LIBRARY INFORMATION STUDIES

Research Skills Certificate of Competency

The Certificate of Competency in Research Skills is designed to provide students with a foundation in information literacy, critical thinking, ethical use of information, and research. This certificate is intended to improve the research and information literacy skills of students desiring to increase their capacity for pursuing college-level coursework, gaining employment in today's digital workforce, and community engagement. Students enrolled in the Research Skills program may use the certification as a means of providing college instructors and employers of their ability to find, evaluate, and use credible and relevant information in an ethical manner.

Students are required to complete three courses for a total of six (6) instructional hours. Each course must be completed with a grade of Pass.

Courses		*Units*
LIS 511	Research Skills I	0
LIS 512	Research Skills II	0
LIS 513	Research Skills III	0

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Apply information literacy skills to academic, professional, and personal life.
- Complete a basic research project from topic development to information source selection, evaluation, and citation.
- Analyze, synthesize, and apply information practically and ethically.

LIS 85, Introduction to Information Resources

2 Units

2 hrs lecture (GR or P/NP).

Recommended Preparation: BUS 219 or CIS 1, 200, or 205 and ENGL 201A, or 264A, or appropriate placement through multiple measures assessment process.

Acceptable for credit: UC/CSU

AA/AS area 4c

Introduction to the basic concepts and tools used in information research: Emphasis on how to develop a research topic, find, locate, evaluate and use information; search strategies for print and online resources including reference books, catalogs, indexes, specialized databases and the Internet.
1699.00

LIS 511, Research Skills I

0 Units

2 hours lecture

Introduction to research: Information literacy skills, research process, topic selection and development, and overview of appropriate information sources. 4930.14

LIS 512, Research Skills II

0 Units

2 hours lecture

Prerequisite: LIS 511

Continuation of LIS 511: Identifying search terms, locating information sources, and evaluating information sources. 4930.14

LIS 513, Research Skills III

0 Units

2 hours lecture

Prerequisite: LIS 512

Continuation of LIS 512: Presenting research and data, citations, and academic integrity.
4930.14

MATHEMATICS

Mathematics

Associate in Science for Transfer Degree (AA-T)

Students who successfully complete the AS-T in Mathematics earn specific guarantees for transfer to the CSU system: admission to a CSU with junior status and priority admission to their local CSU campus and to a program or major in Mathematics or a similar major. Students transferring to a CSU campus will be required to complete no more than 60 units after transfer to earn a bachelor's degree.

Students are required to complete 60 semester units that are eligible for transfer to a California State University, including both of the following: (1) The Inter-segmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements and (2) 21 semester units with a grade of C or P or better in the major and an overall minimum grade point average (GPA) of at least 2.0 in all CSU transferable coursework. For a more detailed description of Associate Degrees for Transfer, see "Associate Degrees for Transfer (ADT) to a California State University" on page 29.

Students are advised to consult with a Berkeley City College Counselor for additional information and to verify transfer requirements.

Required Courses		*Units*
MATH 3A	Calculus I	5
MATH 3B	Calculus II	5
MATH 3C	Calculus III	5
MATH 3E	Linear Algebra	3
MATH 3F	Differential Equations	3
	Major Requirements	21
	General Education (IGETC or CSU GE) and Electives	39
	Total Units	**60**

Photo by Faiza Ali

Recommended Course Sequence

Students can use the following pattern to complete an Associate in Arts degree in Mathematics for Transfer Degree. This is only one possible pattern. If they wish to earn an associate degree, you must participate in the Student Success Program (Matriculation), which includes assessing academic skills and developing a Student Education Plan (SEP) with a Counselor. This plan will map their sequence of courses to help them complete their degree regardless of the semester they begin classes.

Courses		*Units*
1st Semester/Fall		
MATH 3A	Calculus I	5
	General Education and Electives	10
	Total	**15**
2nd Semester/Spring		
MATH 3B	Calculus II	5
MATH 3E	Linear Algebra	3
	General Education and Electives	7
	Total	**15**
3rd Semester/Fall		
MATH 3C	Calculus III	5
	General Education and Electives	10
	Total	**15**
4th Semester/Spring		
MATH 3F	Differential Equations	3
	General Education and Electives	12
	Total	**15**

Program Learning Outcomes

Students who complete the program will be able to:

- Apply mean value theorems.
- Solve linear systems, integration problems, and problems for multi-variable functions.
- Graph and analyze basic functions.
- Calculate derivatives.
- Solve differential equations and analyze the solution sets.

