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| --- | --- |
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| S:\Communications\Logos and photos\SDBORLogos\final_sdbor_webreadyBW_trans.gif | **SOUTH DAKOTA BOARD OF REGENTS**  ACADEMIC AFFAIRS FORMS |
| Substantive Program Modification Form |
|  |  |

Use this form to request minor changes in existing programs (majors, minors, certificates, or specializations).

|  |  |
| --- | --- |
| **UNIVERSITY:** | DSU |
| **CURRENT PROGRAM TITLE:** | **B.S. in Biology and B.S. Ed. In Biology Education** |
| **CIP CODE:** | **26.9999** |
| **UNIVERSITY DEPARTMENT:** | **College of Arts and Sciences** |
| **BANNER DEPARTMENT CODE:** | **DAS** |
| **UNIVERSITY DIVISION:** |  |
| **BANNER DIVISION CODE:** | **DSCI** |

**University Approval**

*To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.*

|  |  |  |
| --- | --- | --- |
|  |  | 1/28/2021 |
| Vice President of Academic Affairs or  President of the University |  | Date |

|  |
| --- |
|  |

1. **This modification addresses a change in (*place an “X” in the appropriate box*):**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total credits required within the discipline |  | Total credits of supportive course work |
|  |  |  |  |
|  | Total credits of elective course work |  | Total credits required for program |
|  |  |  |  |
|  | Program name |  | Existing specialization |
|  |  |  |  |
|  | CIP Code |  | Other (explain below) |

Other: In this Substantive Program Modification form, DSU is proposing collapsing two majors (Biology and Biology Education) into one major (BS in Biology) with two specializations (Integrative Biology and Biology Education).

1. **Effective date of change: 7/1/2021**
2. **Program Degree Level (*place an “X” in the appropriate box*):**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Associate |  | Bachelor’s |  | Master’s |  | Doctoral |  |

1. **Category (*place an “X” in the appropriate box*):**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Certificate |  | Specialization |  | Minor |  | Major |  |

1. **If a name change is proposed, the change will occur (*place an “X” in the appropriate box*):**

|  |  |
| --- | --- |
|  | On the effective date for all students |

|  |  |
| --- | --- |
|  | On the effective date for students new to the program (enrolled students will graduate from existing program) |
|  |

|  |  |
| --- | --- |
| **Proposed new name:** | **B.S. in Biology** |
|  | *Reminder: Name changes may require updating related articulation agreements, site approvals, etc.* |

