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## **UCSC General Catalog**

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## Fields of Study

Programs and concentrations. Links go to the detailed discussion of each program, including its courses, later in the catalog.

|  | Undergraduate<br>Education |      |       | Graduate<br>Education |      |      |       |                        |  |
|--|----------------------------|------|-------|-----------------------|------|------|-------|------------------------|--|
|  | B.A.                       | B.S. | Minor | Certi-<br>ficate      | M.A. | M.S. | Ph.D. | Designated<br>Emphasis |  |
| American literature: see Literature                      |                            |      |       |                       |      |      |       |                        |  |
| American studies   | •                          |      |       |                       |      |      |       | •                      |  |
| Anthropology   | •                          |      | •     |                       |      |      | •     | •                      |  |
| Archaeology  |                            |      |       |                       |      |      | С     |                        |  |
| Cultural anthropology                                    |                            |      |       |                       |      |      | С     |                        |  |
| Physical anthropology                                    |                            |      |       |                       |      |      | С     |                        |  |
| Applied Mathematics                                      |                            |      | •     |                       |      |      |       |                        |  |
| Applied Mathematics and Statistics                       |                            |      |       |                       |      | •    |       |                        |  |
| Applied physics  |                            | •    |       |                       |      |      |       |                        |  |
| Art  | •                          |      |       |                       |      |      |       |                        |  |
| Art history: see<br>History of art and visual<br>culture |                            |      |       |                       |      |      |       |                        |  |
| Asian studies: see<br>East Asian studies                 |                            |      |       |                       |      |      |       |                        |  |
| Astronomy and astrophysics                               |                            |      |       |                       |      |      | •     |                        |  |
| Astrophysics (see also Physics [Astrophysics])           |                            |      | •     |                       |      |      |       |                        |  |
| Bilingual-multicultural education: see Education         |                            |      |       |                       |      |      |       |                        |  |
| Biochemistry and molecular biology                       |                            | •    |       |                       |      |      |       |                        |  |
| Bioengineering   |                            | •    |       |                       |      |      |       |                        |  |
| Bioelectronics   |                            | С    |       |                       |      |      |       |                        |  |
| Biomolecular   |                            | С    |       |                       |      |      |       |                        |  |
| Rehabilitation   |                            | С    |       |                       |      |      |       |                        |  |
| Bioinformatics   |                            | •    | •     |                       |      |      |       |                        |  |
| Biomolecular engineering and bioinformatics              |                            |      |       |                       |      | •    | •     |                        |  |
| Biological Sciences                                      |                            |      |       |                       |      |      |       |                        |  |
| Biology  | •                          | •    | •     |                       |      |      |       |                        |  |
| Bioeducation   | С                          |      |       |                       |      |      |       |                        |  |
| Ecology and evolution                                    |                            | •    |       |                       |      |      |       |                        |  |
| Ecology and evolutionary biology                         |                            |      |       |                       | •    |      | •     | •                      |  |
| Human Biology  |                            | •    |       |                       |      |      |       |                        |  |
| Marine biology   |                            | •    |       |                       |      |      |       |                        |  |
| Molecular, cell, and developmental biology               |                            | •    |       |                       | •    |      | •     |                        |  |
| Neuroscience   |                            | •    |       |                       |      |      |       |                        |  |
| Plant sciences   |                            | •    |       |                       |      |      |       |                        |  |
| Chemistry  | •                          | •    | •     |                       |      | •    | •     |                        |  |
| Biochemistry   |                            | С    |       |                       |      |      |       |                        |  |
| Environmental chemistry                                  |                            | С    |       |                       |      |      |       |                        |  |
| Chinese language   |                            |      |       |                       |      |      |       |                        |  |
| Classical studies  | •                          |      | •     |                       |      |      |       |                        |  |

