COURSE SYLLABUS
Morehead State University
College of Science and Technology
Department of Biology and Chemistry
Cell Biology - traditional
BIOL 380 Section 001 - Fall 2009

COURSE ORGANIZATION: Lecture: 11:30-12:30 Monday, Wednesday, Lappin Hall 311
Laboratory Section 001: 1:50pm-4:00pm Monday, Lappin Hall 330
Laboratory Section 002: 1:50pm-4:00pm Wednesday, Lappin Hall 330

INSTRUCTOR: Dr. Michael Fultz
327F Lappin Hall.
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OFFICE HOURS: Monday through Friday 10:20am -11:20am, or by appointment

CATALOG DESCRIPTION: BIOL 380. Cell Biology. (2-2-3); I, II. *Prerequisites: BIOL 304, and CHEM 201 or CHEM 326.* Integration of biological, chemical, and physical aspects of the cell. Emphasis on molecular processes.

NUMBER OF REQUIRED FIELDWORK HOURS: 0

"Community Engagement: A Light to and From the Mountains"

The Professional Education Unit at Morehead State University delivers rigorous, high quality programs that prepare professionals informed by best national and international scholarship, plus research, literature, and experiences specific to Appalachia- preparing professionals to improve the schools, quality of life, and the communities in which they live and serve. This statement is not only the strategic mission for the College, but it also incorporates the conceptual framework that guides all our activities.

Conceptual Framework Outcomes (CLOs):

The Unit and the faculty within individual programs assess the degree to which its graduates:

1) Master the content knowledge, professional and the twenty first century skills needed to make an optimal contribution to "whole" student learning in educational settings
2) Are competent in the collection and use of data to inform decision- making and to demonstrate accountability for student learning.
3) Demonstrate professional dispositions.
4) Are culturally competent and understand the regions from which they have come utilizing knowledge and experiences to effectively "bridge the gaps" (economic, achievement, and geographic) ensuring optimal learning for all students.
5) Engage in authentic field experiences in collaboration with committed school based partners and are empowered to improve the quality of education throughout this region and beyond.

STUDENT LEARNER OUTCOMES (SLOs): Biology 380 is not a memorization course; it is an application course. The Constructivist Philosophy is an accepted theme in that learning is an active process. Although you will develop a large scientific vocabulary, what is required in this course is that you apply what you learn. Each of you must learn to think scientifically and to critically analyze material presented. Each candidate will be expected to develop a positive disposition and come to class well prepared and to develop the personal discipline for academic success. Learner outcomes will we assessed through regular quizzes, exams, ad presentations. The course content and expectations include, but are not limited to:

1) Learning, understanding and applying biological (anatomical and physiological) terminology and principles basic to the cell.
2) An understanding of the thinking processes through which scientists operate.
3) The application of quantitative principles utilized in mathematics and the interpretation of graphed data in order to understand physiological principles related to cell biology
4) Use their understanding of molecular and cellular activity to evaluate what they read and observe in regard to cellular related issues
5) Use their understanding of biochemical process to explain the properties/activities (molecular mechanisms of heredity, control of gene expression, membrane systems, energy conversion, cytoskeleton, cell movement, cell growth mechanisms, and cell signaling), that are common to cells.

NCATE/ EPSB Accreditation Alignment of CFOs and SLOs:

Program:	**Biology - teaching**	**Genetics BIOL 380**			
Aligned with→ **Assessment↓ (point values)**	**Kentucky Teacher Standards (KYTS)**	**Kentucky Department of Education Core Content for Assessment (KDECCA)**	**Education Professional Standards Board (EPSB)/ NCATE**	**National Science Teachers Association (NSTA)**	**NCATE**
lecture and lab exams (400) CFO:1, 2 SLO: 1, 2, 3, 4, 5	1,	3, 4	Literacy	1, 2	1
Lecture and lab quizzes (125) CFO: 1, 2 SLO: 1, 2, 3, 4, 5	1	3, 4	Literacy	1,2	1
Manuscript presentation (25) CFO: 1, 2 SLO: 2, 3, 4, 5	1	3,4	Literacy	1,3	1

Assignment Descriptions:

Program: BIOLOGY – SECONDARY TEACHING Cell Biology (BIOL 380)	
Assessment (point value)	**Description**
Lecture and Lab exams (400)	Exams will assess content knowledge and conceptual understanding of the course material from lecture and the laboratory. Exams will be taken during scheduled laboratory time.
Lecture and Lab quizzes	Lecture quizzes will assess content knowledge and

(125)	conceptual understanding of the course material from lecture and the laboratory Exams will be taken during scheduled class time.
Manuscript presentation (25)	The presentation will assess content knowledge and conceptual understanding an assigned manuscript. Emphasis will be placed on the scientific process. Presentations will be performed during scheduled laboratory time.

