

# MATHEMATICS

## Curriculum Guide for Academic Year 2011-2012

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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](http://www.assist.org) and **consult a counselor** before beginning a program of study. To meet with a counselor call 562-938-4561 for the LAC, or (562) 938-3920 for PCC. Students may also wish to visit the Transfer Center on either campus.

Program of study leading to: <b>Associate in Science (A.S.) Degree</b>			
<u>REQUIRED COURSES</u>		UNITS	In Progress      Completed Grade
†* ENGL 1	Reading and Composition	4	
† ENGR 54	Computer Methods/C++	3.5	
† MATH 60	First Calculus Course	5	
† MATH 70	Second Calculus Course	5	
† MATH 80	Third Calculus Course	5	
† MATH 84	Intro. Differential Equations and Linear Algebra	4	
† PHYS 3A	Physics for Science & Engineering – Mechanics	5	
<b>Subtotal Units</b>		<b>31.5</b>	
<b><u>IN ADDITION, complete TWO (2) of the following courses:</u></b>		<b>UNITS</b>	
† BIO 1A	Biology for Science Majors	5	
† BIO 1B	Biology for Science Majors	5	
† CHEM 1A	General Chemistry	5	
† CHEM 1B	General Chemistry	5	
ECON 1A	Macro Economic Analysis	3	
ECON 1B	Micro Economic Analysis	3	
GEOL 2	General Physical Geology	4	
GEOL 3	Historical Geology	3	
GEOL 5	Environmental Geology	3	
† PHYS 3B	Physics for Science & Engineering – E & M	4	
† PHYS 3C	Physics for Science & Engineering – Modern Physics	4	
<b>Subtotal Units</b>		<b>6 – 10</b>	
<b>TOTAL UNITS</b>		<b>37.5 -41.5</b>	

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

- Units:** Complete a minimum of 60 units, distributed as follows:

<b>Mathematics Major:</b>	37.5 – 41.5	units
<b>General Education/A.S.</b>	19	units
<b>Electives/Other courses:</b>	0 – 4	units
<b>TOTAL:</b>	60	units

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

**Associate Degree requirements continued from the previous page:**

1. **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.
2. **Residence for the Degree:** Complete at least 30 units of the required 60 in residence at LBCC, or complete in residence at LBCC at least 20 units within the last 30 units of work applied to the degree.
3. **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 – 21 units** of the required 37.5 – 41.5 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.
4. **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>.
5. 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".

Unless otherwise noted, "double-counting" is not allowed. That is, one course may not be used to fulfill both a field of concentration requirement and to fulfill a general education requirement.

### 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:

<u>First Semester</u>		<u>Units</u>	<u>Second Semester</u>		<u>Units</u>
†	MATH 60	5	†	MATH 70	5
†	ENGR 54	3.5	†	PHYS 3A	5
	ENGL 1	4		G.E. Course	3
	G.E. Course	3			
	<b>Total</b>	<b>15.5</b>		<b>Total</b>	<b>13</b>
<u>Third Semester</u>		<u>Units</u>	<u>Fourth Semester</u>		<u>Units</u>
†	MATH 80	5	†	MATH 84	4
†	PHYS 3B OR CHEM 1A OR BIO 1A	4 – 5	†	PHYS 3C OR CHEM 1B OR BIO 1B	4 – 5
	G.E. Course	3		G.E. Course	3
	G.E. Course	3		G.E. Course	3
	<b>Total</b>	<b>15 – 16</b>		<b>Total</b>	<b>14 – 15</b>

### 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:

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

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.

\* This course is an exception to the “double-counting” rule; it may be double-counted.