

BS Bio

Bachelor of Science in Biology

Under Review | Fall 2023

Proposal Information

Status

Active

Workflow Status

In Progress

Faculty Senate Approval, Faculty Senate

expand ▲

Waiting for Approval | Faculty Senate Approval

Rick Holmes

Nancy Middlebrook

Changes

- Requirements
- participants
- Proposed Effective Term and Year
- Sponsoring faculty member
- Faculty email

Show All ▼

Proposal Information

Proposed

Sponsoring faculty member ⓘ

Cristina Takacs-Vesbach

Proposed

Faculty email

cvesbach@unm.edu

Existing

Sponsoring faculty member ⓘ

Existing

Faculty email

College

College of Arts & Sciences

Department

Biology

Campus

Main Campus

Effective Term and Year

Proposed

Proposed Effective Term and Year

Fall 2023

Existing

Proposed Effective Term and Year

Fall 2006

Justification

Proposed

Program Justification

Please see the file (Biology_New_Degree_Map_Revised_02-03-23.pdf) attached below to the "Sample Degree Plan" and "Proposal File Upload" sections for important visuals of our proposal, a roadmap, and additional explanations. Note that some of the proposed revised courses (e.g., 304C, 310C) appear as the old courses (304 & 310) in the "Degree Requirements" section below; Kuali does not display them correctly in this proposal and this may cause some confusion. This file also contains a summary of how stakeholders such as UNM STEM departments, the Branch campuses, CNM, SJC, and Professional Health programs will be impacted by our proposal. Detailed emails documenting conversations with stakeholders are included in the files "redesign_correspondence_2_5_23.pdf" attached to the "Proposal File Upload" section. Finally, an example of the difficulties students have transferring to UNM is illustrated in the attached file "transfer_difficulties.pdf".

Last year (2021-22) we performed a self-study of the Biology Department undergraduate curriculum and found that it was essentially impossible for students to complete our BA/BS degree requirements within four years, particularly due to the complexity of our course pre-/co-reqs. We compared our curriculum to ten other peer departments at universities primarily around the western US and concluded that our undergraduate program is an outlier in terms of the two-year sequence of introductory courses. From our study, we concluded that the current four course introductory core represents a significant barrier to degree for our students, is difficult for us to deliver, and makes transferring to UNM Biology unattractive and frustrating. We have redesigned the Biology core curriculum and hope to begin teaching it next Fall.

Associated Forms

The new core will enable students to begin their Biology requirements as early as first semester freshman year, but they can still complete our degree within four years if they discover Biology a few semesters into their time at UNM (see our attached ~~example degree plans, pages 3-4 of Biology_New_Degree_Map_Revised_02-03-23.pdf~~ or transfer from other branches or institutions). In our new curriculum, all undergraduate Biology degrees begin with an "Introductory Core" that includes two lecture classes, BIOL2101 Principles of Biology: molecules to cells and BIOL2102 Principles of Biology: organisms to ecosystems and a laboratory course (BIOL2103L). These courses have an emphasis on basic competencies, developing study skills, and laying down fundamental knowledge. They have no prerequisites, can be taken in any sequence, and can be completed in one to two semesters. All Biology majors must take Evolution (BIOL 300C) and choose three of five additional courses (Intermediate Coursework) offered at the 300 level (Genetics, Physiology, Microbiology, Molecular Cell Bio, or Ecology). To ensure our majors don't leave Evolution until their last semester, we have made it a co-req for three of the five 300 level courses that are in the "pick three" category (BIOL 304C, 310C, and 351/352L-note that 351/352L will be updated in Kuali next semester). It is with these 300-level courses that Pre-Health majors will take the one year of Biology with laboratory coursework that is required of medical, dental, and pharmacy programs. There is still a breadth requirement at the 400 level, but with six required classes for a BS, students can also achieve depth in an area that interests them, which is lacking in our current curriculum.

