



# Cerritos College

## MATHEMATICS

### Transfer Preparation

#### COMMON LOWER DIVISION PREPARATION FOR CALIFORNIA STATE UNIVERSITY AND UNIVERSITY OF CALIFORNIA

			UNITS
MATH	170	Analytic Geometry and Calculus I	4
MATH	190	Analytic Geometry and Calculus II	4
MATH	220	Analytic Geometry and Calculus III	4

#### ADDITIONAL LOWER DIVISION MAJOR PREPARATION FOR SPECIFIC TRANSFER INSTITUTIONS

##### California State University - Dominguez Hills

MATH	160	Discrete Mathematics	4
<i>or</i> CIS	185	Discrete Structures	(3)
CIS	183	JAVA Programming	3.5
PHYS	201	Engineering Physics	4
PHYS	202	Engineering Physics	4
PHYS	203	Engineering Physics	4

Physics articulation is approved as a sequence only (201+202+203).

CIS 282 is also recommended for this major.

In addition to the above (excluding CIS 183) the MATH EDUCATION OPTION requires

MATH	112	Elementary Statistics	4
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##### California State University - Fullerton

CIS	180	Programming in C/C++	3
<i>or</i> CIS	280X	Object-Oriented Programming in C++	(3.5)
MATH	250	Linear Algebra and Differential Equations	5

All courses required for the major must be completed with a "C" or higher. Required courses may not be taken for Pass/No Pass. Each student is required to complete one of the following concentrations: Actuarial Science (effective spring 2016), Pure Mathematics, Applied Mathematics, Probability & Statistics or Teaching Mathematics.

Each student is also required to select one of the following cognates: Chemistry, Civil Engineering, Computer Science, Economics, Finance, Information Systems & Decision Science, Physics, Mathematics, or Research.

#### COMPUTER SCIENCE COGNATE

CIS	186	Visual Basic.Net programming	3.5
<i>or</i> CIS	183	JAVA Programming	(3.5)
CIS	214	UNIX and LINUX Operating Systems	3
CIS	231	Assembly Programming for Microcomputers	3.5
CIS	292	Data Structures	3

#### CIVIL ENGINEERING COGNATE

ENGR	235	Statics	3
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### ECONOMICS COGNATE

ECON	201M	Principles of Macroeconomics	3
ECON	202M	Principles of Microeconomics	3

### PHYSICS/ENGINEERING COGNATE

PHYS	201	Engineering Physics	4
PHYS	202	Engineering Physics	4
PHYS	203	Engineering Physics	4

### CHEMISTRY COGNATE

CHEM	111	General Chemistry	5
CHEM	112	General Chemistry	5

### California State University - Long Beach

CIS	183	JAVA Programming	3.5
MATH	250	Linear Algebra and Differential Equations	5
PHYS	201	Engineering Physics	4

### APPLIED MATHEMATICS OPTION

Complete the requirements listed above and follow sub-option 1 (science and engineering) PHYS 202, PHYS 203 or ENGR 215 or ENGR 235 or sub-option II (Economics and Management) ECON 201 or 201M and 202 or 202M.

### MATHEMATICS EDUCATION OPTION

One of the following sequences is required: PHYS 201 and PHYS 202 or PHIL 106 and lower division Symbolic Logic (PHIL 270 at CSULB) or 8 units of a foreign language.

**NOTE:** To be considered for admissions as a Math major (any option) to CSULB, students must complete Math 170 and 190 and have an overall CSU transferrable GPA of at least a 2.5.

### California State University - Los Angeles

CIS	183	JAVA Programming	3.5
PHYS	201	Engineering Physics	4

In addition to the requirements under the common list and above the B.A. in Mathematics also lists a minimum of 8 units of electives which can be chosen from the following: Math 250, Chemistry 111 and/or 112, Philosophy 106 and Physics 202.

### California State Polytechnic University – Pomona

CIS	180	Programming in C/C++	3
MATH	250	Linear Algebra and Differential Equations	5
PHYS	201	Engineering Physics	4
PHYS	202	Engineering Physics	4

Major concentrations in Applied Mathematics, Secondary Teacher Preparation/Pure Math, and Statistics require the same lower division preparation as shown above.

