

**UCC/UGC/ECCC**

Proposal for Plan Change or Plan Deletion

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| **FAST TRACK (Select if this will be a fast track item**. Refer to  [***Fast Track Policy***](http://www4.nau.edu/avpaa/UCCPolicy/Agenda_FastTrack_Consent.docx) for eligibility) |

***If this proposal represents changes to the intent of the plan or its integral components, review by the college dean, graduate dean (for graduate items) and/or the provost may be required prior to college curricular submission.***

***All Plans with NCATE designation, or plans seeking NCATE designation, must include an NCATE Accreditation Memo of Approval from the NAU NCATE administrator prior to college curricular submission.***

***UCC proposals must include an updated 8-term plan.***

***UGC proposals must include an updated program of study.***

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| 1. College: | **CENFS** | | | 2. Academic Unit: | | | **Biological Studies** |
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| 3. Academic      Plan Name: | | **Biology; B.S. (BIOLBSX)** | | 4. Emphasis: | |  | |

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| 5. Plan proposal: | | Plan Change | | Plan Deletion | |
|  | New        Emphasis | | Emphasis       Change | | Emphasis             Deletion |

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| 6. Current student learning outcomes of the plan. If structured as plan/emphasis, include for **both c**ore and emphasis.  1. Students will be able to communicate scientific information effectively  2. Students will be able to collect, analyze and interpret scientific data  3. Students will develop proficiency in the quantitative skills necessary to analyze biological problems (*e.g.*, arithmetic, algebra, dimensional analysis, and statistical analysis as applied to biology)  4. Students will be able to apply the scientific method  5. Students will be able to describe fundamental principles of biology *e.g.*, central dogma, diversity of life, inheritance  6. Students will understand that evolution is the central principle uniting the field of biology, and apply the theory of evolution to explain biological phenomena  7. Students will be able to access and interrogate the primary scientific literature  8. Students will be able to synthesize material from across a biological sub-discipline and apply this to advanced-level course material (*i.e.*, a Capstone experience)  9. Student will investigate a specific taxonomic group in the form of one or more courses focused on a particular group of organisms  10. Students will develop an appreciation for the interdisciplinary role of science as applied to human and environmental challenges | Show the proposed changes in this column (if applicable). **Bold** the changes, to differentiate from what is not changing, and change font to **~~Bold Red with strikethrough~~**for what is being deleted. *(*[*Resources, Examples & Tools for Developing Effective Program Student Learning Outcomes*](http://www4.nau.edu/avpaa/Assessment/ProgramLearningOutcomesPDF_090712.pdf)*).*  **UNCHANGED** |