Changing to the new core will not add additional coursework for our current students. Our current majors will take fewer classes to complete the core. Consequently, the old four course core will not be offered after this Spring (potentially summer) if our proposed changes are accepted. We have also changed/simplified our required supportive courses (in Chemistry, Physics, Math/Stats, and GEOL), but made Statistics required of all our majors. Pre-health students will be proactively advised to take the appropriate chemistry and math courses that we have dropped from our degree (with info on our website, posters in Bioadvising, the bioadvisors, and Pre-Health advisors).

For students who wish to major in Biology that transfer from other NM institutions with the first two courses of our current curriculum (BIOL 2110 and 2410), they will still need to take the new BIOL 2102 (3 credits), but overall they will take less credits to begin focusing in on their classes of interest. Under the old core students had to take four large lecture classes, one semester at a time, before they could choose any of their specialty classes in Biology. Under the new core, Students that transfer to UNM with BIOL 2110 and 2410 will be able to take any 300 or 400 level in Biology they choose after they take 2102 of the new "Introductory Core". For students that have only taken 2110 by Fall 2023, we will allow them to begin the new core at 2102, if they take 302C as one of their intermediate elective courses. We have kept the "Additional Electives" category in our degree, which is used by many transfer students to receive credit for other biology related coursework they have completed. In the new curriculum, students can also use this category to enhance their Biology degree by taking Biology-related courses in other departments (Anthro, EPS, Psych, etc.).

Proposed

Select any associated course forms that exist

BIOL 2101 - Principles of Biology: Molecules to Cells (3) |

Under Review

BIOL 2102 - Principles of Biology: Organisms to Ecosystems (3) | **Under Review**

BIOL 2103L - Principles of Biology: Introductory Laboratory (1) | **Under Review**

BIOL 300C - Evolution (4)

BIOL 302C - Genes to Genomes: Lecture and Laboratory (4) | **Under Review**

BIOL 301C - Molecular and Cellular Biology (4) | **Under Review**

BIOL 304 - Plant and Animal Form and Function (3)

BIOL 310C - Principles of Ecology (3)

BIOL 330 - Department of Biology Sophomore Seminar (Integrative Biology Emphasis) (1) | **Under Review**

BIOL 331 - Department of Biology Sophomore Seminar (Cellular Biology, Molecular Biology, and Physiology Emphasis) (1) | **Under Review**

BIOL 332 - Department of Biology Sophomore Seminar (Ecology, Evolution, and Organismal Biology Emphasis) (1) | **Under Review**

BIOL 430 - Department of Biology Seminar (1) | **Under Review**

BIOL 431 - Department of Biology Brown Bag Research Seminar (1) | **Under Review**

Existing

Select any associated course forms that exist

Select any associated program forms that exist Students from other universities who wish to transfer to UNM to fulfill their introductory Biology requirements more easily too. If a student from another university come from a Biology program with a two course degree nearly from the beginning at UNM. In the current core, it is possible to give equivalency to any of the introductory courses. Our current four-year degree programs because an additional semester of introductory courses (the third and fourth classes in the sequence) are not required. Our 300 or 400-level courses such as Microbiology or Immunology will not need overrides for every upper division Biology course. BIOL 2102, 2103L series (note again that these introductory classes

Program Category and Level

Program Category	Program Level	Degree, Minor, or Certificate Name
Program	Undergraduate	Bachelor of Science in Biology
Proposed New Graduate Program	Dual Degree No	Proposed New Undergrad Degree/Certificate
No		No
Existing New Graduate Program		Existing New Undergrad Degree/Certificate
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Catalog Information

Program Description

Students majoring in Biology learn about the basic organization, processes and dynamics of the living world. The program of study provides students with a liberal education emphasizing the life sciences. The many subdisciplines of biology can prepare students for a wide range of careers and professional schools.

Proposed

Admissions Requirements

A minimum of 26 credit hours; 23 credit hours must be in courses acceptable toward graduation.

A cumulative grade point average of at least 2.00 on all work.

