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| **Course Outline** |

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| **Department & Number** | BioSc 183 | **Number of Weeks** | 18 |
| **Course Title** | Mammalian Cell Culture | **Lecture Hours** | 15 |
| **Prerequisite** | BioSc 159 (may be taken concurrently) | **Lab Hours** | 9 |
| **Challenge Policy** | Skill demonstration, including accurate use of micropipetors, dilution mathematics (media recipe calculations), and cell culture hood. | **\*Hours By Arrangement** |  |
| **Co-requisite** |  | **Units** | 1 |
| **Challenge Policy** |  |  |  |
| **Advisory** |  |

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| **COURSE/CATALOG DESCRIPTION** |

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| This course is designed to prepare students for employment as cell culture technicians. Students will learn aseptic techniques, how to work in a cell culture hood, how to compose mammalian cell culture media and the function of each medium component, how to use a hemacytometer and vital staining to count cells and determine viability, how to passage cells, and how to cryopreserve cell cultures. In addition, students will be introduced to concepts of stem cell research, including multi-potent and totipotent cell lines. |

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| **COURSE OBJECTIVES** | |
| At the completion of the course the student will be able to: | |

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| Accurately count and determine cell viability |
| Compose culture media for two different cell lines |
| Maintain and passage cells without contamination, including the use of trypsin to release adherent cells |
| Preserve cells at –80oC in cryopreservation medium and cryovials. |

**COURSE CONTENT:** (In detail; attach additional information as needed and include percentage breakdown)

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| 20 | **%** | Use of cell culture hood, associated devices (electronic pipetors and various pipets), and CO2 incubator. |
| 30 | **%** | Accurate use of micropipetors, compound light microscope, hemacytometers, and inverted microscope. |
| 25 | **%** | Ability to maintain aseptic conditions while working with cultures. |
| 25 | **%** | Data analysis and laboratory documentation, in the form of tables and reports. |

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| **METHODS OF INSTRUCTION** |

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| Lecture |
| Laboratory experimentation |
| Working with a partner doing experiments |
| Assigned readings |

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| **INSTRUCTIONAL MATERIALS** |

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| **Textbook Title:** | Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications. |
| **Author:** | R. Ian Freshney |
| **Publisher:** | John Wiley & Sons, Inc. |
| **Edition/Date:** | 6th edition 2010 |

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| **COURSE EXPECTATIONS** (Use applicable expectations) |

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| **Outside of Class Weekly Assignments** | **Hours per week** |

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| Weekly Reading Assignments | 0.5 |
| Weekly Writing Assignments | 1 |
| Weekly Math Problems | 1 |
| Lab or Software Application Assignments |  |
| Other Performance Assignments |  |

**STUDENT EVALUATION**: **(Show percentage breakdown for evaluation instruments)**

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| 50 | **%** | Laboratory reports, including data analysis. |
| 40 | **%** | Demonstration of skills, including accurate pipetting, cell and viability counts. |
| 10 | **%** | Ability to maintain cultures without contamination. |

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| **GRADING POLICY (Choose LG, CR/NC, or SC)** |

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| X | **Letter Grade** |  | **Pass / No Pass** |  | **Student Choice** |
| 90% - 100% = A | | 70% and above = Pass | | 90% - 100% = A |
| 80% - 89% = B | | Below 70% = No Pass | | 80% - 89% = B |
| 70% - 79% = C | |  | | 70% - 79% = C |
| 60% - 69% = D | |  | | 60% - 69% = D |
| Below 60% = F | |  | | Below 60% = F |
| *or* |
| 70% and above = Pass |
| Below 70% = No Pass |

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| **Prepared by:** | Katherine Krolikowski, PhD |

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| **Content Review Date:** | October, 2013 |

Revised 04/13