



Cerritos College

MATHEMATICS

Transfer Preparation

COMMON LOWER DIVISION PREPARATION FOR CALIFORNIA STATE UNIVERSITY

			UNITS
MATH	170	Analytic Geometry and Calculus I	4
MATH	190	Analytic Geometry and Calculus II	4
MATH	225	Calculus III	5

ADDITIONAL LOWER DIVISION MAJOR PREPARATION FOR SPECIFIC TRANSFER INSTITUTIONS

California State University - Dominguez Hills

Complete the Common Lower Division Preparation for California State University listed above plus:

CIS	183	JAVA Programming	3
CIS	185	Discrete Structures	(3)
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.

One course listed on ASSIST as an option for CIS 185 above, MATH 160 is not currently being offered. 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

Complete the Common Lower Division Preparation for California State University listed above plus:

CIS	180	Programming in C/C++	3
or 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, Mathematics, Physics, or Research.

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Transfer Preparation

CHEMISTRY COGNATE

CHEM	111	General Chemistry	5
CHEM	112	General Chemistry	5

CIVIL ENGINEERING COGNATE

ENGR	235	Statics	3
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COMPUTER SCIENCE COGNATE

CIS	183	JAVA Programming	(3)
CIS	214	UNIX and LINUX Operating Systems	3
CIS	231	Assembly Programming for Microcomputers	3.5
CIS	292	Data Structures	3

CIS 186 Visual Basic.Net Programming, listed as an option to CIS 183 on ASSIST is no longer being offered.

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

California State University - Long Beach

This CSULB major has "major-specific admission requirements" which means that CSULB will require the specified courses to be completed for admission if a student is not completing an AAT or AST in the major. These admission criteria are subject to change for future admission cycles. In addition, other admission criteria may apply. See your counselor for details. Here is the link:

<http://web.csulb.edu/depts/enrollment/admissions/transfer-major-criteria/index.html>.

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 transferrable and major preparation GPA of at least a 2.5. These are the current major-specific admission requirements.

In addition to the major-specific admission requirements, there are additional major preparation requirements. They are:

CIS	183	JAVA Programming	3
MATH	225	Calculus III	5
MATH	250	Linear Algebra and Differential Equations	5
PHYS	201	Engineering Physics	4

APPLIED MATHEMATICS OPTION

Complete the major-specific and additional major preparation requirements listed above and follow sub-option 1 (Application in Science and Engineering) PHYS 202, PHYS 203 or ENGR 215 or ENGR 235 or sub-option II (Application in Economics and Management) ECON 201 or 201M and 202 or 202M.

Revised spring 2019

Transfer Preparation

MATHEMATICS EDUCATION OPTION

Completion of this option meets subject matter competence requirements for the single subject Teaching Credential Mathematics.

Complete the major-specific and additional major preparation requirements listed on page 2 (excluding CIS 183) and 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.

California State University - Los Angeles

Complete the common lower division requirements for California State University on the first page.

In addition, complete the following:

BIOL	200	Principles of Biology	5
CIS	183	JAVA Programming	3
MATH	250	Linear Algebra and Differential Equations	5
PHYS	201	Engineering Physics	4

In addition to the lower division required courses above, CSULA also requires a math course that Cerritos is not currently offering, MATH 160, Discrete Mathematics. It is recommended that students either take the course at CSULA after transfer or find another community college which offers the articulated course.

There are elective courses for some options that can be taken to fulfill requirements. Please see a counselor for more information.

California State Polytechnic University – Pomona

Complete the common lower division requirements for California State University on the first page.

In addition, complete the following:

MATH	250	Linear Algebra and Differential Equations	5
PHYS	201	Engineering Physics	4
BIOL	200	Principles of Biology	5
BIOL	201	Principles of Biology	5
or PHYS	202	Engineering Physics	(4)

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

University of California – Irvine

If you're starting out at a California community college and know which major you want to study but haven't decided which UC campuses to apply to, you can follow the UC Transfer Pathways to keep your options open as you prepare for your major. These Pathways provide a single set of courses you can take to prepare for your major on any of the nine UC undergraduate campuses. The pathways guide students who want to make themselves competitive across the UC system; some UC campuses may want fewer courses for admission, but none will expect more. Here is the link: <http://pathwaysguide.universityofcalifornia.edu/college-pathways/0/0>. Please note that the Mathematics Pathway is currently a partial pathway which means that there is slightly more variability among the UC campuses in some of the pathway requirements.

