

UCI California Teach Science-Math Initiative
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TIP SHEET

**Academic Programs & Courses
Offered to Prepare Future Science or
Math Teachers at UCI**

Many opportunities exist for UCI undergraduates to explore the field of teaching. The following is a description of academic programs and courses aimed at preparing future Science and Math teachers.

Biological Sciences Major with a Concentration in Biological Sciences Education:

Major Requirements –

- Bio Core: 93, 94, 97, 98, 99, 100LW
- Required Major Courses: **3** from D103, D104, D105, E106, E109, N110
- Upper-Division Labs: **3** labs required. At least 2 selected from Biological Sciences D111L, E112L, E115L, E166, M114L, M116L, M118L, M121L, M122L, M124L, N113L; One lab can be satisfied with E179L, E161L, or completion of Excellence in Research in the Biological Sciences.
- Biology Electives: **4** from D103-N190, E106-E190, M114-M190, N110-N190, Chemistry 130 or 131, Physics 147
- The optional concentration in Biological Sciences Education requires eight courses: Biological Sciences 14, 101 & 102, Physics 20A & 20B, Earth System Science 1 & 7, and **one course** selected from Education 108, 124, 128, 131, 136, or 173.

The requirements for a general Biological Sciences (B.S.) degree for students in this concentration will be reduced by one upper-division laboratory course and two upper-division biology electives. Students pursuing other majors within the School of Biological Sciences will need specific departmental approval for the reduction of degree requirements when completing this concentration.

Chemistry Major with a Concentration in Chemistry Education:

Major Requirements –

- Basic Requirements: Mathematics 2A-B-D, Physics 7B-D-E and 7LB-LD, Chemistry 1A-B-C and M2LA-LB-LC (or H2A-B-C and H2LA-LB-LC), Chemistry 5, Chemistry 51A-B-C and 51LA-LB-LC (or H52A-B-C and H52LA-LB-LC), Chemistry 107 and 107L, Chemistry 131A-B-C (or 130A-B-C), Chemistry 151 and 151L.
- Elective Requirements: At least **5** electives from the following lists, including at least **two** courses selected from the **lecture** list and **two** courses selected from the **laboratory** list.
 - Lectures: Chemistry 125, 127, 128, 135, 137, 138, 177; and Chemistry courses numbered 201-205, 213-249, 262, 271, and 272; Biological Sciences 98 (Biochemistry), 99 (Molecular Biology); Earth System Science 122 (Atmospheric Dynamics), 130 (Physical Oceanography); Physics 111A-B (Classical Mechanics), 112A-B (Electromagnetic Theory); Engineering CBEMS110 (Reaction Kinetics and Reactor Design), CBEMS112 (Introduction to Biochemical Engineering), CBEMS120A (Momentum Transfer), CBEMS120B (Heat and Mass Transfer), CBEMS130 (Separation Processes), CBEMS135 (Chemical Process Control), CBEMS145 (Chemical Engineering Design), CEE162 (Introduction to Environmental Chemistry), CEE165 (Physical-Chemical Treatment Processes).
 - Laboratories: Biological Sciences M114L (Biochemistry Laboratory), M116L (Molecular Biology Laboratory), Chemistry 128L (Introduction to Chemical Biology Laboratory Techniques), 152 (Advanced Analytical Chemistry), 153 (Physical Chemistry Laboratory), 156 (Advanced Laboratory in Chemistry and Synthesis of Materials), 160 (Organic Synthesis Laboratory), 170 (Radioisotope Techniques), 177L (Medicinal Chemistry Laboratory), 180 (Undergraduate Research), Engineering CBEMS140A-B (Chemical Engineering Laboratory), Physics 120 (Electronics for Scientists), and 121 (Advanced Laboratory). (Chemistry 180 can be counted toward this requirement no more than once.)
- The optional concentration in Chemistry Education requires ten courses: Physical Sciences 5, 105 & 106, Physics 20A, Biological Sciences 93, 94 & 98, Earth System Science 1 & 7, and **one course** selected from Education 173 or 176.