1. **Primary Aspects of the Modification (*add lines or adjust cell size as needed*):**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Existing Curriculum* | | | | | *Proposed Curriculum (highlight changes)* | | | | | |
| **Pref.** | **Num** | **Title** | | **Cr.**  **Hrs.** |  | **Pref.** | | **Num.** | **Title** | **Cr. Hrs.** |
| **System Wide General Education Requirement\*** | | | | 30 |  | **System Wide General Education Requirement\*** | | | | **30** |
| Majors must take BIOL 151/151L and BIOL 153/153L as part of the System-wide General Education Requirement. | | | | |  | Majors must take BIOL 151/151L and BIOL 153/153L as part of the System-wide General Education Requirement.  Students choosing the education specialization should take ESPY 210 and INED 211 as part of System-wide General Education Requirements | | | | |
|  | | | |  |  |  | |  |  |  |
| **Biology Component** | | | | 40 |  | **Biology Core** | | | | **21** |
| BIOL | 145 | Introduction to Scientific Inquiry | | 1 |  | BIOL | | 145 | Introduction to Scientific Inquiry | 1 |
| BIOL | 221 | Human Anatomy | | 4 |  | BIOL | | 221 | Human Anatomy | 4 |
| BIOL | 221L | Human Anatomy Lab | | 0 |  | BIOL | | 221L | Human Anatomy Lab | 0 |
| BIOL | 280 | Inquiry and Analysis in Biology | | 1 |  | BIOL | | 280 | Inquiry and Analysis in Biology | 1 |
| BIOL | 280L | Inquiry and Analysis of Biology Lab | | 1 |  | BIOL | | 280L | Inquiry and Analysis of Biology Lab | 1 |
| BIOL | 311 | Principles of Ecology | | 4 |  | BIOL | | 311 | Principles of Ecology | 4 |
| BIOL | 311L | Principles of Ecology Lab | | 0 |  | BIOL | | 311L | Principles of Ecology Lab | 0 |
| BIOL | 331 | Microbiology | | 4 |  | BIOL | | 331 | Microbiology | 4 |
| BIOL | 331L | Microbiology Lab | | 0 |  | BIOL | | 331L | Microbiology Lab | 0 |
| BIOL | 371 | Genetics | | 4 |  | BIOL | | 371 | Genetics | 4 |
| BIOL | 371L | Genetics Lab | | 0 |  | BIOL | | 371L | Genetics Lab | 0 |
| BIOL | 498 | Undergraduate Research/Scholarship (2 credits required) | | 2 |  | BIOL | | 498 | Undergraduate Research/Scholarship (2 credits required) | 2 |
|  | | | | |  |  | |  |  |  |
| **~~Integrative Biology Emphasis (19 Credits)~~**  **~~Choose one of the following emphases~~** | | | | |  |  | | | |  |
| ~~BIOL~~ | ~~365~~ | ~~Vertebrate Zoology~~ | | ~~4~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~365L~~ | ~~Vertebrate Zoology Lab~~ | | ~~0~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~410~~ | ~~Conservation Biology~~ | | ~~3~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~450~~ | ~~Aquatic Biology~~ | | ~~4~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~450L~~ | ~~Aquatic Biology~~ | | ~~0~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~492~~ | ~~Topics\*~~ | | ~~1-4~~ |  |  | |  |  |  |
| ~~BIOL~~ |  | ~~Elective (4-7 credits)~~ | |  |  |  | |  |  |  |
| ~~\*May be repeated provided student does not enroll in the same topics course. One credit Biology topics offering may not be combined to substitute for a required or elective three-or-four credit Biology course.~~ | | | | |  |  | | | |  |
|  | | | | |  |  | |  |  |  |
| **~~Molecular Biology Emphasis~~** | | | | |  |  | | | |  |
| ~~BIOL~~ | ~~325~~ | ~~Physiology~~ | | ~~4~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~325L~~ | ~~Physiology Lab~~ | | ~~0~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~343~~ | ~~Cell and Molecular Biology~~ | | ~~4~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~343L~~ | ~~Cell and Molecular Biology Lab~~ | | ~~0~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~422~~ | ~~Immunology~~ | | ~~3-4~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~422L~~ | ~~Immunology Lab~~ | | ~~0-1~~ |  |  | |  |  |  |
