Morehead State University
Professional Education Unit
College of Science and Technology
Department of Biology and Chemistry

Inquiry Biology for Teachers (face-to-face)
BIOL 110 - Spring 2012

Instructor: Dr. Carol Wymer
E-mail: c.wymer@moreheadstate.edu
Phone: (606) 783-2956
Office: Lappin 327A
Office hours: M,W,TH 12:40-2:50
or by appointment

BIOL 110-001 M 10:20 - 12:30, LA 331
BIOL 110L-001 W 10:20 - 12:30, LA 331
BIOL 110-002 T 10:20 - 12:30, LA 331
BIOL 110L-002 TH 10:20 - 12:30, LA 331

Required Texts, Supplies, and Resources:

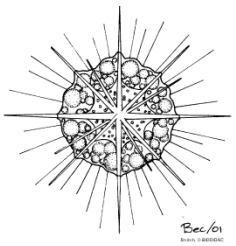
1. Krogh, David (2009) *Biology; A Guide to the Natural World*; fourth edition. Pearson. ISBN #0-13-225437-9/ 978-0-13-225437-3
2. Frisbie, *et al.* (2011) *Biology for K-8 Teachers; Student Science Notebook; Second edition*. Pearson. ISBN #01-256-31849-3/ 978-1-256-31849-1
3. Students will need the following supplies: scissors, either tape or glue, metric ruler, calculator.
4. Additional materials are available on Blackboard (Bb). All students are automatically enrolled in Bb.

Course Description: BIOL 110 is an introduction to the study of living things, cell structure and function, photosynthesis, respiration, reproduction, growth, heredity, evolution, and ecology. It is NOT ACCEPTABLE for biology majors, minors, or areas.

Required Field Experience Hours: 0

Grading: All of the SLO's will be assessed through a combination of the following assessment tools. The course grade is based on a 630 point total, as detailed below. Grades are assigned based on the point total at the end of the course and are not curved.

Unit Exams:	440	Grade scale:	89.5-100% = A
Final Exam:	80		79.5-89.4% = B
Quizzes:	75		69.5-79.4% = C
Notebook:	75		59.5-69.4% = D
Total	**670**		<59.4% = E



Unit Exams - There will be five unit exams: four during the semester and the fifth during the final exam period. Each unit exam will only assess the current unit. The point value of each exam will be based on the quantity of content in that unit. The point value for each exam is listed in the course schedule.

Final Exam - The final exam will be comprehensive; with content from Exams 1-4. It will be worth 80 points.

Quizzes - There will be quizzes given during nearly every class period (see schedule). Each quiz will take place during the beginning of the class period. If you arrive to the quiz late, you will not be given extra

time for this quiz. If you arrive after the quiz has been completed, you may not take the quiz unless you have an appropriate excuse. ("I couldn't find a parking place" or "My alarm clock did not go off" are not appropriate excuses.) Each quiz will consist of 5 questions assessing material from the previous class meeting. Quizzes will be completed in two parts. First, students will take the quiz on their own and their answer sheets will be collected. Second, students will work in pairs to take the quiz (still without notes or books). The final quiz score will be the average of the individual and pair quizzes. A total of 75 points will be possible from quizzes. Students who take a quiz and leave will receive a grade of zero for that quiz. If you need to leave early, arrange this with the instructor prior to the start of class.

Notebook – The *Student Science Notebook* is an integral component of this course. It is critical that you bring this notebook to class EVERY DAY because we will be completing activities in it every day. The purpose of this notebook is to provide a single place for all of your class notes, results from activities and experiments, and assignments. With the exception of lecture notes, anything that we do in class or out of class, may be scored. In most cases, items will simply be checked for completion either during the class period or at the beginning of the next class period. Explicit lists of items to be scored will be provided each grading period. Each notebook item will be scored using the following rating scale in which "complete" means having completed most (~85%) of the item.

2 = complete & on-time; 1.5 = complete, but late;

1 = incomplete, but on-time; 0.5 = incomplete & late; 0 = completing <½ of item

Assignments written on loose sheets of paper will NOT be accepted. Everything must be attached inside the notebook. The notebook will be turned in to be scored on exam days. If a notebook is not turned in on time, a penalty of 10% for each day that it is late will be subtracted from the score.

