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| For Academic Affairs and Research Use Only |
| CIP Code:  |  |
| Degree Code: |  |

**Bulletin / Banner Change Transmittal Form**

**[x ] Undergraduate Curriculum Council**

**[] Graduate Council**

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

Email completed proposals to curriculum@astate.edu for inclusion in curriculum committee agenda.

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| David F Gilmore | 10/25/2018 |

**Department Curriculum Committee Chair** |

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**COPE Chair (if applicable)** |
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| Travis D. Marsico | 10/26/2018 |

**Department Chair:**  |

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**Head of Unit (If applicable)**   |
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| David F Gilmore | 10/25/2018 |

**College Curriculum Committee Chair** |

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**Undergraduate Curriculum Council Chair** |
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| A.Lambertus for Anne Grippo | 10/26/2018 |

**College Dean** |

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**Graduate Curriculum Committee Chair** |
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**General Education Committee Chair (If applicable)**   |

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**Vice Chancellor for Academic Affairs** |

**1.Contact Person** (Name, Email Address, Phone Number)

Asela J. Wijeratne
Phone: 870-972-3311
Email: awijeratne@astate.edu

**2.Proposed Change**

Addition of prerequisites to BIO 4153, Laboratory in Biotechniques I (see Bulletin pages)

**3.Effective Date**

Fall 2019

**4.Justification –** *Please provide details as to why this change is necessary.*

This is a project-based laboratory course, which requires advanced skills in molecular biological lab techniques. A student without these technical skills will not be successful in this class. Therefore, the instructor will need to determine if the student meets the requirements.

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Follow the following guidelines for indicating necessary changes.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.** - Deleted courses/credit hours should be marked with a red strike-through (~~red strikethrough~~)- New credit hours and text changes should be listed in blue using enlarged font (blue using enlarged font). - Any new courses should be listed in blue bold italics using enlarged font (***blue bold italics using enlarged font***)*You can easily apply any of these changes by selecting the example text in the instructions above, double-clicking the ‘format painter’ icon 🡪 , and selecting the text you would like to apply the change to.**Please visit* [*https://youtu.be/yjdL2n4lZm4*](https://youtu.be/yjdL2n4lZm4) *for more detailed instructions.* |

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**BIO 4143. Pharmacology** The study of drugs and their mechanisms of action at the system, cellular, and molecular levels. Special course fees may apply. Prerequisites, BIO 2203 and BIO 2223, or BIO 3223 and BIO 3233, BIO 4104, and CHEM 4243. Spring, even.

**BIO 4153. Laboratory in BioTechniques I** Laboratory techniques in protein chemistry and analytical techniques. Techniques also include a variety of chromatographic methods, electropho­resis, UV-vis spectroscopy and radiochemistry. Laboratory 4 hours per week. Special course fees may apply. Prerequisites, BIO 3011, BIO 3013, BIO 4131, BIO 4133, CHEM 4241, and CHEM 4243; or Permission of instructor. Spring.

**BIO 4163. Laboratory in BioTechniques II** Laboratory techniques in DNA/RNA isolation, analysis and applications, including PCR, reverse transcriptase PCR, recombinant DNA and the production of gene expression products. Laboratory 8 hours per week. Special course fees may apply. Prerequisite, BIO 4153.

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Major in Biotechnology

**Bachelor of Science**

A complete 8-semester degree plan is available at https://www.astate.edu/info/academics/degrees/

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| University Requirements:  |
| See University General Requirements for Baccalaureate degrees (p. 44)  |
| **First Year Making Connections Course:**  | Sem. Hrs.  |
| BIO 1013, Making Connections - Biology  | 3  |
| **General Education Requirements:**  | Sem. Hrs.  |
| See General Education Curriculum for Baccalaureate degrees (p. 89) Students with this major must take the following: *MATH 2194, Survey of Calculus OR* *MATH 2204, Calculus 1* *CHEM 1013 AND CHEM 1011, General Chemistry I and Laboratory* *BIO 2013 AND 2011, Biology of the Cell and Laboratory* *COMS 1203, Oral Communication (Required Departmental Gen. Ed. Option)*  | 36  |
| **Language Requirement:**  | Sem. Hrs.  |
| *A student must complete the foreign language requirements before being considered a Biotechnology Major. (Refer to Department of Biological Sciences Foreign Language Requirement).*  |
| **Major Requirements:**  | Sem. Hrs.  |
| BIO 2042, Biotechnology in a Global Society  | 2  |
| BIO 3013 AND BIO 3011, Genetics and Laboratory  | 4  |
| BIO 4033, Bioinformatics and Applications  | 3  |
| BIO 403V, Special Problems in Biology  | 3  |
| BIO 4053, Applications in Biotechnology  | 3  |
| BIO 4063, Biosafety and Ethics in Research  | 3  |
| BIO 4104, Microbiology  | 4  |
| BIO 4133 AND BIO 4131, Cell Biology and Laboratory  | 4  |
| BIO 4153, Laboratory in BioTechniques I  | 3  |
| BIO 4163, Laboratory in BioTechniques II  | 3  |
| ~~BIO 4164, Molecular Biology~~ BIO 4173 Molecular Biology | ~~4~~ 3 |
| CHEM 1023 AND CHEM 1021, General Chemistry II and Laboratory  | 4  |
| CHEM 3103 AND CHEM 3101, Organic Chemistry I and Laboratory  | 4  |
| CHEM 3113 AND CHEM 3111, Organic Chemistry II and Laboratory  | 4  |
| CHEM 4243 AND CHEM 4241, Biochemistry and Biochemistry Laboratory | 4  |
| PHYS 2054, General Physics I  | 4  |
| PHYS 2064, General Physics II  | 4  |
| STAT 3233, Applied Statistics I  | 3  |
| Biological Science electives  | 6  |
| Sub-total  | 68 |