| ~~BIOL~~ | ~~492~~ | ~~Topics\*~~ | | ~~1-4~~ |  |  | |  |  |  |
| ~~BIOL~~ |  | ~~Elective~~ | | ~~1-4~~ |  |  | |  |  |  |
| ~~\*May be repeated provided student does not enroll in the same topics course.~~ | | | | |  |  | | | |  |
|  |  |  |  | |  |  | |  |  |  |
|  |  |  |  | |  | **Integrative Biology Specialization** | | | | **59** |
|  |  |  |  | |  |  | |  |  |  |
|  |  |  |  | |  | **Biology Component** | | | | **19** |
|  |  |  |  | |  | BIOL | | 343 | Cell and Molecular Biology | 4 |
|  |  |  |  | |  | BIOL | | 343L | Cell and Molecular Biology Lab | 0 |
|  |  |  |  | |  | Choose 15 credits from the following: | | | | 15 |
|  |  |  |  | |  | BIOL | | 325 | Physiology | 4 |
|  |  |  |  | |  | BIOL | | 325L | Physiology Lab | 0 |
|  |  |  |  | |  | BIOL | | 365 | Vertebrate Zoology | 4 |
|  |  |  |  | |  | BIOL | | 365L | Vertebrate Zoology Lab | 0 |
|  |  |  |  | |  | BIOL | | 410 | Conservation Biology | 3 |
|  |  |  |  | |  | BIOL | | 422 | Immunology | 3-4 |
|  |  |  |  | |  | BIOL | | 422L | Immunology Lab | 0-1 |
|  |  |  |  | |  | BIOL | | 450 | Aquatic Biology | 4 |
|  |  |  |  | |  | BIOL | | 450L | Aquatic Biology | 0 |
|  |  |  |  | |  | BIOL | | 492 | Topics\* | 1-4 |
|  |  |  |  | |  |  | |  |  |  |
|  |  |  |  | |  | \*May be repeated provided student does not enroll in the same topics course. | | | |  |
|  |  |  |  | |  |  | |  |  |  |
| **Math and Science Core Support Courses (23 credits)**  Note: Students planning to pursue a career in medicine or health professions are encouraged to take CHEM 326, CHEM 460, CHEM 492, MATH 125 or MATH 201, PHYS 211 and PHYS 213 | | | | |  | **Math and Science Core Support Courses**  Note: Students planning to pursue a career in medicine or health professions are encouraged to take CHEM 326, CHEM 460, CHEM 492, MATH 123 or MATH 201, PHYS 111 or 211 and PHYS 113 or 213 | | | | **22** |
| CHEM | 112 | General Chemistry | | 4 |  | CHEM | | 112 | General Chemistry | 4 |
| CHEM | 112L | General Chemistry Lab | | 0 |  | CHEM | | 112L | General Chemistry Lab | 0 |
| CHEM | 114 | General Chemistry II | | 4 |  | CHEM | | 114 | General Chemistry II | 4 |
| CHEM | 114L | General Chemistry II | | 0 |  | CHEM | | 114L | General Chemistry II | 0 |
| MATH | 281 | Introduction to Statistics | | 3 |  | MATH | | 281 | Introduction to Statistics | 3 |
| Choose 12 credits from the following | | | | |  | Choose 12 credits from the following | | | | 11 |
| CHEM | 326 | Organic Chemistry I | | 3 |  | CHEM | | 326 | Organic Chemistry I | 3 |
| CHEM | 326L | Organic Chemistry I Lab | | 1 |  | CHEM | | 326L | Organic Chemistry I Lab | 1 |
| CHEM | 328 | Organic Chemistry II | | 3 |  | CHEM | | 328 | Organic Chemistry II | 3 |
| CHEM | 328L | Organic Chemistry II Lab | | 1 |  | CHEM | | 328L | Organic Chemistry II Lab | 1 |
| CHEM | 332 | Analytical Chemistry | | 3 |  | CHEM | | 332 | Analytical Chemistry | 3 |
| CHEM | 332L | Analytical Chemistry Lab | | 1 |  | CHEM | | 332L | Analytical Chemistry Lab | 1 |
| CHEM | 460 | Biochemistry | | 3 |  | CHEM | | 460 | Biochemistry | 3 |
| CHEM | 492 | Topics | | 1-4 |  | CHEM | | 492 | Topics | 1-4 |
| EXS | 350 | Exercise Physiology | | 3 |  | EXS | | 350 | Exercise Physiology | 3 |
| EXS | 350L | Exercise Physiology Lab | | 1 |  | EXS | | 350L | Exercise Physiology Lab | 1 |
| EXS | 353 | Kinesiology | | 2-3 |  | EXS | | 353 | Kinesiology | 2-3 |
