      25 units

**A.S. Degree      Physical Sciences Major:**      19 - 25 units  
**General Education/A.S. §**      19 units

- Scholarship:** Maintain an **overall grade point average (GPA) of 2.0** ("C" average) based on all accredited college work applied to the degree, no matter where completed. For this **field of concentration, complete each course above with a grade of "C" or better**, or "P" if course is graded on a P/NP basis.
- Residence for the Degree:** Complete at least 12 semester units of the required 60 semester units in residence at Long Beach City College in order for the college to grant an Associate of Arts and/or an Associate of Science Degree.
- Residence for the Field of Concentration:** Complete fifty percent (50%) or more of the unit requirements for this field of concentration in residence; this means at **least 9.5 – 12.5 units** of the required 19 - 25 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.
- General Education and Proficiency Requirements:** Complete the required A.A./A.S. General Education and Proficiency requirements\*, otherwise known as "Plan A". For Plan A requirements, refer to the general catalog or view it online at <http://osca.lbcc.edu> .
- Complete and submit the degree application form to the Admissions and Records office during your final semester of course work. These forms are available in the Admissions and Records office, or online at <http://admissions.lbcc.edu/> . Refer to the Schedule of Classes (<http://schedule.lbcc.edu>) and click the "Important Dates" link to view the actual deadline for each semester.

\*The requirements for general education/proficiency and the field of concentration (major) need to be from the same catalog year. This catalog year may be any year between the year of initial enrollment to the present, provided continuous enrollment is maintained throughout. See the catalog for definition of "continuous enrollment".

### **Career Opportunities**

Students are provided an introduction to the lower division course preparation for transfer to a baccalaureate degree in various physical science majors.

This Associate Degree will prepare students for an entry-level position as laboratory technician. Appropriate course selection will also facilitate transfer in a related major.

### **Program Mission and Outcomes**

The mission of the physical science program is to teach courses which provide an understanding of physical science concepts and thus permit students to transfer to four-year institutions and to enable students to apply the scientific method to gain an evidenced-based understanding of contemporary scientific issues.

#### Outcomes

- Differentiate between unsupported opinions and verifiable scientific facts supported by observations, experiments, and scientific theory.
- Demonstrate a basic scientific understanding of a specific field of science by examining and analyzing the nature and content of applicable physical laws.

### Legend

† This course has a prerequisite. Prerequisite courses must be complete with at least a “C” or “P” grade. Refer to the General Catalog (<http://www.lbcc.edu/cat/index.html>), the Schedule of Classes (<http://schedule.lbcc.edu/>), or the online Credit Course Outline (<http://wdb-asir.lbcc.edu/coursecurriculum/coursedetails/>) for specific prerequisite information.