MATH	170	Analytic Geometry and Calculus I	4
MATH	190	Analytic Geometry and Calculus II	4
MATH	225	Calculus III	5
MATH	250	Linear Algebra and Differential Equations	5

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CIS	180	Programming in C/C++	3
<i>or</i> CIS	280X	Object-Oriented Programming in C++	(3.5)
CHEM	111	General Chemistry	5
& CHEM	112	General Chemistry	5
<i>or</i> PHYS	201	Engineering Physics	(4)
& PHYS	202	Engineering Physics	(4)
<i>or</i> PHYS	201	Engineering Physics	(4)
& PHYS	203	Engineering Physics	(4)
<i>or</i> PHYS	201	Engineering Physics	(4)
& PHYS	202	Engineering Physics	(4)
& 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**. Additional work in multivariable calculus, linear algebra and differential equations is strongly recommended. 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 Certification is also offered.

University of California - Los Angeles

If you're starting out at a California community college and know which major you want to study but haven't decided which UC campuses to apply to, you can follow the UC Transfer Pathways to keep your options open as you prepare for your major. These Pathways provide a single set of courses you can take to prepare for your major on any of the nine UC undergraduate campuses. The pathways guide students who want to make themselves competitive across the UC system; some UC campuses may want fewer courses for admission, but none will expect more. Here is the link: <http://pathwaysguide.universityofcalifornia.edu/college-pathways/0/0>.

Please note that the Mathematics Pathway is currently a partial pathway which means that there is slightly more variability among the UC campuses in some of the pathway requirements.

MATH	170	Analytic Geometry and Calculus I	4
MATH	190	Analytic Geometry and Calculus II	4
MATH	225	Calculus III	5
MATH	250	Linear Algebra and Differential Equations	5
CIS	280X	Object-Oriented Programming in C++	3.5
PHYS	201	Engineering Physics	4

To be considered for admission for all math majors and concentrations, you must complete MATH 170, MATH 190, MATH 225, and Math 250 by the spring term prior to transfer. All courses must be taken for a letter grade.

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.

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Transfer Preparation

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
<i>or</i> CHEM	111	General Chemistry	(5)
<i>or</i> 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
CIS	280X	Object-Oriented Programming in C++	3.5
ECON	201	Principles of Macroeconomics	3
<i>or</i> ECON	201M	Principles of Macroeconomics	(3)
ECON	202	Principles of Microeconomics	3
<i>or</i> 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
<i>or</i> ECON	201M	Principles of Macroeconomics	(3)
ECON	202	Principles of Microeconomics	3
<i>or</i> ECON	202M	Principles of Microeconomics	(3)

University of California – Riverside

If you're starting out at a California community college and know which major you want to study but haven't decided which UC campuses to apply to, you can follow the UC Transfer Pathways to keep your options open as you prepare for your major. These Pathways provide a single set of courses you can take to prepare for your major on any of the nine UC undergraduate campuses. The pathways guide students who want to make themselves competitive across the UC system; some UC campuses may want fewer courses for admission, but none will expect more. Here is the link: <http://pathwaysguide.universityofcalifornia.edu/college-pathways/0/0>.

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Transfer Preparation

Please note that the Mathematics Pathway is currently a partial pathway which means that there is slightly more variability among the UC campuses in some of the pathway requirements.

MATH	170	Analytic Geometry and Calculus I	4
MATH	190	Analytic Geometry and Calculus II	4
MATH	225	Calculus III	5

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 prior to transfer and have an overall GPA of at least 2.7 in UC transferable course work. (This is a baseline GPA for consideration and not a guarantee of admission). IGETC is not accepted by this major.

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
or CIS	183	Java Programming	3

Add the following for the B.S. Degree

CIS	280X	Object-Oriented Programming in C++	3.5
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The Pure Math Track Option does not have any additional lower division course requirements

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
& BIOL	201	Principles of Biology	5

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
or 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

Physics Option

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

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Statistics Option

MATH 112 Elementary Statistics

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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.

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 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.

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
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 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) 467-5231.



Cerritos College

MATHEMATICS

Transfer Preparation

NOTES

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