### University of California – Irvine

MATH	250	Linear Algebra and Differential Equations	5
CIS	180	Programming in C/C++	3
<b>or</b> CIS	280X	Object-Oriented Programming in C++	(3.5)
CHEM	111	General Chemistry	5
<b>and</b> CHEM	112	General Chemistry	5
<b>or</b> PHYS	201	Engineering Physics	(4)

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<b>and</b> PHYS	202	Engineering Physics	4
<b>or</b> PHYS	201	Engineering Physics	(4)
<b>and</b> PHYS	203	Engineering Physics	4
<b>or</b> PHYS	201	Engineering Physics	(4)
<b>and</b> PHYS	202	Engineering Physics	4
<b>and</b> PHYS	203	Engineering Physics	4

Preference will be given to applicants with the highest overall GPA and who have completed the **required course work of one year of Calculus**. Transfer students must have a cumulative GPA of 3.0. At the upper-division level, students may specialize in Applied and Computational Mathematics, Mathematical Biology or Mathematics for Education, or a concentration in Mathematical Finance and Mathematics for Education with Secondary Teaching is also offered.

### University of California - Los Angeles

MATH	250	Linear Algebra and Differential Equations	5
CIS	280X	Object-Oriented Programming in C++	3.5
PHYS	201	Engineering Physics	4

### TWO ADDITIONAL COURSES FROM:

BIOL	200	Principles of Biology	5
CHEM	111	General Chemistry	5
CHEM	112	General Chemistry	5
PHYS	202	Engineering Physics	4
PHYS	203	Engineering Physics	4

The courses listed above will also cover the requirements for Mathematics in Teaching minus the Biology 200 course.

### MATHEMATICS OF COMPUTATION/B.S. OPTION

MATH	250	Linear Algebra and Differential Equations	5
CIS	280X	Object-Oriented Programming in C++	3.5
PHYS	201	Engineering Physics	4
PHYS	202	Engineering Physics	4
PHYS	203	Engineering Physics	4
<b>or</b> CHEM	111	General Chemistry	(5)
<b>or</b> CHEM	112	General Chemistry	(5)

### MATHEMATICS/APPLIED SCIENCE/B.S. OPTION

#### Medical and Life Sciences Concentration Plan:

MATH	250	Linear Algebra and Differential Equations	5
BIOL	200	Principles of Biology	5
BIOL	201	Principles of Biology	5
BIOL	202	Molecular Biology/Genetics	4
CIS	280X	Object-Oriented Programming in C++	3.5
CHEM	111	General Chemistry	5
CHEM	112	General Chemistry	5
CHEM	211	Organic Chemistry	5
PHYS	201	Engineering Physics	4
PHYS	202	Engineering Physics	4

There is also a concentration plan in History of Science.

### MATHEMATICS/ECONOMICS/B.S. OPTION

MATH	250	Linear Algebra and Differential Equations	5
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CIS	280X	Object-Oriented Programming in C++	3.5
ECON	201	Principles of Macroeconomics	3
<b>or</b> ECON	201M	Principles of Macroeconomics	(3)
ECON	202	Principles of Microeconomics	3
<b>or</b> ECON	202M	Principles of Microeconomics	(3)

### FINANCIAL ACTUARIAL MATHEMATICS/B.S.

MATH	250	Linear Algebra and Differential Equations	5
ACCT	101	Fundamentals of Accounting I	4
ACCT	102	Fundamentals of Accounting II	4
CIS	280X	Object-Oriented Programming in C++	3.5
ECON	201	Principles of Macroeconomics	3
<b>or</b> ECON	201M	Principles of Macroeconomics	(3)
ECON	202	Principles of Microeconomics	3
<b>or</b> ECON	202M	Principles of Microeconomics	(3)

For all Mathematics majors and concentrations you must complete at least four semesters/five quarters of Calculus through multivariable and either linear algebra or differential equations by the spring term prior to transfer. All courses must be taken for a letter grade.

