#### **Bachelor of Arts in Multidisciplinary Sciences**

(This new state-supported degree was approved by the CSULB Academic Senate on March 6, 2025, approved by the CSULB President on March 7, 2025, and by the CSU Chancellor's Office on May 14, 2025.)

The Bachelor of Arts degree in Multidisciplinary Sciences is designed for those students considering a professional career requiring multiple areas of expertise in the sciences. The program also provides a fundamental education in multiple science disciplines that prepares students for careers and graduate degrees requiring a science background. Multidisciplinary Sciences majors must receive a grade of "C" or better in all courses required for the major. A minimum of 120 units is required for the Bachelor of Arts degree.

#### **Admission Requirements**

Applicants will qualify for consideration for first-time freshman admission based on CSU Requirements and <u>CSULB STEM Eligibility Index</u>.

### Requirements

Lower Division:

Take all of the following courses:

- BIOL 211 Introduction to Evolution and Diversity (5 units)
- CHEM 111A General Chemistry A (5 units)
- SCED 100 An Introduction to Scientific and Spatial Reasoning (3 units)

Take one of the following courses or course pairs:

- ERTH 102 Planet Earth (3 units) and ERTH 104 Planet Earth Lab (1 units) or
- ERTH 106 Earth Science for Teachers (4 units)

Take one of the following:

- MATH 112B Essential Algebra B (3 units) or
- MATH 113 Precalculus Algebra (GE: B4) (3 units) or
- MATH 119A Survey of Calculus (3 units) or
- MATH 122 Calculus I (GE: B4) (4 units)

Take one of the following:

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- PHYS 100A General Physics A (GE: B1/B3) (4 units) or
- PHYS 151 Mechanics and Heat (GE: B1/B3) (4 units)

Upper Division:

Take all of the following courses:

- ASTR 370 Planetary Environments (3 units)
- SCED 403 Integrated Science (3 units)
- SCED 404 The Nature of Science and Scientific Reasoning (3 units)

# **Explorations**

Take total of 38 units, with a minimum of 12 upper division units total, in each of TWO of the following explorations:

### **Biology Exploration (all sequences)**

Take both of the following courses:

- BIOL 212 Introduction to Cell and Molecular Biology (4 units)
- BIOL 213 Introduction to Ecology and Physiology (4 units)
- CHEM 111B\* General Chemistry B (5 units)

Take 5-7 units of other Biology coursework based on one of 3 BIOLOGY Exploration sequences. \* not necessary if completing a Chemistry sequence.

## **Chemistry Exploration (all sequences)**

Take the following course:

• CHEM 111B General Chemistry (5 units)

Take 13-15 units of other Chemistry coursework based on one of 4 CHEMISTRY Exploration sequences.

#### Earth Science Exploration (all sequences)

Take the following course:

ERTH 240 - Historical Geology (4 units)

Take 14-16 units of other Earth Science coursework based on one of 4 EARTH SCIENCE Exploration sequences.

#### **Physics Exploration (all sequences)**

Take all of the following courses:

- MATH 123 Calculus II (4 units)
- MATH 224 Calculus III (4 units)
- PHYS 152 Electricity and Magnetism (4 units)
- PHYS 254 Applied Modern Physics (3 units)

Take 3-5 units of other Physics coursework as designated in the PHYSICS Exploration Sequence.

# 1. Biology Exploration

The following three sequences compose the Biology Exploration.

### **Biology Teaching Sequence**

Take all of the following courses:

- BIOL 340 Molecular Cell Biology (3 units)
- BIOL 342 Human/Mammalian Physiology (3 units)
- BIOL 342L Laboratory in Human/Mammalian Physiology (2 units)

Take one of the following courses (only if completing both Biology and Chemistry sequences)

- BIOL 313 Invertebrate Zoology (4 units)
- BIOL 316 General Entomology (4 units)
- BIOL 324 Vertebrate Zoology (4 units)
- BIOL 345 Comparative Animal Physiology (3 units)
- BIOL 345L Laboratory in Comparative Animal Physiology (1 unit)
- BIOL 423 Mammalogy (3 units)
- BIOL 434 Hematology (4 units)
- BIOL 442 Physiology at the Limit (3 units)
- BIOL 443 Endocrinology (3 units)
- BIOL 444 Reproductive Biology (3 units)
- BIOL 446 Physiology of Climate Change (3 units)
- BIOL 462 Bioethics and Public Policy (3 units)

### **Ecology and Evolution Sequence**

Take all of the following:

BIOL 260 – Biostatistics (3 units)

Take at least two of the following courses (for at least 7 units)

- BIOL 312\*\* (strongly recommended)
- BIOL 313
- BIOL 316
- BIOL 324
- BIOL 345L
- BIOL 350\*\* (strongly recommended)
- BIOL 353
- BIOL 355
- BIOL 355L
- BIOL 370
- BIOL 371
- BIOL 372
- BIOL 419
- BIOL 421
- BIOL 423
- BIOL 424
- BIOL 425
- BIOL 427
- BIOL 439
- BIOL 450

- BIOL 451
- BIOL 452
- BIOL 454B
- BIOL 456
- BIOL 457
- BIOL 459
- BIOL 462
- BIOL 474

# **Biomedical Sequence**

Take four of the following (for 10-12 units):

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- **BIOL 208**
- BIOL 311\*\* (strongly recommended)
- BIOL 320
- BIOL 320L
- BIOL 322
- BIOL 325
- BIOL 340\*\* (strongly recommended)
- BIOL 342\*\* (strongly recommended)
- BIOL 342L
- BIOL 345
- BIOL 345L
- BIOL 371
- BIOL 372
- BIOL 416
- BIOL 430
- BIOL 433
- BIOL 434
- BIOL 440L
- BIOL 442
- BIOL 443
- BIOL 444
- BIOL 446
- BIOL 448
- BIOL 462

#### 2. Chemistry Exploration

The following four sequences compose the Chemistry Explorations.