| HIM | 130 | Basic Medical Terminology | | 2 |  | HIM | | 130 | Basic Medical Terminology | 2 |
| HLTH | 422 | Nutrition | | 3 |  | HLTH | | 422 | Nutrition | 3 |
| MATH | 123 | Calculus I | | 4 |  | MATH | | 123 | Calculus I | 4 |
| MATH | 125 | Calculus II | | 4 |  | MATH | | 125 | Calculus II | 4 |
| MATH | 418 | Mathematical Modeling | | 3 |  | MATH | | 418 | Mathematical Modeling | 3 |
| PHYS | 111 | Introduction to Physics I | | 4 |  | PHYS | | 111 | Introduction to Physics I | 4 |
| PHYS | 111L | Introduction to Physics I Lab | | 0 |  | PHYS | | 111L | Introduction to Physics I Lab | 0 |
| PHYS | 113 | Introduction to Physics II | | 4 |  | PHYS | | 113 | Introduction to Physics II | 4 |
| PHYS | 113L | Introduction to Physics II Lab | | 0 |  | PHYS | | 113L | Introduction to Physics II Lab | 0 |
| PHYS | 211 | University Physics | | 4 |  | PHYS | | 211 | University Physics | 4 |
| PHYS | 211L | University Physics I Lab | | 0 |  | PHYS | | 211L | University Physics I Lab | 0 |
| PHYS | 213 | University Physics II | | 4 |  | PHYS | | 213 | University Physics II | 4 |
| PHYS | 213L | University Physics II Lab | | 0 |  | PHYS | | 213L | University Physics II Lab | 0 |
|  | | | | |  |  | |  |  |  |
| **Science Technology Courses (15 credits)** | | | | |  | **Science Technology Courses (15 credits)** | | | | **15** |
| CSC | 105 | Introduction to Computers | | 3 |  | CSC | | 105 | Introduction to Computers | 3 |
| ENGL | 379 | Technical Communication | | 3 |  | ENGL | | 379 | Technical Communication | 3 |
| BIOL | 303 | Introduction to Biological Instrumentation | | 3 |  | BIOL | | 303 | Introduction to Biological Instrumentation | 3 |
| BIOL | 335 | Introduction to Bioinformatics | | 3 |  | BIOL | | 335 | Introduction to Bioinformatics | 3 |
| Choose one course from the following (3 credits) | | | | |  | Choose one course from the following (3 credits) | | | |  |
| CIS | 123 | Problem Solving and Programming | | 3 |  | CIS | | 123 | Problem Solving and Programming | 3 |
| CIS | 130 | Visual Basic Programming | |  |  | CIS | | 130 | Visual Basic Programming |  |
| CIS | 150 | Computer Science | |  |  | CIS | | 150 | Computer Science |  |
|  | | | | |  |  | |  |  |  |
| **Social Science Course (3 credits)**  Select a course from Social Science listing with prefix ANTH, HIST or SOC that is not already used to satisfy general education requirements. | | | | |  | **Social Science Course**  Select a course from Social Science listing with prefix ANTH, HIST or SOC that is not already used to satisfy general education requirements. | | | | **3** |
|  |  |  | |  |  |  | |  |  |  |
|  |  |  | |  |  | **Biology Education Specialization** | | | | **59** |
|  |  |  | |  |  |  | |  |  |  |
|  |  |  | |  |  | **Biology Component** | | | | **11** |
|  |  |  | |  |  | BIOL | | 325 | Physiology | 4 |
|  |  |  | |  |  | BIOL | | 325L | Physiology lab | 0 |
|  |  |  | |  |  | Select 7 credits from the following: | | | | 7 |
|  |  |  | |  |  | BIOL | | 335 | Introduction to Bioinformatics | 3 |
|  |  |  | |  |  | BIOL | | 343 | Cell and Molecular Biology | 4 |
|  |  |  | |  |  | BIOL | | 343L | Cell and Molecular Biol. Lab | 0 |
|  |  |  | |  |  | BIOL | | 365 | Vertebrate Zoology | 4 |
|  |  |  | |  |  | BIOL | | 365L | Vertebrate Zoology Lab | 0 |
|  |  |  | |  |  | BIOL | | 410 | Conservation Biology | 3 |
|  |  |  | |  |  | BIOL | | 422 | Immunology | 3-4 |
|  |  |  | |  |  | BIOL | | 422L | Immunology Lab | 0-1 |
|  |  |  | |  |  | BIOL | | 450 | Aquatic Biology | 4 |
|  |  |  | |  |  | BIOL | | 450L | Aquatic Biology | 0 |