MATH 1, Pre-Calculus

4 Units

4 hrs lecture (GR).

Prerequisite: MATH 203, 211D, 230, or 240. Not open for credit to students who have completed or are currently enrolled in MATH 3A-3B or [4A-4B-4C].

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2

Preparation for the calculus sequence or other courses requiring a sound algebraic background: Inequalities, theory of equations, sequences and series, matrices, functions and relations, logarithmic and exponential functions; function concept used as a unifying notion. 1701.00

MATH 2, Pre-Calculus with Analytic Geometry

5 Units

5 hrs lecture (GR).

Prerequisite: MATH 203, 211D, 206, 230, or 240.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2

Advanced algebra and analytic geometry: Linear, quadratic, polynomial, rational, exponential, logarithmic, and inverse functions; determinants, matrices and linear systems; zeros of polynomials, arithmetic and geometric sequences, mathematical induction; permutations and combinations, binomial theorem; vectors, conic sections, translation and rotation of axes, polar coordinates, lines and surfaces in space, and quadric surfaces. 1701.00

MATH 3A, Calculus I

5 Units

5 hrs lecture (GR).

Prerequisite: MATH 2 , or 1 and 50.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2; (C-ID MATH 210)

Theorems on limits and continuous functions, derivatives, differentials, and applications: Fundamental theorems of calculus and applications; properties of exponential, logarithmic, and inverse trigonometric functions, and hyperbolic functions. 1701.00

MATH 3B, Calculus II

5 Units

5 hrs lecture (GR).

Prerequisite: MATH 3A.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2; (C-ID MATH 220)

Applications of the definite integral: Methods of integration, polar coordinates, parametric equations, infinite and power series. 1701.00

MATH 3C, Calculus III

5 Units

5 hrs lecture (GR).

Prerequisite: MATH 3B. Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2; (C-ID MATH 230)

Partial differentiation: Jacobians, transformations, multiple integrals, theorems of Green and Stokes, differential forms, vectors and vector functions, geometric coordinates, and vector calculus. 1701.00

MATH 3E, Linear Algebra

3 Units

3 hrs lecture (GR).

Prerequisite: MATH 3A. MATH 3E and 3F are equivalent to MATH 3D. Not open for credit to students who have completed or are currently enrolled in MATH 3D.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2; (C-ID MATH 250)

Linear algebra: Gaussian and Gauss-Jordan elimination, matrices, determinants, vectors in R2 and R3, real and complex vector spaces, inner product spaces, linear transformations, eigenvalues, eigenvectors, and applications. 1701.00

MATH 3F, Differential Equations

3 Units

3 hrs lecture (GR).

Prerequisite: MATH 3B and 3E. Recommended Preparation: MATH 3C. Math 3E and 3F are equivalent to MATH 3D. Not open for credit to students who have completed or are currently enrolled in MATH 3D.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2; (C-ID MATH 240)

Ordinary differential equations: First-order, second-order, and higher-order equations; separable and exact equations, series solutions, LaPlace transformations, systems of differential equations. 1701.00

MATH 13, Introduction to Statistics

4 Units

4 hrs lecture (GR).

Prerequisite: MATH 203, 206, 211D, 230, or 240.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2; (C-ID MATH 110)

Introduction to theory and practice of statistics: Collecting data: Sampling, observational and experimental studies. Organizing data: Univariate and bivariate tables and graphs, histograms. Describing data: Measures of location, spread, and correlation. Theory: Probability, random variables; binomial and normal distributions. Drawing conclusions from data: Confidence intervals, hypothesis testing, z-tests, t-tests, and chi-square tests; one-way analysis of variance. Regression and non-parametric methods. 1701.00

MATH 16A, Calculus for Business and Life/Social Sciences

3 Units

3 hrs lecture (GR).