At least three of the courses used to satisfy the Elective Requirement must be courses offered by the Chemistry Department, including at least one lecture course and one laboratory course.

Math Major with a Specialization in Mathematics for Education:

Major Requirements –

- Lower Division Requirements: Math 2A-B (Single-Variable Calculus), 2D-E **OR** H2D-H2E (Multivariable Calculus), 2J (Infinite Series; Basic Matrix Theory), 3D (Differential Equations), 3A (Linear Algebra), **One Year** of Physics 7 **OR** Chemistry 1, One quarter of Computer Science
 - Strongly Recommended: Math 13 (Intro to Abstract Math)
 - Students may take Math 13 in place of Math 2E.
- Mathematics 120A-B, 121A, 124, 140A-B, 131A-B (or Statistics 120A-B), 150, 161, 180, 184; plus one additional Mathematics course numbered 100-189.
- One quarter of Education 172B and two quarters of Mathematics 192.

Admission to this specialization requires approval in advance by the Mathematics Department. The admission process begins with completing a form at the Department office, and includes an interview with the Department's Undergraduate Advisor and its Tutor Supervisor. This approval should be applied for no later than the end of the junior year.

Students wishing to go on and teach at the intermediate and high school levels should also consult with an academic advisor in the Department of Education. A California Commission on Teacher Credentialing (CCTC)-approved Subject Matter Preparation Program (SMPP) in Mathematics can be easily satisfied in tandem with this specialization, and enables students to waive a subject matter exam for teachers. Specific SMPP requirements and enrollment procedures are available from the **Department of Education** and the **California Teach Resource & Advising Center**.

Physics Major with a Concentration in Physics Education:

Major Requirements –

- Physics 7A-B-D-E with laboratory courses 7LA-LB-LD; Mathematics 2A-B, 2D-E, 2J, 3D; Physics 50; Physics 61A-B*; Physics 52A-B-C; Physics 53 (or another programming course); Physics 111A-B, 112A-B, 113A, 115A, 121, and 125A; Physics 196C or H196C or 197; and five additional coherently related four-unit courses. (The five coherently related courses are normally satisfied by concentrations, specializations, and tracks.)
**For students transferring into the major after taking Physics 51A-B, Physics 51A-B will be accepted in place of Physics 61A-B.*
- The optional concentration in Physics Education also requires the following courses: Physical Sciences 5, 105 & 106, Education 173 **OR** 176, Biological Sciences 93, 94 & 98, Earth System Science 1 & 7, and **one course** selected from Education 173 or 176.

California Teach Science-Math Initiative Fieldwork-based Seminar Series:

- Physical Science 5/Biological Sciences 14: Introduction to Science & Math Teaching
- Physical Science 105/Biological Sciences 101: Middle School Science & Math Teaching
- Physical Science 106/Biological Sciences 102: High School Science & Math Teaching

Courses that are relevant for all future Secondary Teachers:

- Education 108: Adolescent Development in Education
- Education 133: New Approaches to Assessment
- Education 150: Changing the High School Experience
- Education 173: Cognition and Learning in Educational Settings

Courses that are relevant for future Middle and High School Science and Math Teachers:

- Education 136: Teaching and Learning in Secondary Science
- Education 152F: Teaching Mathematics with Technology
- Education 172A: Issues and Controversies in Secondary Mathematics
- Education 172B: Teaching and Learning Secondary Mathematics

Courses that provide an “early start” to the UCI Single Subject Credential Program:

- Education 108: Adolescent Development in Education
- Education 124: Multicultural Education in K-12 Schools
- Education 128: Exceptional Learners
- Education 131: Educational Technology; **OR**
Education 139: Technology and Literacy; **OR**
Education 152F: Teaching Math with Technology
- Education 173: Cognition and Learning in Educational Settings; **OR**
Education 176: Psychology of Learning, Abilities, and Intelligence