GRADING POLICY: Grades will be assigned on a % basis of 600 points.

Exam I	**100pts**	**GRADING SCALE:**	**A = 90-100%**
Exam II	**100pts**		**B = 80-89%**
Exam III	**100pts**		**C = 70-79%**
Exam IV	**100pts**		**D = 60-69%**
Quizzes	**125pts**		**E ≤ 59%**
Manuscript presentation	**25pts**		
	550pts		

REQUIRED TEXT: Essential Cell Biology, 3rd edition, by B. Alberts, D. Bray, K. Hopkin, A. Johnson, J. Lewis, M. Raff, K. Roberts and P. Walter. Garland Publish., Inc., N.Y., 2010.

IMPORTANT DATES:

September 7	Labor Day (no class)
October 8, 9	Fall Break (no class)
October 12	Mid-term grades due
October 30	Last day to drop with grade of "W"
November 9-13	Advance registration for Spring
December 11	Final Exam 10:15am-12:15pm

EXAMINATIONS: A student with a valid excuse (verification required) for missing an exam should notify Dr. Fultz beforehand if possible or within 24 hours of the missed exam in order to schedule a make-up examination within one week following return to class. If your absence is going to be an extended one, it is recommended that the Dean of Students, Kevin Koett (783-2014) be contacted. An exam missed without an acceptable excuse will be recorded as a Zero. All exams will be available for review for two weeks after the exam grades are returned. Students may review exams in the instructor's office.

QUIZZES: A number of quizzes worth varying point values will be given and **cannot** be made up; they can however be taken in advance of your absence if your excuse for missing class is designated acceptable by the institution and more importantly if I have it prepared. Every quiz given will be counted until your total quiz score reaches a maximum of 125 points. **Quizzes will be given at the start of class or laboratory** so being on time is critical. Quizzes will be either visual, matching, multiple choice, fill in the blank, short answer, or some combination thereof. Remember quizzes will be given at the start of class so being on time is critical.

COURSE ACTIVITIES: Students will be asked to listen, think and interact with the teacher in regard to course material presentations given by the teacher, take quizzes and exams which require thinking and writing skills, read assigned materials, and interact with classmates to develop answers to questions/solve problems/conduct laboratory experiments. Students will use mathematical skills, computer technology, and laboratory methods to study cell functions. Students will also be asked to formulate hypotheses, present results and draw conclusions in regard to laboratory investigations of cell functions. Tutor/review sessions will be announced.

ATTENDANCE POLICY: There is a strong correlation between class attendance and success in Biology Courses; therefore, attendance to all lectures is critical and you are expected to attend. A student with a valid, documented excuse (such as for illness/injury, death in the family, or university-sponsored activity) should promptly (within 24 hours) notify

his/her instructor in order to make up the material (exam) missed. Students are expected to prepare themselves for each lecture and laboratory session by reading any related material prior to attending the lectures. Laboratory exercises and quizzes which are missed may not be made-up. If a student is absent the professor must be notified (e-mail preferred) within 24 hours (before the absence if possible) of the absence to be eligible for any make-up regarding exams.Please do not be late because it puts you at a disadvantage and can easily disrupt the instructor and your peers.

AMERICANS WITH DISABILITIES ACT (ADA): In compliance with the ADA, all students with a documented disability are entitled to reasonable accommodations and services to support their academic success and safety. Though a request for services may be made at any time, services are best applied when they are requested at or before the start of the semester. To receive accommodations and services the student should immediately contact the Disability Services Coordinator at: 204-E ADUC, 606-783-5188, or e.day@moreheadstate.edu.

CAMPUS SAFETY STATEMENT: Emergency response information will be discussed in class. Students should familiarize themselves with the nearest exit routes in the event evacuation becomes necessary. You should notify your instructor at the beginning of the semester if you have special needs or will require assistance during an emergency evacuation. Students should familiarize themselves with emergency response protocols at www.moreheadstate.edu/emergency

USE OF TECHNOLOGY: Students will be expected to use the internet, e-mail, word processing, and any other appropriate software needed to complete assignments. Supplemental course material will be available on Blackboard

CLASSROOM BEHAVIOR:
Academic Dishonesty: Plagiarism or cheating in any form will not be tolerated and will be dealt with in accordance Appendix A of the student handbook and the University Undergraduate Catalog. Academic dishonesty, as defined by the University, occurs when you do not do your own work, fail to give credit for the work of others, or use resources inappropriately. (www.moreheadstate.edu/dsl/eaglehandbook).