- Transfer students must have a 2.00 transfer GPA.
- Continuing UNM students must have a 2.00 institutional GPA.

Demonstrated academic achievement by satisfying the following:

- Completion of General Education Curriculum: Communication.
- Completion of General Education Curriculum: Mathematics and Statistics.
- Completion of General Education Curriculum: Second Language.

Completion of Department of Biology admission coursework with grades of "C" or better:

- BIOL 2101
- BIOL 2102
- BIOL 2103L

Existing

Admissions Requirements

Proposed

Graduation Requirements

1. A minimum of 49 credit hours earned in biology courses.

These courses must include:

- BIOL 2101, 2102, and 2103L
- BIOL 300C
- At least three of the following: 301C, 302C, 304C, 310C, **351 and **352L
- At least six upper division (400 level) elective Biology courses, excluding BIOL 400, 402, and 499 (BIOC *423 may be included).
- At least two additional Biology related electives, these courses can be in the Biology Department, cross-listed with Biology, or a Biology-related (e.g., BIOC, ANTH, EPS, etc.) course that enhances student's biology knowledge and understanding.

2. Upper-Division Breadth Requirement:

Each student must complete at least six 400-level courses that are spread across the following three categories:

1) Cell/Molecular/Physiology (CMP); 2) Ecology/Evolution/Organisms (EEO); 5) Integrative Science (INT).

Note: the category to which each eligible course belongs is listed in parentheses (CM, PH, OR, EE, or ID) where CMP= CM, PH; EEO= EE, OR; INT=ID. Completing these courses from only one or two categories does NOT satisfy the breadth requirement.

3. Required Supportive Courses:

- (MATH 1430 or 1512) AND (MATH 1350);
- (PHYS 1230 and 1240) or (PHYS 1310 and 1320) or (PHYS 1115 and GEOL 1110);
- (CHEM 1215 and 1215L) and (CHEM 1225 and 1225L).

For those interested in microbiology, molecular/cellular biology, physiology, pharmacy, or medicine, CHEM **301-303L and **302-304L are recommended.

No minor study is required for the B.S. in Biology.

Existing

Graduation Requirements

Program Information

Degree Type

Bachelor of Science

Degree/Certificate Type

Undergraduate

CIP Code ⓘ

CIP Title ⓘ

Professional Credential/Licensure Program Information

Proposed
Licensure Information
Neither

Existing
Licensure Information
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File Uploads

Proposed	Executive Summary Upload	Associate Provost Memo
Proposal File Upload <ul style="list-style-type: none">• Biology_New_Degree_Map_Revised_02-03-23.pdf• redesign_correspondence_2_5_23.pdf• transfer_difficulties.pdf		

Existing
Proposal File Upload

Degree Information

Proposed Degree Hours 120	Proposed Minimum Major Hours 49
Existing Degree Hours	Existing Minimum Major Hours

Professional Accrediting Bodies

Degree Requirements

Requirements

Fetching rules...

Grand Total Credits: 121 - 126

Concentrations

Program Concentrations

Code

Title

CON Eco Evol Org Bio

Ecology, Evolution and Organismal Biology

CON Cons Bio BS

Conservation Biology

CON Bio Tech

Biotechnology

Proposed

Concentration Required

No

Existing

Concentration Required

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Emphases

Emphasis required ⓘ

Emphasis Hours

N/A

Emphasis Rules

No Rules

Sample Degree Plan

Proposed

Sample Degree Plan Upload

- Biology_New_Degree_Map_Revised_02-03-23.pdf

Existing

Sample Degree Plan Upload

Program Learning Outcomes

Proposed

Learning Outcomes

1. Students will demonstrate an understanding of key principles in various biological sub-disciplines that span molecular to ecosystem levels of organization
2. Students will be able to design, test, and evaluate scientific hypotheses
3. Students will be able to summarize and interpret key findings of research papers
4. Students will demonstrate a capacity for analyzing biological data and for producing coherent written and oral presentations

Existing

Learning Outcomes