



The mission of Concord University is to provide quality, liberal arts based education, to foster scholarly and creative activities and to serve the regional community (<http://www.concord.edu/academics/>).

Biology 455 Biology Capstone

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Office hours: 11-12 MWF; 12:30-2:30 T; other times by appointment

Course Title: Biol 455, Biology Capstone
Course CRN # and section, credit hours: 20029, sec 01, 2 hours
Semester taught: Spring 2019
Room number: S-204
Course time: MF 12:00-12:50pm
Course Management System: none
Hardware/Software needed: no specific requirement
Pre-requisites: Senior standing with intent to graduate

Textbooks:

Required:

- Ruxton and Colegrave, 2003. Experimental design for the life sciences. Oxford University Press. ISBN 978-0-19-956912-0
- Other readings as assigned during the course of the semester

Course description/rationale: Critical analysis of primary scientific literature, applied statistics, and experimental design. Each student analyzes a current issue in biology, writes a critical review, and gives an oral presentation, which is open to the public. At the end of the course, comprehensive program assessments are administered; a passing grade must be obtained.

Concord University Educational Goals: This course addresses the following goals under the category of "Skills":

1. An ability to employ appropriate observational, logical, analytical, computational, creative, and critical thinking skills within and across academic disciplines; and to apply these skills in problem-solving.
2. An ability to employ appropriate methods and technologies for conducting empirical and scholarly research, to interpret research findings, and to use insights gained from such research as a basis for informed decision making.
3. An ability to analyze, synthesize, and integrate elements, information and ideas.
4. An ability to evaluate elements, information, and ideas on the basis of appropriate criteria.

This course addresses the following goals under the category of “Knowledge”:

1. An awareness of the fundamental characteristics and properties of the physical universe.
2. A recognition of the complex interactions between organisms, including human beings, and their environments.

Learning Outcomes: This course has been designed to provide students anticipating imminent graduation with certain advanced skills expected of a well-prepared graduate of the Biology program. Primary emphasis will be given to understanding and critically evaluating primary literature, and understanding the process of original scientific research. We will study principles of experimental design, with a particular focus on statistical methods. As part of this course, students will:

- Read and critique recent papers selected from the primary literature.
- Plan and conduct a small-scale original research project. As part of this project, students will be expected to study the literature relevant to their work.
- Master basic principles of research design.
- Become proficient in the practical use of statistics in biological research.
- Prepare a poster showing the results of their research, which will be presented in a public forum.
- Present the results of their research orally, in a forum open to the public.
- Write a manuscript based on their research, using a format appropriate for work being submitted for publication.
- Complete evaluations of the Biology program at Concord University and a description of future career plans.
- Demonstrate competence in the field of biology by taking a standardized biology test.

Course Requirements: See below.

Grading policies: Grades will be based on written assignments given during the semester (including a formal research proposal), two lecture examinations, the poster presentation, the oral presentation, the written manuscript, and the standardized test. Credit will be broken down as follows:

Lecture examinations:	20%
Written assignments:	25%
Oral and poster presentations:	20%
Written manuscript:	25%
Final standardized test:	10%

90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, <60 = F

In addition to the above criteria, students will complete surveys dealing with the effectiveness of the biology program and their future career plans. Completion of these surveys and the standardized test is mandatory; students who do not complete them will receive a grade of I (incomplete).

Attendance: Attendance at each class is expected, as is prompt arrival at the beginning of class. Credit may be deducted from a student's final grade for unexcused absences. Absences due to University-sponsored activities may be excused provided the instructor is notified in writing at least 5 days prior to the absence. Other acceptable reasons for missing class include acute illness or injury requiring medical attention, death of a family member, or other events of comparable seriousness. Students must provide documentation (such as a doctor's note) for such absences to be excused. It is the student's responsibility to make arrangements with the instructor to make up missed work following an excused absence. Attendance is not necessary on weeks labeled "Research" on the schedule below, except for the poster presentation

Exams missed due to an excused absence may be made up. I will determine the time and place of any make-up exam in consultation with the student. Students who are absent due to illness or emergency are responsible for contacting me as soon possible afterwards to make arrangements for make-up work.