Consistent Tardiness is not acceptable. You are expected to be in your seat and ready for class.

Cell Phones (including Blackberry's and I phones), Walkie Talkie's, PDA's, and Beepers must be shut off upon entering the classroom. MP3 Players, iPOD's or any other device requiring the use of headphones are not permitted during class.

Laptops and Tape recorders are welcome but must be kept at your desk. It is a safety issue to have power cords running across the floor (It is your responsibility to have a fully charged battery). If I discover that you are doing anything other than course related material on your laptop during class I will collect your computer and you can pick it up immediately following class, following your second offense you will lose your privilege to bring your laptop back to class.

Any disruptions to lecture will not be tolerated, and the student will be asked to leave.

Tentative Lecture and Laboratory Syllabus
Cell Biology
Dates are subject to change. Changes will be announced in lecture.
Student Learner Outcomes are in ()

Date	Lecture Topic	Laboratory
Aug. 17	Introduction; Origin of cells Ch. 1 (SLOs 1, 2, 4)	Microscopy (SLOs 1,2,3)
Aug. 19	Cell Biochemistry Ch. 2 (SLOs 1, 3, 4, 5)	
Aug. 24	Proteins Ch. 4 (SLOs 1, 3, 4, 5)	Protein binding characteristics (SLOs 1,2,3,4,5)
Aug. 26	Proteins cont. Ch. 4	
Aug. 31	Energy and Catalysts Ch. 3 (SLOs 1,2,3,4,5)	Enzyme cytochemistry (SLOs 1,2,3,4,5)
Sept. 2	How cells obtain energy Ch. 13 (SLOs 1,2,3,4,5)	
Sept. 7	Labor Day- No class (SLOs 1,2,3,4,5)	Labor Day- No class
Sept. 9	How cells obtain energy cont. Ch.	
Sept. 14	Membrane Structure Ch. 11 (SLOs 1,2,3,5)	**Exam 1 (chapters 1,2,4,3,13)**
Sept. 16	Membrane Structure cont. Ch. 11	

Sept. 21	Membrane Structure and Transport Ch. 11&12	Membrane permeability (SLOs 1,2,3,4,5)
Sept. 23	Membrane Transport cont. Ch. 12	
Sept. 28	Membrane Transport cont. Ch. 12	Effect of calcium on cytoplasmic streaming (SLOs 1,2,3,4,5)
Sept. 30	Energy Generation Ch. 14 (SLOs 1,2,3,4,5)	
Oct. 5	Energy Generation cont. Ch. 14	Mitochondrial respiration (SLOs 1,2,3,4,5)
Oct. 7	DNA to Protein Ch. 7 (SLOs 1,2,3,4,5)	
Oct. 12	DNA to Protein cont.Ch. 7	**Exam 2 (chapters 11,12,14)**
Oct. 14	Intracellular compartments and Transport Ch. 15 (SLOs 1,2,3,4,5)	
Oct. 19	Intracellular compartments and Transport cont. Ch. 15	Protein profiling using SDS-PAGE (SLOs 1,2,3,4,5)
Oct. 21	Intracellular compartments and Transport cont. Ch. 15	
Oct. 26	Cytoskeleton Ch. 17 (SLOs 1,2,3,4,5)	Detection of myosin by Western blot (SLOs 1,2,3,4,5)
Oct. 28	Cytoskeleton cont. Ch. 17	
Nov. 2	Cell Division Ch. 19 (SLOs 1,2,3,4,5)	Immunohstochemistry (SLOs 1,2,3,4,5)
Nov. 4	Cell Division cont. Ch. 19	Tissue Printing
Nov. 9	Cell Cycle Ch. 18 (SLOs 1,2,3,4,5)	**Exam 3 (chapters 7, 15, 17, 19)**
Nov. 11	Cell Cycle cont. Ch. 18	
Nov. 16	Intracellular Communication Ch. 16 (SLOs 1,2,3,5)	Lectins and cell surface receptors (SLOs 1,2,3,4,5)
Nov. 18	Intracellular Communication cont. Ch. 16	
Nov. 23	Intracellular Communication cont. Ch. 16	Thanksgiving Break – No class
Nov. 25	Thanksgiving Break – No class	
Nov. 30	Cell-cell Interactions Ch. 21 (SLOs 1,2,3,5)	Manuscript presentations SLOs (1,2,5)
Dec. 2	Cell-cell Interactions cont. Ch. 21	
Dec. 11	**Final Exam 10:15am-12:15pm**	Chapters 16, 21, comprehensive