

MATHEMATICS

Curriculum Guide for Academic Year 2019-2020

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Students planning to **transfer** to a four-year college or university should refer to the ASSIST web site at 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 Science (A.S.) Degree			
REQUIRED COURSES		UNITS	In Progress Completed Grade
† ENGL 1	Reading and Composition	4	<input type="text"/>
† ENGR 54	Computer Methods	3.5	<input type="text"/>
† MATH 60/60H	First Calculus Course or Honors First Calculus Course	5	<input type="text"/>
† MATH 70/70H	Second Calculus Course or Honors Second Calculus Course	5	<input type="text"/>
† MATH 80	Third Calculus Course	5	<input type="text"/>
† MATH 84	Intro. Differential Equations and Linear Algebra	5	<input type="text"/>
† PHYS 3A	Physics for Science & Engineering – Mechanics	5.5	<input type="text"/>
Subtotal Units		33	<input type="text"/>
IN ADDITION, complete TWO (2) of the following courses:			
† BIO 1A	Biology for Science Majors	5	<input type="text"/>
† BIO 1B	Biology for Science Majors	5	<input type="text"/>
† CHEM 1A	General Chemistry	5.5	<input type="text"/>
† CHEM 1B	General Chemistry	5.5	<input type="text"/>
† ECON 1	Macro Economic Analysis	3	<input type="text"/>
† ECON 2	Micro Economic Analysis	3	<input type="text"/>
† GEOL 2	General Geology, Physical	4	<input type="text"/>
† GEOL 3	Historical Geology	4.5	<input type="text"/>
† GEOL 5	Environmental Geology	3	<input type="text"/>
† PHYS 3B	Physics for Science & Engineering – E & M	4.5	<input type="text"/>
† PHYS 3C	Physics for Science & Engineering – Modern Physics	4.5	<input type="text"/>
Subtotal Units		6-11	<input type="text"/>
TOTAL UNITS		39-44	<input type="text"/>

For graduation with an **Associate in Science (A.S.) Degree with a major in Mathematics:**

- 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.

Mathematics Major	39-44 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 19.5 – 22 units** of the required 39-44 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.

Associate Degree requirements continued on the previous page:

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- 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".

Suggested Sequence of Classes

This is not an educational plan, as course offerings, student schedules, and circumstances vary. Students must meet all the prerequisites in order to be eligible for the sequence of courses. A suggested full-time sample sequence of courses for the required **60** units to reach an Associate Degree are:

<u>First Semester</u>		<u>Units</u>	<u>Second Semester</u>		<u>Units</u>
† MATH 60 or 60H		5	† MATH 70 or 70H		5
† ENGR 54		3.5	† PHYS 3A		5.5
ENGL 1		4	G.E. Course		3
G.E. Course		3			
	Semester Total	15.5		Semester Total	13.5
<u>Third Semester</u>			<u>Fourth Semester</u>		
† MATH 80		5	† MATH 84		5
† PHYS 3B OR CHEM 1A OR BIO 1A		4.5 – 5.5	† PHYS 3C OR CHEM 1B OR BIO 1B		4.5 – 5.5
G.E. Course		3	G.E. Course		3
G.E. Course		3	G.E. Course		3
	Semester Total	15.5 – 16.5		Semester Total	14.5 – 15.5

Career Opportunities

This field of concentration is designed to recognize competency in mathematics at a postsecondary level. It partially fulfills the requirements for transfer with junior standing for students majoring mathematics and related fields having significant mathematical content. This **Associate Degree** will facilitate transfer for a four-year degree.

Program Mission and Outcomes

The mission of Long Beach City College Mathematics program is to foster an environment that both challenges and supports its students. The primary purposes of the educational program offered by the department are:

- To prepare students for transfer to baccalaureate-granting institutions.
- To nurture an appreciation of the role of mathematics in life.
- To enhance our students' ability to utilize mathematics and critical thinking in their lives.
- To support business and industry in economic development by providing a highly educated workforce.

We will aspire to excellence in teaching, a well-designed curriculum, and a supportive environment for all our students.

The department is committed to continuous revision and improvement of the curriculum, making real world connections, and incorporating technology. The department employs an assortment of assessment techniques, provides a variety of teaching styles, and maintains intervention plans for students who might be having difficulty.

Outcomes:

- To serve students to meet graduation/GE requirements.
- To serve students for the fulfillment of their own personal goals.
- To serve students to meet career/transfer requirements.

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/courseetails/>) for specific prerequisite information.