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| 7. Current catalog plan overview and requirements in this column. Cut and paste the *Overview* and *Details* tabs, in their entirety, from the current on-line academic catalog: (<http://catalog.nau.edu/Catalog/>)Biology; B.S. In addition to University Requirements:   * At least 66 units of major requirements * Be aware that you may not use courses with a BIO prefix to satisfy liberal studies requirements * Elective courses, if needed, to reach an overall total of at least 120 units   Please note that you may be able to use some courses to meet more than one requirement. Contact your advisor for details.   | Minimum Units for Completion | 120 | | --- | --- | | GPA | C | | Mathematics Required | [MAT 125](http://catalog.nau.edu/Courses/course?courseId=005205&catalogYear=1314) | | Fieldwork Experience/Internship | Optional | | Research | Optional | | University Honors Program | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#BIOLBSX) |   *Major Requirements*  Take the following 66 units including 40 units of Biology and Biology-related courses with a Grade of "C" or better:   * BIO 181, BIO 181L, BIO 182, BIO 182L (8 units)   Select one of the following junior-level writing requirement options (4-5 units):   * BIO 205, BIO 205L, BIO 305W * BIO 326, BIO 326LW   Select one of the following capstone options (3-4 units):   * BIO 401C * BIO 425C, BIO 425L * BIO 426C, BIO 426L * BIO 435C * BIO 444C * BIO 482C * BIO 488C   Select additional coursework from (23 units):   * Any BIO courses, except BIO 100, BIO 100L, BIO 310, or any BIO recitation (R) * Up to 3 units of BIO 300 * Up to 6 units from BIO 408, BIO 485, BIO 497, BIO 498 * Up to 6 units of non-BIO prefix courses from the following:   + ANT 270, ANT 271, ANT 370, ANT 379, ANT 553, ANT 554   + CHM 238L, CHM 320, CHM 320L, CHM 440, CHM 461, CHM 462C, CHM 560   + CS 486C   + ENV 360, ENV 440, ENV 440L   + FOR 212, FOR 213, FOR 222, FOR 240, FOR 250, FOR 255, FOR 270, FOR 340, FOR 381, FOR 382, FOR 445, FOR 452, FOR 453, FOR 454, FOR 504   + GLG 101, GLG 107, GLG 201, GLG 225, GLG 304, GLG 530   + GSP 150   + NTS 256   + PHI 332   + PRM 300   + PSY 320, PSY 350, PSY 355, PSY 370, PSY 420, PSY 432, PSY 670   + STA 471   Please note many of the following major requirements also satisfy Liberal Studies requirements.   * Basic chemistry sequence: CHM 151, CHM 151L, CHM 152, CHM 152L (9 units) * Biochemistry course: CHM 360 or CHM 461 (3 units)   Select one of the following organic chemistry sequences:   * CHM 230, CHM 230L (4 units) * CHM 235, CHM 235L If choosing to complete this sequence, then CHM 238 is recommended. (5 units)   Select one of the following math combinations:   * MAT 125 and (STA 270 or PSY 230) (7-8 units) * MAT 136 (4 units)   Select one of the following physics sequences:   * PHY 111, PHY 112 * PHY 161, PHY 262, PHY 262L If choosing to complete this sequence, then PHY 263 is recommended. (8 units)   If you are considering a minor, 18 units of qualifying chemistry satisfy the requirements for the Minor in CHMMN.  *General Electives*  Additional coursework is required, if, after you have met the previously described requirements, you have not yet completed a total of 120 units of credit.  You may take these remaining courses from any academic areas, using these courses to pursue your specific interests and goals. We encourage you to consult with your advisor to select the courses that will be most advantageous to you. (Please note that you may also use prerequisites or transfer credits as electives if they weren't used to meet major, minor, or liberal studies requirements.)  *Additional Information*  Be aware that some courses may have prerequisites that you must also take. For prerequisite information click on the course or see your advisor. | Show the proposed changes in this column.  **Bold** the changes, to differentiate from what is not changing, and change font to **~~Bold Red with strikethrough~~** for what is being deleted. Biology; B.S. In addition to University Requirements:   * At least 66 units of major requirements * Be aware that you may not use courses with a BIO prefix to satisfy liberal studies requirements * Elective courses, if needed, to reach an overall total of at least 120 units   Please note that you may be able to use some courses to meet more than one requirement. Contact your advisor for details.   | Minimum Units for Completion | 120 | | --- | --- | | GPA | C | | Mathematics Required | [MAT 125](http://catalog.nau.edu/Courses/course?courseId=005205&catalogYear=1314) | | Fieldwork Experience/Internship | Optional | | Research | Optional | | University Honors Program | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#BIOLBSX) |   *Major Requirements*  Take the following 66 units including 40 units of Biology and Biology-related courses with a Grade of "C" or better:   * BIO 181, BIO 181L, BIO 182, BIO 182L (8 units)   Select one of the following junior-level writing requirement options (**~~4-5~~** **3-5** units):   * BIO 205, BIO 205L, BIO 305W * BIO 326, BIO 326L**~~W~~, BIO 305W** * **BIO 365W**   Select one of the following capstone options (3-4 units):   * BIO 401C * BIO 425C, BIO 425L * BIO 426C, BIO 426L * BIO 435C * BIO 444C * BIO 482C * BIO 488C   Select additional coursework from (23**-26** units):   * Any BIO courses, except BIO 100, BIO 100L, BIO 310, or any BIO recitation (R) * Up to 3 units of BIO 300 * Up to 6 units from BIO 408, BIO 485, BIO 497, BIO 498 * Up to 6 units of non-BIO prefix courses from the following:   + ANT 270, ANT 271, ANT 370, ANT 379, ANT 553, ANT 554   + CHM 238L, CHM 320, CHM 320L, CHM 440, CHM 461, CHM 462C, CHM 560   + CS 486C   + ENV 360, ENV 440, ENV 440L   + FOR 212, FOR 213, FOR 222, FOR 240, FOR 250, FOR 255, FOR 270, FOR 340, FOR 381, FOR 382, FOR 445, FOR 452, FOR 453, FOR 454, FOR 504   + GLG 101, GLG 107, GLG 201, GLG 225, GLG 304, GLG 530   + GSP 150   + NTS 256   + PHI 332   + PRM 300   + PSY 320, PSY 350, PSY 355, PSY 370, PSY 420, PSY 432, PSY 670   + STA 471   Please note many of the following major requirements also satisfy Liberal Studies requirements.   * Basic chemistry sequence: CHM 151, CHM 151L, CHM 152, CHM 152L (9 units) * Biochemistry course: CHM 360 or CHM 461 (3 units)   Select one of the following organic chemistry sequences:   * CHM 230, CHM 230L (4 units) * CHM 235, CHM 235L If choosing to complete this sequence, then CHM 238 is recommended. (5 units)   Select one of the following math combinations:   * MAT 125 and (STA 270 or PSY 230) (7-8 units) * MAT 136 (4 units)   Select one of the following physics sequences:   * PHY 111, PHY 112 * PHY 161, PHY 262, PHY 262L If choosing to complete this sequence, then PHY 263 is recommended. (8 units)   If you are considering a minor, 18 units of qualifying chemistry satisfy the requirements for the Minor in CHMMN.  *General Electives*  Additional coursework is required, if, after you have met the previously described requirements, you have not yet completed a total of 120 units of credit.  You may take these remaining courses from any academic areas, using these courses to pursue your specific interests and goals. We encourage you to consult with your advisor to select the courses that will be most advantageous to you. (Please note that you may also use prerequisites or transfer credits as electives if they weren't used to meet major, minor, or liberal studies requirements.)  *Additional Information*  Be aware that some courses may have prerequisites that you must also take. For prerequisite information click on the course or see your advisor. |