Extra Credit: The only opportunity for extra credit will be occasional bonus questions on exams or quizzes.

Attendance: Attendance and active participation are **expected** for all class meetings. If you must be absent, try to attend the other section. Absences will be dealt with as detailed below. Prior notice of missing class is preferred. Make-up material must be completed by the day of the unit test that assesses the material.

Excused absence:

* nature of absence: university-sponsored activity, illness, and various emergencies

* *An excusable absence must be reported to your instructor (phone or e-mail) within 24 hours of the absence. Failure to report the absence in this time period will result in the absence being unexcused.*

* Determination that the absence is excused is *at Dr. Wymer's discretion*.

* Quiz or exam taken on that day: It is your responsibility to arrange a time to make this up ASAP.

* Quiz for the missed day: It is your responsibility to arrange a time to make this up ASAP.

* Material for the missed day: Instructions for completing missed material are provided on Bb. It is your responsibility to complete the missing work. If the activity can be completed outside of class and you fail to do so, a zero will be assigned. (Don't just copying someone else's answers, do the activity yourself.) Points for material that cannot be made up will not count against you.

Unexcused absence:

* *If the absence is not an excused absence, it is unexcused.*

* Quiz or exam taken on that day: You may not make this up. A zero will be assigned.

* Quiz for the missed day: You will take the quiz with the rest of the class, as if you had been present.

* Material for the missed day: You will be responsible for missed material (see Bb for details). Activities that are not completed, will receive a zero. If they are completed, they will only be counted as "late" (see rating scale above.)

Class policies:

1) **Academic dishonesty** (cheating, fabrication, plagiarism or helping others to commit these acts) will not be tolerated. Academic dishonesty will result in severe disciplinary action including, but not limited to,

failure for the student assessment item or course, a note included in your TEP portfolio, and/or dismissal from MSU. If you are not sure what constitutes academic dishonesty, read *The Eagle: Student Handbook* or ask your instructor.

2) The use of **cell phones, and similar electronic devices**, is not allowed in the classroom. Please turn off the ringer and place the phone in the location provided prior to the start of class. Students caught using a cell phone will be given a warning to put the phone away. A student who continues to use their phone will be asked to leave the classroom. *This policy is in line with the policies in most schools in which cell phones are not permitted. This is a professional disposition issue.*
3) **Food** is not allowed in any science classroom. This is a safety issue. Please finish eating before you walk in the room. **Drinks** in cups with tight-fitting lids will be allowed.
4) In the case of **inclement weather**, class information will be posted on Bb and sent to e-mail addresses listed in Bb. (Please note that Bb uses your university **e-mail address**. E-mails sent to the entire class will be sent through Bb.) If the university is closed, you will still be responsible for the day's lesson. Please try to attend the other section or attend the make-up day.

Emergency Procedures: 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: http://www.moreheadstate.edu/emergency.

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 (Evangeline Day) at: 204-E ADUC, 606-783-5188, or e.day@moreheadstate.edu.

Conceptual Framework for Educator Preparation Program:

"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 Unit, but it also incorporates the conceptual framework that guides all our activities.*

Conceptual Framework Outcomes (CFO's):

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 need to make an optimal contribution to "whole" student learning in education 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 (SLO's): These SLO's are consistent with standards listed by the Kentucky Teacher Standards (KTS), National Science Teachers Association (NSTA), and the Kentucky Department of Education Program of Studies (KDEPOS). Upon successfully completing this course, students will:

1) understand that science is a "way of knowing".
2) understand that science is a process where hypotheses are tested, and then either accepted or rejected on the basis of evidence.
3) be able to design and carry out a scientific experiment.
4) be able to demonstrate a foundation of biological vocabulary, concepts, and principles related to cell structure and function, energy flow, heredity, evolution, ecology, and biological diversity.
5) be able to identify and apply biological principles to everyday life.
6) understand the use of inquiry-style teaching in science.

