

Bio 102. Biology, Issues and Applications - S

Instructor:
Office:
Office Hours: and by appointment (via email)
Office Phone:

Course: Biol 102 Sect 1
Location: SK 102
Time:
Email:

Prepared 3/29/2017 by Linda Fuselier

Course Description: 3 Credits. Selected topics from the biological sciences, emphasizing science as a way of knowing and basic scientific principles and their applications. Topics will focus on high-profile issues in biological sciences and their socio-scientific applications. The course may fulfill general education the natural science requirement but does not count toward the biology major or minor. Prerequisite: Should be taken concurrently with BIOL 104.

Natural Sciences General Education Learning Outcomes:

Natural Sciences are concerned with understanding the laws of nature and the physical world. Students who satisfy this requirement will be able to do all of the following:

1. Demonstrate an understanding of the nature and methods of science inquiry.	Students will use a case study to examine social and rational dimensions of the nature of science. They will answer in-class and test questions on the practice of science in relation to the particular case.
2. Apply scientific principles: to interpret evidence, to make predictions, and/or to explain cross-cutting concepts in one or more of the sciences.	Students will answer test questions based on their interpretation of data presented in a variety of graphical formats. They will use these data to explain concepts related to climate change and human impacts on ecosystems.
3. Explain how scientific principles relate to issues of personal and/or societal importance.	Students will complete an assignment based on a societal issue with biological relevance (e.g., assisted reproductive technologies). They will identify and describe ethical issues that emerge in the particular socio-scientific context presented.
4. Communicate effectively an understanding of scientific concepts and experimental outcomes in speech or writing, using sound scientific terminology and citation appropriate to the discipline.	This outcome will be met in the Lab, Biol 104 associated with this course. Students will write lab reports in which they cite peer-reviewed scientific articles and use professional scientific language and format.

COURSE OBJECTIVES:

Upon completion of this course students will be able to:

- Define, list and/or describe aspects of science as a way of knowing
- Interpret and use data to understand and describe cases of natural selection including examples of how natural selection has shaped human populations
- Define and describe chromosomes, genes, DNA, basic forms of Mendelian inheritance, sexual and asexual reproduction
- Explain how hormones and genetics influence development with particular attention to sex determination in humans
- Explain the relationship between cancer and cell reproduction
- Discuss issues related to genetically modified organisms and explain the basic methods used to insert genes in crop plants
- Define levels of biodiversity, list major threats to biodiversity and relate global climate change to loss of biodiversity

REQUIRED MATERIALS:

1. Textbook:
2. iClicker2 or iClicker+
3. Internet access

GRADING: your final grade will be calculated as a percentage of the total points possible based on the following scale:

Grade	Percentage range
A	100 - 90%
B	89.5 - 80%
C	79.5 - 70%
D	69.5 - 60%
F	59.5 - 0%

I will not use the +/- grading option. The total number of points available may change during the semester, but the grading scale will not. **Grades are not curved;** you are guaranteed only the scale given above.

ASSESSMENT:

Assessment	Explanation	Points
Quizzes	7 x 10 pts each	70
Exams	4 x 100 pts	400
Other assignments	4 X 10	40
iClicker in-class	1-5 pts per lecture	Up to 75 pts max
		~ points total

IClickERS

Every lecture period, you will have the opportunity to earn points by answering questions with your iClicker. Your score will be recorded electronically so, you **MUST** have a clicker in class to receive points.

- You are allowed **ONLY ONE** iClicker; do not register another clicker in your name at any time during the semester
- You may bring **ONLY ONE** clicker to class with you – if you are found using two or more clickers, all of them will be confiscated and you and the owner(s) of the other clicker(s) will receive zero points for the day's assignments
- Points will be awarded as the proportion of questions that you answer and the proportion of questions that you get correct during a lecture period.
- iClicker points add-up and can make the difference between letter grades – use them to your benefit.

ATTENDANCE: YOU MUST ATTEND CLASS to get a good grade in the class. Exam questions will be based on information covered during lecture, and important information about tests and quizzes will be given during lecture. **If YOU MISS an in-class assignment, such as a quiz that is worth points toward your grade, you will receive a 0 on that assignment** (see excused absences below).

Lecture material: PowerPoint slides and other materials provided during lecture will not always be posted on Blackboard. You are expected to work outside of class, attend class and take notes.

Quizzes: Quizzes will be on blackboard with a firm deadline. If you do not take your quiz before the deadline, there is no make-up.

Exams: All exams “count” toward your grade, no scores will be dropped.

Exam day rules: No hats, no cell phones or other electronic devices, no earphones

- If you are found to be using electronic devices or earphones or thought to be looking at someone else's paper, you will be asked to relinquish your exam and leave the class. At minimum, you will receive an F on the exam.

EXCUSED ABSENCES: Acceptable reasons for excused absences are: 1) a death in the immediate family (documentation required); 2) illness (must present doctor's note); 3) university-sanctioned off-campus activities such as athletic events in which you must participate. Documentation from your supervisor is required. If you do not present the appropriate documentation, your absence will not be excused. If you miss an exam and do not have an excused absence, you will receive a zero on that exam.

Missed Exams: If you will miss an exam and have an excused absence, contact me by email (lcfuse01@louisville.edu) before the exam date or within 24 hours of the scheduled exam. The make-up exam may not be the same as the exam taken by the class on the exam date. A make-up exam must be completed within a week of the originally scheduled exam.