| (see also Literature)   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| Cognitive science (see also   |   |   |   |   |   |   |   |
| Psychology)   |   | • |   |   |   |   |   |
| Community studies   | • |   |   |   |   |   |   |
| Computer engineering (2)  |   | • | • |   | • | • |   |
| Computer systems  |   | С |   |   |   |   |   |
| Digital hardware  |   | С |   |   |   |   |   |
| Networks  |   | С |   |   |   |   |   |
| Robotics and control  |   | С |   |   |   |   |   |
| Systems programming   |   | С |   |   |   |   |   |
| , ,   |   | • |   |   |   | • |   |
| Computer science  | • | • | • |   | • | • |   |
| Computer science:<br>Computer game design   |   | • |   |   |   |   |   |
| Creative writing:   |   |   |   |   |   |   |   |
| see Literature  |   |   |   |   |   |   |   |
| Dance: see Theater arts   |   |   |   |   |   |   |   |
| Digital arts and new  |   |   |   |   |   |   |   |
| media (3)   |   |   |   | • |   |   |   |
| Drama: see Theater arts   |   |   |   |   |   |   |   |
| Dramatic literature:  |   |   |   |   |   |   |   |
| see Theater arts  |   |   |   |   |   |   |   |
| Earth sciences  |   | • | • |   | • | • |   |
| Environmental geology   |   | С |   |   |   |   |   |
| Ocean sciences  |   | С |   |   |   |   |   |
| Planetary sciences  |   | С |   |   |   |   |   |
| Science education   |   | С |   |   |   |   |   |
| East Asian studies  |   | C | • |   |   |   |   |
|   |   |   | • |   |   |   |   |
| Ecology and evolution   |   | • |   |   |   |   |   |
| Ecology and evolutionary  |   |   |   | • |   | • |   |
| biology   |   |   |   |   |   |   |   |
| Economics   | • |   | • |   |   | • |   |
| Applied economics and finance   |   |   |   |   | • |   |   |
| Business management economics   | • |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |
| Global economics  | • |   |   |   |   |   |   |
| Education (4)   |   |   | • | • |   | • | • |
| Science, technology   |   |   | • |   |   |   |   |
| engineering, and mathematics  |   |   |   |   |   |   |   |
| Bilingual-multicultural education   |   |   |   | С |   |   |   |
| Multiple subjects   |   |   |   |   |   |   |   |
| credential (elementary)   |   |   |   | С |   |   |   |
| Single subjects   |   |   |   |   |   |   |   |
| credential (secondary)  |   |   |   | С |   |   |   |
| Language, literacy, and culture   |   |   |   |   |   | С |   |
| Learning and teaching   |   |   |   |   |   | С |   |
| Mathematics and science   |   |   |   |   |   |   |   |
| education   |   |   |   |   |   | С |   |
| Social and cultural contexts of   |   |   |   |   |   |   |   |
| education   |   |   |   |   |   | С |   |
| Teachers and teacher  |   |   |   |   |   |   |   |
| development   |   |   |   |   |   | С |   |
| Electrical engineering  |   | • | • |   | • | • |   |
| Electronics/Optics  |   | С |   |   |   |   |   |
| Communications, signals,  |   |   |   |   |   |   |   |
| systems, and controls   |   | С |   |   |   |   |   |
| English: see Literature   |   |   |   |   |   |   |   |
| and see Linguistics   |   |   |   |   |   |   |   |
| Environmental studies   | • |   |   |   |   | • | • |
|   |   |   |   |   |   |   |   |
| Environmental toxicoloy: see  |   |   |   |   |   |   |   |
| Microbiology and Environmental  |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |
| Microbiology and Environmental  | • |   |   |   |   |   | • |
| Microbiology and Environmental Toxicology  Feminist studies  Culture, power, and                |   |   |   |   |   |   | • |
| Microbiology and Environmental Toxicology  Feminist studies  Culture, power, and representation | С |   |   |   |   |   | • |
| Microbiology and Environmental Toxicology  Feminist studies  Culture, power, and                | С |   |   |   |   |   | • |

