



DEPARTMENT OF SCIENCE

COURSE OUTLINE – Fall 2010

BI 1070

INTRODUCTION TO CELL BIOLOGY

INSTRUCTOR: Dr. Shauna Henley, **PHONE:** 539-2439
PhD

OFFICE: C 220 **E-MAIL:** SHenley@gprc.ab.ca

OFFICE HOURS: Tuesday 10:30-12:00
Thursday 12:30-2:00

PREREQUISITE(S)/COREQUISITE: Biology 30 and Chemistry 30

REQUIRED TEXT/RESOURCE MATERIALS:

“Biology” by Campbell and Reece (8th edition, 2008)
Benjamin Cummings Publishing Company

University of Alberta, Biology 1070 Laboratory Manual 2010/11

DESCRIPTION: All life functions are based on cells, and this course will provide an introduction to cell structure and function. Major topics will include the origin of life, the development of prokaryotic and eukaryotic cell lineage, energy conversions, the compartmentalization of biochemical functions within a cell and communication from cell to cell. The genetic control of cell activities is examined through methods of molecular genetic analysis and their application in genetic engineering and biotechnology.

CREDIT/CONTACT HOURS: 3 Credits (3-1-3) UT

DELIVERY MODE(S): Lectures – Tues and Thurs, 8:30 – 9:50, Rm J201

Labs – L1 Tues, 2:30 – 5:20, Rm J126

L2 Wed, 2:30 – 5:20, Rm J130

L3 Thurs, 2:30 – 5:20

Seminars – S1 Mon, 8:30 – 9:20, Rm J229

S2 Fri, 8:30 – 9:20, Rm J201

OBJECTIVES:

1. Apply knowledge of the structure of molecules and cells to explain how energy, matter, and information moves within and between cells of eukaryotes and prokaryotes.
2. Apply knowledge of laboratory skills and techniques to generate data and conduct analyses of that data.
3. Demonstrate written communication skills in laboratory reports and seminars.

TRANSFERABILITY: UA, UC, UL, AU, AF, CU, KUC

GRADING CRITERIA: Midterm Exam – 20%

Final exam – 35%

Laboratory – 35%

Seminar – 10%

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

2010-2011 Course Outline

| Topics | Required Text Readings (pages) | |
|--|--------------------------------|--------------------------|
| | 8th edition | 7th edition |
| 1. Introduction to BI 1070 | | |
| 2. Chemistry Review | 32-42, 58-89 | 34-43, 60-89 |
| 3. Classification of Organisms | 12-14, 551-3, 566-70 | 12-14, 529-31, 541-44 |
| 4. Cell Membranes | 125-139 | 124-138 |
| 5. Prokaryotic Cell Structure | 556-559 | 535-537 |
| 6. Cell structure – Organelles | 98-111 | 98-111 |
| 7. Cytoskeleton and Molecular Motors | 112-118 | 112-118 |
| 8. Cell walls and Extracellular Matrix | 118-121 | 118-121 |
| 9. Biological Order and Energy | 142-59 | 141-57 |
| 10. Glycolysis & Anaerobic Metabolism | 162-9, 177-9 | 160-7, 174-6 |
| 11. Citric Acid Cycle (Kreb's Cycle) | 170-2 | 168-70 |
| 12. Electron Transport Systems | 172-77 | 170-74 |
| 13. Chloroplasts and Photosynthesis | 185-194 | 181-190 |
| 14. Photosynthesis - Light Reactions | 194-8 | 190-93 |
| 15. Calvin Cycle and Photorespiration | 198-203 | 193-97 |
| 16. Bacterial Cell Growth | 236-37, 561-4 | 226-7, 348-51 |
| 17. Eucaryotic Cell Division and Mitosis | 228-36, 242-43 | 218-26, 232-33 |
| 18. DNA Chemistry | 305-10 | 293-8 |
| 19. The Eukaryotic Nucleus | 320-23 | 359-63 |
| 20. DNA Replication | 311-19 | 299-307 |
| 21. Genes, mRNA and Proteins | 325-331 | 309-14 |
| 22. Transcription and RNA Processing | 331-335 | 315-19 |
| 23. Regulation of Transcription | 351-56 | 352-56 |
| 24. Translation | 337-44 | 320-28 |
| 25. Viruses, Phages, Viroids, and Prions | 381-94 | 334-46 |

GRANDE PRAIRIE REGIONAL COLLEGE**GRADING CONVERSION CHART**

| Alpha Grade | 4-point Equivalent | Percentage Guidelines | Designation |
|----------------------|---------------------------|------------------------------|--|
| A⁺ | 4.0 | 90 – 100 | EXCELLENT |
| A | 4.0 | 85 – 89 | |
| A⁻ | 3.7 | 80 – 84 | FIRST CLASS STANDING |
| B⁺ | 3.3 | 77 – 79 | |
| B | 3.0 | 73 – 76 | GOOD |
| B⁻ | 2.7 | 70 – 72 | |
| C⁺ | 2.3 | 67 – 69 | SATISFACTORY |
| C | 2.0 | 63 – 66 | |
| C⁻ | 1.7 | 60 – 62 | |
| D⁺ | 1.3 | 55 – 59 | MINIMAL PASS |
| D | 1.0 | 50 – 54 | |
| F | 0.0 | 0 – 49 | FAIL |
| WF | 0.0 | 0 | FAIL, withdrawal after the deadline |