DUE DATES: Assignments are due on the date given as a due-date. Assignments turned-in later than the due date/time will have 10% subtracted from the overall score for each day (starting immediately after the time the assignment is due), and assignments three or more days late will not be accepted or graded.

ACCEPTABLE CLASSROOM BEHAVIOR: Any behaviors that disrupt the classroom or show disrespect to the lecturer or other students will not be tolerated. I will ask you to leave the classroom if you cannot act with respect and discipline. TURN-OFF CELL PHONES when you enter the classroom.

RESPECT STATEMENT: A goal of this course is to create and maintain a learning environment that is respectful and open. All students are expected to value and respect the views, beliefs and opinions of their fellow class members and to contribute to creating a positive learning atmosphere that is open to inquiry and communication. Strongly held views should be expressed in assertive terms rather than with accusation, blame or judgment. Students should also be mindful of using inclusive language to create a classroom in which people with different gender, racial, sexual, ethnic, ability and age identities are treated with equal value and respect.

Disability Resources: The University of Louisville is committed to providing access to programs and services for qualified students with disabilities. If you are a student with a disability and require accommodation to participate in and complete requirements for this class, contact the Disability Resource Center (Stevenson Hall, 852-6938) for verification of eligibility and determination of specific accommodations available.

Academic Dishonesty

(From **Sections 5 and 6**, p 45 of the U of L Undergraduate Catalog)

Academic dishonesty is prohibited. It is a serious offense because it diminishes the quality of scholarship, makes accurate evaluation of student progress impossible, and defrauds those in society who must ultimately depend upon the knowledge and integrity of the institution and its students and faculty. A complete description of what constitutes academic dishonest and your rights and responsibilities are found here: <https://louisville.edu/dos/students/studentrightsandresponsibilities>.

ACADEMIC DISHONESTY CONSEQUENCES: Cheating and plagiarism will not be tolerated and all reports of either will be fully pursued. If you are caught cheating, you will be punished by any of the following methods: 1) receive a permanent "F" for the exam or assignment; 2) receive an "F" for the course, 3) be suspended from the university;. If you are caught plagiarizing, at minimum, you will receive a permanent 0 for the assignment that was plagiarized.

IDEAS TO ACTION CONCEPTUAL FRAMEWORK - "The conceptual framework, *Shaping Tomorrow: Ideas to Action*, embodies a unified rationale for our diverse programs that includes three constructs: Inquiry, Action, and Advocacy. Under the construct of Inquiry, and through active engagement and skilled training in methods of rigorous Research, candidates develop the knowledge, skills, and dispositions to become Critical Thinkers. Scholarship, informed practice through inquiry and reflection, is performed not in isolation but in communion with others, both within the university and in the world (Shulman,

2004).” This class will focus on the Inquiry construct and engage students in learning through proven student-centered pedagogical approaches.

Title IX/Clery Act Notification

Sexual misconduct (sexual harassment, sexual assault, and sexual/dating/domestic violence) and sex discrimination are violations of University policies. Anyone experiencing sexual misconduct and/or sex discrimination has the right to obtain confidential support from the PEACC Program 852-2663, Counseling Center 852-6585 and Campus Health Services 852-6479. Reporting your experience or incident to any other University employee (including, but not limited to, professors and instructors) is an official, non-confidential report to the University. To file an official report, please contact the Dean of Student’s Office 852-5787 and/or the University of Louisville Police Department 852-6111. For more information regarding your rights as a victim of sexual misconduct, see the Sexual Misconduct Resource Guide.

lecture schedule*

This list of topics may differ among sections of Biology 102. **This is only one example** of the type of course materials that will be covered.

Week	Topic	Readings, Assignments
1	T – Intro to course, paperwork, clickers, ethics, science as a way of knowing R – hypotheses, theories, evaluating evidence	Chapter 1; Complete Blackboard survey before 11:00am on Thurs Jan 14 (worth points)
2	T – evidence: vaccines and autism case R – evolution by natural selection,	Blackboard quiz 1 before class on Tues Jan 12 Ch 20; Ch 10;
3	T – antibiotic resistant bacteria and natural selection R – HIV and evolution;	Blackboard quiz 2 before class on Tues Jan 19 Ch 11; Ch 20 section on viruses
4	T – EXAM 1 R – human variation and evolution	Ch 12
5	T – Cells DNA, genes R – Cells reproduction	Blackboard quiz 3 before class on Tues Feb 2 First half of Ch 6 plus parts of Ch 3
6	T – Cell reproduction and Cancer R – Sexual reproduction, sources of genetic variation	Ch 6 continued, beginning of Ch 7
7	T – male reproductive system R – meiosis, spermatogenesis	Blackboard quiz 4 before class on Tues Feb 16; Ch 22; Second half of Ch 6
8	T – EXAM 2 R – female reproductive system	Ch 22
9	T – oogenesis, female hormones R – sex determination	Ch 22 Ch 7
10	T – sex determination R – genetics, probability	Blackboard quiz 5 before class on Tues Ch 7
11	NO CLASSES – SPRING BREAK	
12	T – genetics R – genes, environment, heritability	Blackboard quiz 6 before class on Tues Ch 7, 8
13	T – EXAM 3 R – GMO; gene expression	Ch 8, 9
14	T - Biodiversity R - C cycles and climate	Ch 15, parts of Ch 5
15	T – Global climate change R – climate change & review	Blackboard quiz 7 before class on Tues Apr 12 Ch 15, parts of Ch 5
16	T – EXAM 4	