### University of California – Riverside

#### Courses Required for both the B.A. and B.S. Degree

MATH	250	Linear Algebra and Differential Equations	5
CIS	180	Programming in C/C++	3

#### Add the following for the B.S. Degree

CIS	280X	Object-Oriented Programming in C++	3.5
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### COMPUTATIONAL MATH TRACK/B.S. OPTION

CIS	280X	Object-Oriented Programming in C++	3.5
CIS	292	Data Structures	(3)

### APPLIED MATH TRACK/B.S. OPTION

#### Biology Option

BIOL	200	Principles of Biology	5
<b>and</b> BIOL	201	Principles of Biology	5
<b>or</b> BOT	120	Intro to Plant Science	(4)
<b>and</b> ZOOL	120	Intro to Animal Biology	4

#### Chemistry Option

CHEM	111	General Chemistry	5
CHEM	112	General Chemistry	5
PHYS	201	Engineering Physics	4
PHYS	202	Engineering Physics	4
PHYS	203	Engineering Physics	4

#### Economics Option

ECON	202	Principles of Microeconomics	3
<b>or</b> ECON	202M	Principles of Microeconomics	(3)

#### Environmental Science Option

CHEM	111	General Chemistry	5
CHEM	112	General Chemistry	5
GEOL	101	Physical Geology (recommended)	4

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### Physics Option

PHYS	201	Engineering Physics	4
PHYS	202	Engineering Physics	4
PHYS	203	Engineering Physics	4

### Statistics Option

MATH	112	Elementary Statistics	4
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The Pure Math Track does not have any additional lower division course requirements. Students admitted to this major will be required to complete math 170, 190 and at least one additional sequence from the list on [www.assist.org](http://www.assist.org) prior to transfer and have an overall GPA of at least 2.7 in UC transferable course work. IGETC is not accepted by this major.

The IGETC is not accepted for majors housed in the College of Natural and Agricultural Sciences. Transfer students are encouraged to follow the College of Natural and Agricultural Sciences breadth pattern as outlined on [www.assist.org](http://www.assist.org).

Students intending to meet lower division requirements for any school or division of the University of California should consult the catalog of that institution in addition to checking the [assist.org](http://assist.org) articulation website.

### **CAREER OPPORTUNITIES:**

Upon completion of the bachelor's degree program, graduates qualify for graduate study in Accounting, Computer Information Systems, Engineering, Physics, Economics and other related fields. Baccalaureate graduates also qualify for positions as an actuary and statisticians, appraisers, and estimators, financial analysts, financial planners, loan officers, marketing researchers, methods analyst, operations analyst, mathematicians in government and industry, secondary teaching and career opportunities in computer science.

**IMPORTANT NOTICE:** The requirements listed for major are subject to change without notice. It is the student's responsibility to check for the most recent information with a Cerritos College counselor or by consulting ASSIST at [www.assist.org](http://www.assist.org).

**NOTE:** Courses listed may require prerequisite coursework.

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# ASSIST

How to use **ASSIST** to find your major preparation for CSU/UC:

1. **Log on:** [www.assist.org](http://www.assist.org)
2. **Select an Institution:** select "Cerritos College" or other community college from pull-down menu
3. **Select:** "Type of Transfer Institution" such as "UC Los Angeles"
4. **Select a major from pull-down menu**  
Report will show the university courses on the left and comparable community college classes on the right.
5. **PRINT:**-print by clicking on gold "**PRINT THIS REPORT**" button on top. Then use the **ASSIST** screen menu on the top toolbar or click on the printer icon that will appear at the bottom of the page.

How to use **ASSIST** to explore the majors available at University of California and California State University campuses

- Click on "EXPLORE MAJORS"

How to use **ASSIST** to figure out whether courses from the community college are transferable to the CSU/UC.

- Select the community college of interest (Cerritos College)
- Select either CSU transferable courses or UC Transferable courses
- Select a department for the courses in question

\*USC Articulation available at:

[www.usc.edu/articulation](http://www.usc.edu/articulation) and **Select:** "TRANSFER PLANNING GUIDE."

## **IMPORTANT:**

*Students are advised to contact a Cerritos College counselor for more information & for details regarding other transfer agreements & options not available on ASSIST. Students can stop by the counseling desk to make an appointment or call (562) 860-2451 ext. 2231.*