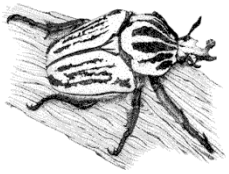
NCATE/ EPSB Accreditation Alignment of CFO's and SLO's:

Programs for which this course is required: Early Childhood, Elementary, Middle Grades, & Special Education					
Aligned with → **Assessment ↓ (point values)**	**Kentucky Teacher Standards (KTS)**	**Kentucky Department of Education Program of Studies (POS)**	**Education Professional Standards Board (EPSB)**	**National Science Teachers Association (NSTA)**	**NCATE**
Lecture Exam 1 (60 pts.) CFO:1 SLO: 1 - 6	1	SC-P-UD-U-1; SC-P-UD-S-1,7; SC-4-UD-S-1; SC-4-BC-U-2,3; SC-5-UD-U-3; SC-5-UD-S-3,4; SC-5-BC-U-4; SC-6-UD-U-1,3; SC-6-UD-S-3; SC-6-BC-U-3; SC-8-UD-U-1; SC-8-UD-S-1; SC-H-BC-U-5; SC-H-BC-S-6	Literacy	B.1; B.2.1; B.2.12; B.2.13; B.3.15 B.5.3	1
Lecture Exam 2 (100 pts.) CFO:1 SLO: 4 & 5	1	SC-P-UD-2,3; SC-P-UD-3,6; SC-4-ET-U-2; SC-5-UD-U-1; SC-5-UD-S-1; SC-5-BC-S-2; SC-6-UD-S-6; SC-6-ET-U-4; SC-6-ET-S-4; SC-6-UD-U-2; SC-7-UD-1,2,3,4; SC-7-UD-S-1; SC-8-UD-U-2; SC-8-UD-S-4; SC-H-ET-U-6,7; SC-H-ET-S-6,7,8; SC-H-UD-S-7	Literacy	B.1; B.2.2; B.2.4; B.2.6; B.2.12; B.2.14	1
Lecture Exam 3 (100 pts.) CFO:1 SLO: 4 & 5	1	SC-P-UD-U-4; SC-4-UD-U-4,5,6; SC-4-UD-S-4; SC-7-UD-U-1,2,3,4; SC-7-UD-S-1; SC-H-UD-U-1,2,3,4,7; SC-H-UD-S-1,3,4,6	Literacy	B.1; B.2.12; B.2.14; B.2.16; B.5.7	1
Lecture Exam 4 (100 pts.) CFO:1 SLO: 4 & 5	1	SC-P-BC-U-1,2,3,4; SC-P-BC-S-1,2,3,4,5,6; SC-P-I-U-1,2; SC-P-I-S-1,2,3,4; SC-4-UD-U-2,3; SC-4-UD-S-2,5; SC-4-BC-U-1; SC-4-BC-S-1,2; SC-4-I-U-1,2; SC-5-UD-U-1; SC-5-UD-S-1; SC-5-BC-U-1,2,3; SC-5-BC-S-2,4,5; SC-6-UD-U-5,7; SC-6-UD-S-6,7; SC-6-BC-U-1; SC-6-BC-S-1; SC-7-BC-U-2,3 SC-8-UD-U-4; SC-8-UD-S-5;	Literacy	B.1; B.2.2; B.2.3; B.2.4; B.2.6; B.2.9; B.2.11; B.2.13; B.5.7	1

		SC-H-BC-U-1,2,3; SC-H-BC-S-1,2; SC-H-UD-U-5,6; SC-H-UD-S-5,9			
Lecture Exam 5 (80 pts.) CFO:1 SLO: 4 & 5	1	SC-P-ET-U-1,2; SC-P-ET-S-1,2,3,7; SC-4-UD-S-4; SC-4-ET-U-1,2; SC-4-ET-S-1,2; SC-4-I-U-3,4; SC-4-I-S-1,2,5,6; SC-5-I-U-1,2,3; SC-5-I-S-1,2,3; SC-6-I-U-1,2; SC-6-I-S-1,2; SC-7-BC-U-1; SC-7-BC-S-1; SC-7-I-U-1,2; SC-8-UD-S-2; SC-8-ET-U-6; SC-8-ET-S-8,9; SC-8-I-U-2; SC-8-I-S-3; SC-H-ET-U-4; SC-H-ET-S-5; SC-H-I-1,4	Literacy	B.1; B.2.5; B.2.7; B.2.8; B.2.10; B.2.13; B.2.15; B.4.13; B.4.15	1
Final Exam (80 pts.) CFO:1 SLO: 1-6	1	all of those listed for the previous exams (comprehensive exam)	Literacy	B.1; B.2.1-16; B.3.15; B.5.3, B.5.7	1
Quizzes (75) CFO: 1,2 SLO: 1 - 6	1	all of those listed for exams	Literacy	B.1; B.2.1-16; B.3.15; B.4.13; B.4.15; B.5.3; B.5.7	1
Science Notebook (75) CFO: 1, 2 SLO: 1 - 6	1	all of those listed for exams	Literacy	B.1; B.2.1-16; B.3.15; B.4.13; B.4.15; B.5.3; B.5.7	1