|  |  |  | |  |  | BIOL | | 492 | Topics\* | 1-4 |
|  |  |  | |  |  |  | |  |  |  |
|  |  |  | |  |  | **Chemistry Component** | | | | **8** |
|  |  |  | |  |  | CHEM | | 112 | General Chemistry | 4 |
|  |  |  | |  |  | CHEM | | 112L | General Chemistry Lab | 0 |
|  |  |  | |  |  | CHEM | | 114 | General Chemistry II | 4 |
|  |  |  | |  |  | CHEM | | 114L | General Chemistry II | 0 |
|  |  |  | |  |  |  | |  |  |  |
|  |  |  | |  |  | **Computer Technology Component** | | | | **12** |
|  |  |  | |  |  | CSC | | 105 | Introduction to Computers | 3 |
|  |  |  | |  |  | CIS | | 350 | Computer Hardware, Data Communications, and Networking | 3 |
|  |  |  | |  |  | BIOL | | 303 | Introduction to Biological Instrumentation | 3 |
|  |  |  | |  |  | Choose one course from the following (3 credits) | | | |  |
|  |  |  | |  |  | CIS | | 123 | Problem Solving and Programming | 3 |
|  |  |  | |  |  | CIS | | 130 | Visual Basic Programming |  |
|  |  |  | |  |  | CIS | | 150 | Computer Science |  |
|  |  |  | |  |  |  | |  |  |  |
|  |  |  | |  |  | **Professional Education Component** | | | | **28** |
|  |  |  | |  |  | All Professional Education Courses must be completed with a “C” or better.  ˡNo Grade Less that a “C” and must be complete prior to admission to Teacher Education. | | | |  |
|  |  |  | |  |  | EDFN | | 338 | Foundations of American Ed | 2 ¹ |
|  |  |  | |  |  | EDFN | | 475 | Human Relations | 3 |
|  |  |  | |  |  | EPSY | | 302 | Educational Psychology | 3 ¹ |
|  |  |  | |  |  | SEED | | 295 | Practicum | 1 |
|  |  |  | |  |  | SEED | | 100 | Introduction to Persons with Exceptionalities | 3 ¹ |
|  |  |  | |  |  | Note: Admission to the Teacher Education Program is required for the remaining courses. See Requirements for Admission in the College of Education section. | | | |  |
|  |  |  | |  |  | SEED | | 302 | Secondary/Middle/Content Area Major | 2 |
|  |  |  | |  |  | SEED | | 401 | Methods of Educational Technology | 1 |
|  |  |  | |  |  | SEED | | 440 | Classroom Management | 2 |
|  |  |  | |  |  | SEED | | 450 | Reading and content Literacy | 3 |
|  |  |  | |  |  | SEED | | 488 | 7-12 Student Teaching | 8 |
|  |  |  | |  |  |  | |  |  |  |
| **Electives** | | | | **9** |  | **Electives** | | | | **10** |
|  |  |  | |  |  |  | |  |  |  |
| Total number of hours required for major, minor, or specialization | | | | 81 |  | | Total number of hours required for major, minor, or specialization | | | 80 |
| Total number of hours required for degree | | | | 120 |  | | Total number of hours required for degree | | | 120 |

1. **Explanation of the Change:**

The current Biology (B.S.) and Biology Education (B.S.ED.) degrees are both programs with a major in biology including a series of computer technology and other science support courses. We propose merging these degree programs under the same name (Biology B.S.), and distinguish them by specializations within the program. This change is consistent with recent modifications made to the two other College of Arts and Sciences programs offering education programs at Dakota State University: English and Math. South Dakota State University and the University of South Dakota also offer the education certification as a specialization of the B.S. in Biology.

This modification places most of the current courses in the Biology major within a new specialization called Integrative Biology which reflects the breadth of study from molecules and cells to organisms and ecosystems. Two current emphases in the Biology major are removed to reduce confusion about the course of study.