| medicine                                    | С |   |   |   |   |   |
|---|---|---|---|---|---|---|
| Sexuality studies                           | С |   |   |   |   |   |
| Film and digital media                      | • |   | • |   | • |   |
| Critical studies                            | С |   |   |   |   |   |
| Integrated critical practice                | С |   |   |   |   |   |
| Production                                  | С |   |   |   |   |   |
| French language                             |   |   |   |   |   |   |
| French literature:                          |   |   |   |   |   |   |
| see Literature                              |   |   |   |   |   |   |
| Geology: see Earth sciences                 |   |   |   |   |   |   |
| German language                             |   |   |   |   |   |   |
| German literature:                          |   |   |   |   |   |   |
| see Literature                              |   |   |   |   |   |   |
| German studies                              | • |   |   |   |   |   |
| Global information and                      |   |   | • |   |   |   |
| social enterprise studies                   |   |   |   |   |   |   |
| Greek language:<br>see Greek and Literature |   |   |   |   |   |   |
| Greek literature:                           |   |   |   |   |   |   |
| see Literature                              |   |   |   |   |   |   |
| Hebrew language                             |   |   |   |   |   |   |
| History                                     | • |   | • | • | • |   |
| Americans and Africa                        | С |   |   |   |   |   |
| Asia and the Islamic world                  | С |   |   |   |   |   |
| Colonialism, nationalism,                   |   |   |   |   |   |   |
| and race                                    |   |   |   |   | С |   |
| Europe                                      | С |   |   |   |   |   |
| History of gender                           |   |   |   |   | С |   |
| History of art and visual culture           | • |   | • |   |   |   |
| Religion and visual culture                 | С |   |   |   |   |   |
| History of consciousness                    |   |   |   |   | • |   |
| Human Biology                               |   | • |   |   |   |   |
| Italian language                            |   |   |   |   |   |   |
| Italian literature:<br>see Literature       |   |   |   |   |   |   |
| Italian studies                             | • |   | • |   |   |   |
| Japanese language                           |   |   |   |   |   |   |
| Jewish studies                              | • |   | • |   |   |   |
| Language studies                            | • |   | • |   |   |   |
| Chinese                                     | С |   | С |   |   |   |
| French                                      | С |   | С |   |   |   |
| German                                      | С |   | С |   |   |   |
| Italian                                     | С |   | С |   |   |   |
| Japanese                                    | С |   | С |   |   |   |
| Modern Hebrew                               | С |   | С |   |   |   |
| Russian                                     | С |   | С |   |   |   |
| Spanish                                     | С |   | С |   |   |   |
| Latin American and                          |   |   | • |   |   |   |
| Latino studies                              |   |   |   |   |   | Ť |
| Latin language:<br>see Latin and Literature |   |   |   |   |   |   |
| Latin literature:<br>see Literature         |   |   |   |   |   |   |
| Legal studies                               | • |   | • |   |   |   |
| Linguistics                                 |   |   |   | • |   |   |
| (see also Language studies)                 | _ |   | _ |   |   |   |
| Theoretical linguistics                     | С |   |   | С | С |   |
| Literature (5)                              | • |   | • | • | • | • |
| Creative writing                            | С |   |   |   |   |   |
| English-language literatures                | С |   |   | С | С |   |
| French literature                           | С |   |   | С | С |   |
| German literature                           | С |   |   |   |   |   |
| Greek and Latin literatures                 | С |   |   |   |   |   |
| Italian literature                          | С |   |   |   |   |   |
|   |   |   |   |   |   |   |

| Modern literary studies                                |   | 1 | l | 1 | ۱ . | l | l . |   |
|--|---|---|---|---|-----|---|-----|---|
| Modern literary studies  Pre- and early modern studies | С |   |   |   | С   |   | С   |   |
| Spanish/Latin American/                                | С |   |   |   | С   |   | С   |   |
| Latino literatures                                     | С |   |   |   | С   |   | С   |   |
| World literature and                                   | _ |   |   |   | _   |   | _   |   |
| cultural studies                                       | С |   |   |   | С   |   | С   |   |
| Marine biology   |   | • |   |   |     |   |     |   |
| Marine sciences:                                       |   |   |   |   |     |   |     |   |
| see Ocean sciences                                     |   |   |   |   |     |   |     |   |
| Mathematics  | • |   | • |   | •   |   | •   |   |
| Computational mathematics                              | С |   |   |   |     |   |     |   |
| Mathematics education                                  | С |   |   |   |     |   |     |   |
| Pure mathematics                                       | С |   |   |   | С   |   | С   |   |
| Medieval studies                                       |   |   |   |   |     |   |     |   |
| Microbiology and                                       |   |   |   |   |     |   |     |   |
| environmental toxicology                               |   |   |   |   |     |   |     |   |
| Molecular, cell, and                                   |   | • |   |   | •   |   | •   |   |
| developmental biology                                  |   |   |   |   |     |   |     |   |
| Music (6)  | • |   | _ |   | •   |   | •   |   |
| Electronic music                                       |   |   | • |   |     |   |     |   |
| Jazz   |   |   | • |   |     |   |     |   |
| Network and Digital<br>Technology                      | • |   |   |   |     |   |     |   |
| Neuroscience   |   | • |   |   |     |   |     |   |
| Ocean sciences   |   |   |   |   |     | • | •   |   |
| Biology  |   |   |   |   |     |   |     |   |
| (see also Marine biology)                              |   |   |   |   |     | С |     |   |
| Biological oceanography                                |   |   |   |   |     |   | С   |   |
| Chemical oceanography                                  |   |   |   |   |     |   | С   |   |
| Chemistry  |   |   |   |   |     | С |     |   |
| Earth Sciences   |   |   |   |   |     | С |     |   |
| Geological oceanography                                |   |   |   |   |     |   | С   |   |
| Physical oceanography                                  |   |   |   |   |     |   | С   |   |
| Physics  |   |   |   |   |     | С |     |   |
| Philosophy   | • |   | • |   | •   |   | •   | • |
| Photography: see Art                                   |   |   |   |   |     |   |     |   |
| Physics (1)  |   | • | • |   |     | • | •   |   |
| Physics (Astrophysics)                                 |   | • |   |   |     |   |     |   |
| Physics Education                                      |   | • |   |   |     |   |     |   |
| Plant sciences   |   | • |   |   |     |   |     |   |
| Playwriting: see Theater arts                          |   |   |   |   |     |   |     |   |
| Politics   | • |   | • |   |     |   | •   | • |
| Portuguese language                                    |   |   |   |   |     |   |     |   |
| Psychology (5)   | • |   | • |   |     |   | •   |   |
| Cognitive psychology                                   |   |   |   |   |     |   | С   |   |
| Developmental psychology                               |   |   |   |   |     |   | С   |   |
| Social psychology                                      |   |   |   |   |     |   | С   |   |
| Religious studies                                      |   |   |   |   |     |   |     |   |
| Robotics Engineering                                   |   | • |   |   |     |   |     |   |
| Russian language                                       |   |   |   |   |     |   |     |   |
| Science communication:                                 |   |   |   | _ |     |   |     |   |
| Science writing  |   |   |   | • |     |   |     |   |
| Social documentation                                   |   |   |   |   | •   |   |     |   |
| Sociology (5)  | • |   | • |   |     |   | •   | • |
| Spanish for Spanish speakers                           |   |   |   |   |     |   |     |   |
| Spanish language                                       |   |   |   |   |     |   |     |   |
| Spanish literature: see Literature                     |   |   |   |   |     |   |     |   |
| Statistics   |   |   | • |   |     |   |     | • |
| Statistics and Applied                                 |   |   |   |   |     |   |     |   |
| Mathematics  |   |   |   |   |     |   |     |   |
| Technology and information management                  |   | • | • |   |     | • | •   |   |
| Theater arts   | • |   | • | • |     |   |     |   |
| Asian theater  |   |   |   | С |     |   |     |   |
|  |   |   |   |   |     |   |     |   |