Assignment Descriptions:

Programs for which this course is required: Early Childhood, Elementary, Middle Grades, & Special Education	
Assessment (point value)	**Description**
Lecture Exams (440)	Lecture exams will assess content knowledge and conceptual understanding of the course material. Each lecture exam will assess a single unit of instruction. Exams will be taken during scheduled class time.
Final Exam (80)	The final exam is comprehensive. It will assess content retention from Units 1-4. It will be administered during Finals Week at the time scheduled for this course.
Quizzes (75)	Quizzes will be given daily to motivate students to continually keep up with the course material and concepts. For each quiz, the student's score will be the average of the score obtained by the student on their own and the score obtained by the student with a partner. Quizzes should be used by the students as formative assessment in order to prepare for exams. Quizzes will be used as formative assessment by the instructor to assess the understanding of the class before proceeding to new material.
Science Notebook (75)	In science, it is critical that complete and accurate notes be taken. The science notebook will be used as a single place for recording all experimental details and data, making observations, performing calculations, responding to questions, making drawings, and taking notes. Student learning objectives (learning targets) are provided with each lesson. Discussions that accompany activities are designed to help students come to a clear understanding of the content learned through the activities. The notebook will be scored for completion and all content discussed before assessment.



Course Schedule:

"Ntbk." indicates the lesson's first page in the *Student Science Notebook*.
"Text" indicates the chapter number in the textbook.

Month	Date	Day	Topic	Ntbk.	Text	Quiz
January	17/18	T/W	Inquiry & Characteristics of Life	1 & 3	1	
	19/20	TH/F	The Nature of Science	9	1	Y
	23/24	M/T	Membranes	39	5	Y
	25/26	W/TH	Cell Structure and Function	27	4	Y
	30/31	M/T	**Unit Exam #1 – 60 points**			
February	1/2	W/TH	Photosynthesis	49	8	
	6/7	M/T	Cellular Respiration	65	7	Y
	8/9	W/TH	Mitosis	85	9	Y
	13/14	M/T	Meiosis	103	10	Y
	15/16	W/TH	Review			Y
	20/21	M/T	Biodiversity – Life Cycles	127	21-24	Y
	22/23	W/TH	**Unit Exam #2 – 100 points**			
	27/28	M/T	Genetics	143	11	
March	29/1	W/TH	Genetics	143	11	Y
	5/6	M/T	Genetics	143	11,12	Y
	7/8	W/TH	DNA Structure	169	13	Y
	12/13	M/T	DNA to Protein	183	14	Y
	14/15	W/TH	**Unit Exam #3 – 100 points**			
	19/20	M/T	***No class – Spring Break***			
	21/22	W/TH	***No class – Spring Break***			
	26/27	M/T	Natural Selection & Population Genetics	199	17, 18	
	28/29	W/TH	Natural Selection & Speciation	213	17, 18	Y
April	2/3	M/T	Evolution as a Theory	229	16	Y
	4/5	W/TH	Classification & Biodiversity	253	21-24	Y
	9/10	M/T	Biodiversity	253	21-24	Y
	11/12	W/TH	Review			Y
	16/17	M/T	**Unit Exam #4 – 100 points**			
	18/19	W/TH	Ecology and Populations	267	33	
	23/24	M/T	Community Interactions	279	34	Y
	25/26	W/TH	Ecosystems and Energy	289	35	Y
May	30/1	M/T	Ecosystems and Nutrients	303	35	Y
	2/3	W/TH	Review			Y
T/TH section	8	T	**Unit Exam #5 (80 pt.) + Final Exam (80 pt.)**	**(10:15-12:15pm)**		
M/W section	10	TH	**Unit Exam #5 (80 pt.) + Final Exam (80 pt.)**	**(10:15-12:15pm)**		

Note: This syllabus may be modified during the semester. Any modifications will be announced during class and posted on Bb.