# **Biochemistry/Chemistry Teaching 1 Sequence**

(Sequence includes the courses necessary to meet the requirements of the CA Commission on Teacher

## Credentialing.)

Take the following courses:

- CHEM 220A
- CHEM 220B
- CHEM 241
- CHEM 448
- CHEM 449

Take one of the following (for 1-3 units):

- CHEM 223A
- CHEM 223B
- CHEM 320L
- CHEM 330
- CHEM 361
- CHEM 379

## **Biochemistry/Chemistry Teaching 2 Sequence**

(Sequence includes the courses necessary to meet the requirements of the CA Commission on Teacher Credentialing.)

Take the following courses:

- CHEM 227
- CHEM 241
- CHEM 448
- CHEM 449

Take two of the following courses (for 4-6 units):

- CHEM 251
- CHEM 301
- CHEM 223A
- CHEM 330

# **Physical Chemistry Sequence**

Take the following courses:

- CHEM 371A
- CHEM 371B

• CHEM 385

Take two of the following courses (for 4-6 units):

- CHEM 251
- CHEM 385L
- CHEM 385C

### **Inorganic Chemistry Sequence**

Take the following courses:

- CHEM 251
- CHEM 331
- CHEM 332

Take two of the following courses (for 4-6 units):

- CHEM 227
- CHEM 301
- CHEM 371A
- CHEM 371B

# **3. Earth Science Exploration**

The following four sequences compose the Earth Science Explorations.

# **Earth Science Teaching Sequence**

(Sequence includes the courses necessary to meet the requirements of the CA Commission on Teacher Credentialing.)

Take the following courses:

- ASTR 100
- ASTR 100L
- ERTH 190
- ERTH 280
- ERTH 300
- ERTH 303

## Earth Science and the Environment Sequence

Take the following courses:

- ERTH 150
- ERTH 250
- ERTH 303

Take two of the following courses (for 4-6 units):

- ERTH 160
- ERTH 160L
- ERTH 190
- ERTH 300
- ERTH 322
- ERTH 339
- ERTH 341
- ERTH 363
- ERTH 433
- ERTH 443

# **Physics of the Earth Sequence**

Take the following courses:

- ERTH 300
- ERTH 428
- ERTH 460

Take one of the following courses (for 3-4 units):

- ERTH 339
- ERTH 363
- ERTH 443
- ERTH 462
- ERTH 465
- ERTH 474
- ERTH 477

# Earth Science and Contemporary Society Sequence

Take the following courses:

- ERTH 280
- ERTH 300
- ERTH 303

Take two of the following (for a minimum of 5 units and maximum of 8 units):

- ERTH 190
- ERTH 191
- ERTH 310
- ERTH 339
- ERTH 340
- ERTH 363
- ERTH 443
- ERTH 461

# 4. Physical Exploration

The following sequence composes the Physical Exploration.

# **General Physics/Physics Teaching Sequence**

(Sequence includes the courses necessary to meet the requirements of the CA Commission on Teacher Credentialing.)

Students following this exploration must take PHYS 151 and PHYS 152 in their core sequence.

Take all of the following:

- PHYS 255
- PHYS 320

# **Grade Requirements**

All B.A. MDSC majors must earn a "C" or better in all science courses (Core and Explorations) counting toward the major (including transfer courses) and must maintain major and upper-division major GPAs of 2.0 or higher. A student whose GPA in the major or upper division GPA in the major falls below 2.0 will be advised that they are at risk of being dismissed from the major and granted one semester to raise their major GPA to 2.0. Students who do not successfully raise their major GPA must meet with an advisor to declare another major or submit an appeal to the Department of Science Education explaining why they need one additional semester.

Students whose major GPAs remain below 2.0 after this additional semester must declare a new major.

# Students Desiring Entrance into a Health Professions Program

Students desiring entrance into one of the various health-related professional schools should consult with the Health Professions Advising Office in the College of Natural Sciences and Mathematics, Jensen Student Access to Sciences and Mathematics Center (HSCI-164) for more information. Most of these schools do not require students to major in one science discipline and many favor applicants who have earned a baccalaureate that includes science in some regard. However, it will be important for students to identify and successfully complete the courses required for their post-baccalaureate plans.

#### **EFFECTIVE: Fall 2026**

Academic Plan Code: CNSMBA01U1

CIP: 30.1801

CSU Major Code: 49021

Career: Bachelor's

College: College of Natural Sciences and Mathematics

Department: Science Education

Delivery: Face-to-Face

Summer Requirement: No Mandatory Summer Requirement