

Building Bridges to Math and Science Teaching

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Concurrent Session #1: Creating and Expanding
Undergraduate and Credential Pathways

**CSU Mathematics and Science Teacher
Recruitment and Preparation Summit**

March 2, 2006, Industry Hills, CA

CSULA OVERVIEW

Current Situation

- Total number of majors in Math BA and BS and in Natural Science BS under 50 in a university of over 20,000 students (Natural Science major is for future high school science teachers)
- In last two years growth in number of math credentials awarded (from 48 to 57) but not in science credentials (from 42 to 31)

Barriers to Expedited Production of Credentialed Teachers

- Many undergraduates have little or late awareness of teaching careers in secondary math and science
- Most undergraduates work full-time and/or qualify for need-based financial aid
- Curricular problems (no program for foundational-level math, high units in NS major)
- No specific pipeline from HS and CC into CSULA math and science teacher prep undergraduate and credential programs
- Relatively few of our undergrads enter our math and science credential program
- No CSET single subject preparation courses in math or science for postbaccs
- Financial hardship of directed teaching for students not in intern program

New Opportunities

- Blended program in science gives students B.S. degree and a teaching credential in science at the same time (approved by CTC)
- Noyce Scholarships for future science teachers (\$10,000/year) from National Science Foundation award
- Teacher Preparation and Advisement Center (TPAC) established. Placement of students in schools for early field experiences.
- Intern program at Charter College of Education (CCOE) started in 2004

MSTI Goals

- Better recruitment and retention in math and science teacher prep programs
- Revisions of Natural Science and Math curricula
- Higher enrollments in CCOE credential program
- Expedited completion of math and science credentials
- Initial development of bridges program for community colleges and high schools with TRP and MSTI funds (Andrea Maxie in Session #2)

California State University, Los Angeles
Evaluation for the Bachelor of Science Degree in Natural Science
Blended Option with Biology Emphasis (2005 Catalog)

Name _____ CIN _____

Address _____ City _____ Zip _____

Telephone _____ Catalog of Entry _____ Student Signature _____

Advisor _____ Date _____

All courses, including courses listed as "in progress" (IP) or "to be taken" (TBT), must be completed with a grade of "C" or better. A 2.0 GPA is required in all course work. A 2.75 GPA is required in the last 90 units for enrollment in EDCI 300. A 3.00 GPA is required in professional education courses.

Core Courses (68 Quarter Units)

CSULA Course	For Transfer or Substitution Courses Only			Grade
	Institution	Course	Units	
ASTR 151 Principles of Astronomy (3)				
ASTR 152 Principles of Astronomy Lab (1)				
BIOL 100A Introductory Biology I (5)				
BIOL 100B Introductory Biology II (5)				
BIOL 100C Introductory Biology III (5)				
CHEM 101 General Chemistry I (5)				
CHEM 102 General Chemistry I (5)				
CHEM 103 General Chemistry I (5)				
GEOL 150 Earth Revealed (4)				
GEOL 155 Oceanography (4)				
GEOL 252 Historical Geology (4)				
MATH 206 Calculus I Differentiation (4)				
MATH 207 Calculus II Integration (4)				
NS 398 Field Observations in Science Ed (2)				
PHYS 101 Physics I (4)				
PHYS 102 Physics II (4)				
PHYS 103 Physics III (4)				

Capstone Courses (6 Quarter Units)

NS 496A Natural Science Field Studies and Pedagogy (3)				
NS 496B Natural Science Field Studies and Pedagogy (3)				

Biology Emphasis (32 Quarter Units)

CSULA Course		For Transfer or Substitution Courses Only			Grade
		Institution	Course	Units	
BIOL 300 Biometrics	(4)				
BIOL 320 Writing for Biologists	(4)				
BIOL 340 General Genetics	(4)				
BIOL 360 General Ecology	(4)				
BIOL 380 Cell Biology	(4)				
BIOL 418 Evolution	(4)				
CHEM 301A Organic Chemistry	(3)				
MICR 300 General Microbiology	(5)				

Professional Education Courses (31 Quarter Units)

EDCI 300 The Teaching Profession: Preparing the Urban Educator	(2)				
EDFN 440 Schooling for a Diverse Urban Society	(4)				
EDSE 401 Instructional Strategies in Secondary Teaching	(4)				
EDSE 415 Classroom Management in Secondary Schools	(4)				
EDSE 423 Literacy in Middle and High School Content Areas	(4)				
EDSE 430 Using ESL Techniques in the Content Areas	(4)				
EDSE 445A Learning Environments and Instruction in Secondary Schools	(4)				
EDSP 400 Foundations of Special Education	(4)				
HS 457 Health Studies on Alcohol, Narcotics Nutrition and Tobacco	(1)				

Postbaccalaureate Directed Teaching (12 Quarter Units)

EDSE 445C Directed Teaching in Secondary Schools	(10)				
EDSE 445D Proseminar: Assessment of Teaching Performance	(2)				

General Education

(Include 2 diversity courses)

A. Basic Subjects (16)

- ENGL 101 (4)
- ENGL 102 (4)
- COMM 150 (4)
- Critical Thinking (4)

Math covered in Core

American Institutions (8)

- HIST 202A or 202B
- POLS 150

B. Natural Sciences

Covered in Core

C. Humanities (12)

(From 3 different areas)

- Course 1 _____
- Course 2 _____
- Course 3 _____

D. Social Sciences (12)

(From 3 different areas)

- Course 1 PSY 150
- Course 2 _____
- Course 3 _____

E. Lifelong Understanding (4)

- Course _____

F. Upper Division Theme (12)

(From 3 different areas)

- Course 1 _____
- Course 2 _____
- Course 3 _____

University Requirements (6)

- ENGL 102 (4)
- Intro to Higher Ed (2)
- WPE (0)

Better recruitment and retention in math and science teacher prep programs

- Contacts with newly admitted students, e.g. Preview Day (mailed 1237 flyers)
- Contacts with current CSULA science and math majors, e.g. math club, class visits
- Contacts with multiple subject majors
- Contacts with math and science graduate students (specialized credentials)
- Contacts with alumni in math, science and education
- Thirty stipends of \$500 for early field experiences through enrollment in NS 398 or EDCI 300 (classroom observations, tutoring, giving a lesson, etc.)
- Six scholarships (\$3000/year) for math majors to parallel the Noyce Scholarships for science majors
- Quarterly pizza socials with math, science and education faculty to improve advisement, community among students and attractiveness of CCOE
- MSTI website to unify disparate sources of information
- Assessment of MSTI publicity and advisement

Revisions of Natural Science and Math curricula

- CSET preparation courses for postbacc and multiple subject students (see existing successful materials)
- Creation of a foundational-level math subject matter program
- Reduction of units in traditional option of Natural Science major to about 184 quarter units (122 semester units) from 193 quarter units
- Investigation of BS degree for foundational-level math and introductory science

Higher enrollments in CCOE and expedited completion of math and science credentials

- Publicity about the attractiveness of new intern program, financial support and CSET preparation courses
- Less required coursework for postbaccs because of CSET preparation courses
- Earlier connection of undergrads with CCOE advisers