Prerequisite: MATH 1 or 2.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2; (C-ID MATH 140)

Introduction to analytic geometry and differential and integral calculus of algebraic functions with particular attention paid to simple applications. 1701.00

MATH 16B, Calculus for Business and Life/Social Sciences

3 Units

3 hrs lecture (GR).

Prerequisite: MATH 3A or 16A. Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4; IGETC area 2

Continuation of differential and integral calculus: Transcendental functions, methods of integration, partial differentiation, and multiple integration with particular attention to applications. 1701.00

MATH 18, Mathematical Concepts for Teachers

3 Units

3 hrs lecture (GR).

Prerequisite: MATH 203, 211D, 230 or appropriate placement through multiple measures assessment process.

Acceptable for credit: UC/CSU

AA/AS area 4b; CSU area B4

Structure, properties and operations of the real number system: Introduction to set theory, logic and deductive reasoning; introduction to probability, statistics and inductive reasoning; review of geometry in two and three dimensions (British and metric measure, perimeter, area, volume, characteristics of basic plane and solid figures). Survey course intended primarily for education majors planning to teach in the primary grades. Not open to for credit to students who have completed or are currently enrolled in EDUC 18. 1701.00

MATH 49, Independent Study in Mathematics

0.5–5 Units

1.5–15 hours lab (GR or P/NP).

Acceptable for credit: CSU

In-depth exploration of an area or problem of the student's choice not covered by regular catalog offerings in Math. Student must obtain approval from an appropriate faculty member. For more details, see the section on independent study in the college catalog. 1701.00

MATH 50, Trigonometry

3 Units

3 hrs lecture (GR).

Prerequisite: MATH 203, 211D, or 230. Not open for credit to students who have completed or are currently enrolled in MATH 52ABC.

Recommended Preparation: Math 202

Acceptable for credit: CSU

AA/AS area 4b; CSU area B4

(C-ID MATH 851)

Introduction to functional trigonometry: Basic definitions, identities, graphs, inverse functions, trigonometric equations and applications, solution of triangles and applications, polar coordinates, complex numbers, and De Moivre's Theorem. 1701.00

MATH 201, Elementary Algebra

4 Units

5 hrs lecture (GR).

Prerequisite: MATH 225, 250, 253 or appropriate placement through multiple-measures assessment process. Not open for credit to students who have completed or are currently enrolled in MATH 210ABCD.

Basic algebraic operations: Linear equations and inequalities, relations and functions, factoring quadratic polynomials, solving quadratic equations, fractions, radicals and exponents, word problems, graphing, and number systems. 1701.00

Photo by Faiza Ali

MATH 203, Intermediate Algebra

4 Units

5 hrs lecture (GR).

Prerequisite: MATH 201 or 210D or appropriate placement through multiple-measures assessment process.

Not open for credit to students who have completed or are currently enrolled in MATH 211ABCD.

AA/AS area 4b

Intermediate algebraic operations: Real number properties and operations; solutions and graphs of linear equations in one and two variables; absolute value equations; advanced factoring; complex numbers; quadratic equations and systems of quadratic equations; conics; determinants; solutions and graphs of first-degree, quadratic, and rational inequalities; exponential and logarithmic functions; and sequences and series. 1701.00

MATH 213 Support for Statistics

2 units, 2 hours lecture (P/NP)

Co-requisite: MATH 13

Competencies and concepts needed in statistics: Arithmetic, pre-algebra, elementary and intermediate algebra, and descriptive statistics; descriptive data analysis, solving and graphing linear equations, and modeling with linear functions. Intended for students who are concurrently enrolled in MATH 13. 1701.00

MATH 215 Support for Pre-Calculus

2 units, 2 hours lecture (P/NP)

Co-requisite: MATH 1

Review of the core prerequisite skills, competencies, and concepts needed in pre-calculus: Factoring, operations on rational and radical expressions, absolute value equations and inequalities, exponential and logarithmic expressions and equations, conic sections, functions including composition and inverses, an in-depth focus on quadratic functions, and a review of topics from geometry. Intended for students majoring in business, science, technology, engineering, and mathematics and concurrently enrolled in MATH 1. 1701.00

MATH 216 Support for Trigonometry

1 unit, 1 hour lecture (P/NP)

Co-requisite: MATH 50

Review of the core prerequisite skills, competencies, and concepts needed in trigonometry: Geometry, transformations of graphs, trigonometric functions and applications, conic sections, polar coordinates including the complex plane and analytic geometry. Intended for students majoring in science, technology, engineering, and mathematics and who are concurrently enrolled in MATH 50, Trigonometry. This course is appropriate for students who are confident in their graphing and beginning algebra skills. 1701.00

MATH 230, Elementary and Intermediate Algebra for Business or STEM majors

6 Units

6 hrs lecture (GR).