| Dance                                     | С | • | С |  |   |   |
|---|---|---|---|--|---|---|
| Design and technology                     | С |   | С |  |   |   |
| Drama                                     | С |   | С |  |   |   |
| Dramatic literature                       |   |   | С |  |   |   |
| Playwriting                               |   |   | С |  |   |   |
| Visual Studies                            |   |   |   |  | • | • |
| Western civilization                      |   |   |   |  |   |   |
| Women's studies<br>(see Feminist Studies) |   |   |   |  |   |   |
| Writing                                   |   |   |   |  |   |   |

Combined majors. In addition, students may complete a combined major leading to a B.A. degree in a number of designated fields. Combined majors currently available include those in Earth sciences/anthropology, economics/mathematics, environmental studies/biology, environmental studies/Earth sciences, environmental studies/economics, Latin American and Latino studies/global economics, Latin American and Latino studies/politics, and Latin American and Latino studies/politics, and Latin American and Latino studies/sociology. Students also have the option of pursuing a double major.

 ${f c}={f c}$  concentration, or emphasis, within a program. Some programs give students the option of following a general course of study or selecting a concentration; other programs require students to choose a concentration. Consult the program on the page indicated.

- 1 Combined B.S./M.S. in physics is available with concentrations in:
  - a) Materials and device physics
  - b) Energy and the environment
  - c) Computational physicsd) Finance and economics
  - e) Medical biophysics
- 2 A combined B.S./M.S. program in computer engineering is also available.
- 3 A master of fine arts (M.F.A.) degree is awarded in digital arts and new media.
- 4 Because California state law requires prospective teachers to earn a bachelor's degree in an academic discipline other than education, no undergraduate major is offered. All teaching credentials are earned postbaccalaureate. UCSC offers the professional clear Crosscultural, Language and Academic Development (CLAD) and Bilingual Crosscultural, Language and Academic Development (BCLAD) multiple subjects credentials, which are used in self-contained elementary classrooms (K-6) where all subjects are taught by the same teacher. UCSC also offers the CLAD and BCLAD single subjects credentials, which are used in departmentalized settings where the teacher is responsible for one subject (7–12). A Doctor of Education (Ed.D.) in collaborative leadership is also available.
- **5** An intensive major is also available.
- **6** B.M. degree in music also available. Doctorate of musical arts (D.M.A.) degree in composition also available.

## Degrees

B.A. = Bachelor of Arts

B.M.A. = Bachelor of Musical Arts

B.S. = Bachelor of Science

D.M.A. = Doctor of Musical Arts

Ed.D. = Doctor of Education

M.A. = Master of Arts

M.F.A. = Master of Fine Arts

M.S. = Master of Science

Ph.D. = Doctor of Philosophy

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