8. Justification for proposal:

**This plan change proposal is concurrent with the BIO 305W and BIO 326LW course change proposals, and the BIO 365W new course proposal.**

9. NCATE designation, if applicable**:**

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| Initial Plan |  | Advanced Plan | | | |  | Remove Designation | |
| 10. Effective beginning **FALL**: | | | **2014** | |  | | |
| [**See effective dates calendar**](http://www4.nau.edu/avpaa/timelines/1314Effective.xls). | | | |  | | | |

11. Will this proposal impact other plans, sub plans, or course offerings, etc.? Yes      No

   If yes, describe the impact. If applicable, include evidence of notification to and/or response from

each impacted academic unit

**Answer 12-13 for UCC/ECCC only:**

12. A major is differentiated from another major by required course commonality: 24 units of the        required credit hours of a major must be unique, (i.e. not common or not dual use as a required        element in another major), to that major. Does this plan have 24 units of unique required        credit? Yes       No

13. Minor: A planned group of courses from one or more subject matter areas consisting of at least        18 hours and no more than 24 hours. At least 12 hours of the minor must be unique to that minor         to differentiate it from other minors.

       Does this minor have 12 units of unique required credit? Yes       No

**Answer 14-15 for UGC only:**

14. If this is a non-thesis plan, does it require a minimum of 24 units of formal graded coursework?                                                                                                                                       Yes       No

       If no, explain why this proposal should be approved.

15. If this is a thesis plan, does it require a minimum of 18 units of formal graded coursework?                                                                                                                                       Yes       No

       If no, explain why this proposal should be approved.

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| **FLAGSTAFF MOUNTAIN CAMPUS** |  |
| **Scott Galland** | **2/4/2014** |
| Reviewed by Curriculum Process Associate | Date |
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| **Approvals**: |  |
|  |  |
| Department Chair/Unit Head (if appropriate) | Date |
|  |  |
| Chair of college curriculum committee | Date |
|  |  |
| Dean of college | Date |
|  |  |
| **For Committee use only:** |  |
|  |  |
| UCC/UGC Approval | Date |

Approved as submitted: Yes  No

Approved as modified: Yes  No

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| **EXTENDED CAMPUSES** |  |
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| Reviewed by Curriculum Process Associate | Date |
|  |  |
| **Approvals:** |  |
|  | |
| Academic Unit Head | Date |
|  | |
| Division Curriculum Committee (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Division Administrator in Extended Campuses (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Faculty Chair of Extended Campuses Curriculum Committee (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Chief Academic Officer; Extended Campuses (or Designee) | Date |
|  |  |

Approved as submitted: Yes  No

Approved as modified: Yes  No