Prerequisites: MATH 225, 250, 253, or appropriate placement through the multiple measures assessment process.

AA/AS area 4b

A combined course in algebra: Systems of equations: inequalities, graphs and functions; radicals, quadratic polynomials, rational expressions; exponential and logarithmic functions, and problem solving, with emphasis on knowledge skills appropriate for students pursuing a major in STEM (Science, Technology, Engineering, Mathematics) or Business. 1701.00

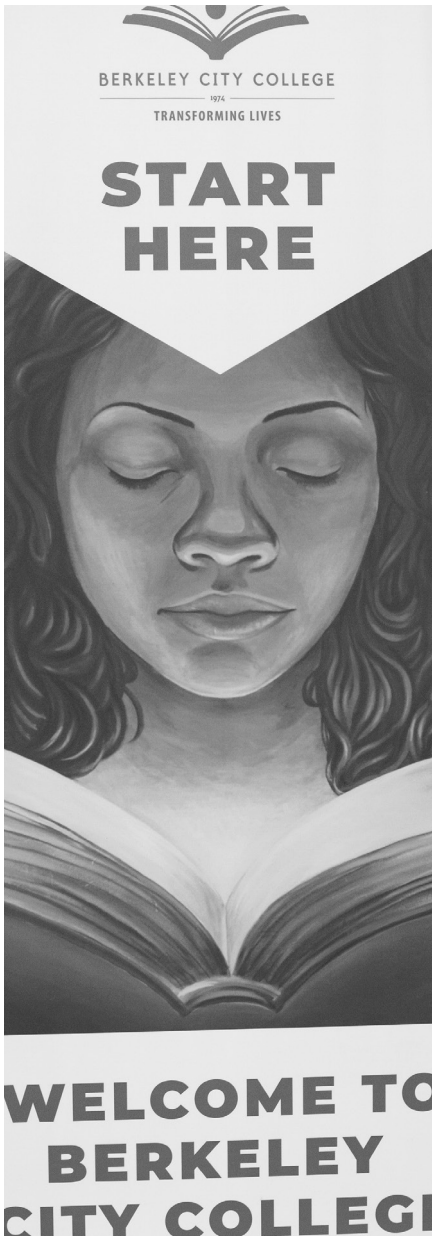

Photo by Faiza Ali

MEXICAN AND LATIN-AMERICAN STUDIES

M/LAT 30A, Survey of Latin-American Films

3 Units

3 hrs lecture (GR or P/NP).

Acceptable for credit: UC/CSU

AA/AS area 3, 5; CSU area C2; IGETC area 3B

Critical examination of historical and contemporary film images of Latinos/Americanos as a result of cultural encounters within the United States: Traditional and emerging objectives of film makers and producers; and common themes and cultural elements in films by and about Latinos in the United States. 2203.00

M/LAT 30B, Survey of Latin-American Films

3 Units

3 hrs lecture (GR or P/NP).

Acceptable for credit: UC/CSU

AA/AS area 3, 5; CSU area C2; IGETC area 3B

Critical examination of cinema from throughout Latin America and Spain that relate to Latino cultural experiences: Emphasis on those films that educate viewers about Latino encounters with majority and minority cultures within Latin America. 2203.00

M/LAT 33, Introduction to Chicana/o and Latina/o Studies

3 Units

3 hours lecture (GR or P/NP).

Acceptable for credit: UC/CSU

AA/AS area 3, 5; CSU area D; IGETC area 4.

Overview of the field of Chicana/o and Latina/o Studies: History, literature, the arts and material culture, as well as sociological, political, economic, public policy, and philosophical perspectives on the experience of Latinos in the United States. 2203.00