Course schedule: The following schedule may be altered depending on student progress and other factors.

Week 1 Introduction to course, nature of science

Week 2 MLK Day, Introduction to experimental design

Ch 1, 3

Week 3	Observational studies; Manipulative studies	Ch 2, 4
Week 4	Exam 1, Introduction to applied statistics	
Week 5	Introduction to applied statistics continued	
Week 6	Statistics continued	
Week 7	Research proposals; human subjects, ethics in research	
Week 8	Presentation formats and issues, Exam 2	
Week 9	Spring Break	
Week 10	Research	
Week 11	Research	
Week 12	Research	
Week 13	Research	
Week 14	Research; Poster presentations (Thurs Apr 18)	
Week 15	Research	
Week 16	Oral presentations	

Wed May 8 11:30-1:45 ETS examination

Accessibility/Accommodations:

Concord University is committed to responding to the needs of students with disabilities as defined by the Americans with Disabilities Act. Please inform your instructor at the beginning of the class semester if you have a disability and are requesting accommodations. It is your responsibility to self-disclose that you are requesting accommodations. The University and instructor will provide you with a reasonable accommodation. You should register with CU's Disability Services Office, located in the Athens campus Jerry and Jean Beasley Student Center, Bottom Floor, across from the Campus Post Office. The Disability Services Office phone is 304-384-6086 or you can email the Director, Nancy Ellison, at nellison@concord.edu for assistance.

Academic Dishonesty

Academic dishonesty is morally unacceptable as well as destructive to the learning and teaching atmosphere. Academic dishonesty includes the giving or receiving of improper help on examinations or assignments, falsifying documents, and plagiarism (the act of stealing and using, as one's own, the ideas or the expression of the ideas of another). Such dishonesty can lead to a variety of penalties — including but not limited to failure of assignment, failure of course, loss of institutional privileges, or dismissal from the University. (See University Catalog Academic Policies and Procedures.)

Concord University Honor Code

A Concord University Honor Code was approved by students, staff, faculty, administration, and the CU Board of Governors. The Code states:

"As a member of the Concord University Community I will act with honesty and integrity in accordance with our fundamental principles and I will respect myself and others while challenging them to do the same."

The Honor Code is intended to unite the Concord community behind a culture of honesty, integrity, and civility.

Class/Online Attendance Policy

Regular class attendance is part of a student's academic obligation at Concord. Irregular attendance may affect academic performance adversely and is detrimental to the atmosphere of a class. (See University Catalog Academic Policies and Procedures.)

Emergency Alert System

In an effort to increase safety and security on our campus, Concord University encourages everyone to register for instant text message alerts. Alerts will only be used for security and safety notices. All students, faculty, and staff are eligible to receive text message alerts on their cell phones or email alerts. Please contact the IT Help Desk for further assistance (304-384-5291).

Emergency Information

Emergency/courtesy telephones are located at the main entrance of each residence hall and at various other locations on campus. Emergency telephones can be identified by the flashing blue light and will provide the user with a direct link to Public Safety at the press of a button. To report an on-campus emergency, call 304-384-5357 or 911. The Office of Public Safety is located on the bottom floor of the Rahall Technology Center. For further emergency information go to: <http://www.concord.edu/administration/office-public-safety>.

Inclement Weather Policy

As a general policy, the University will remain in normal operations during adverse weather conditions. In the event of severe weather conditions, the following may occur:

University Closure

No students or employees are to report.

Classes Cancelled

Students do NOT report BUT employees are expected to report to work at their

normal time.

Operating on an Inclement Weather Delay

Under this schedule, all 8 a.m. classes will start at 10 a.m. Students and faculty will follow the Inclement Weather Schedule. (See <http://www.concord.edu/emergency-alerts> for Athens/Beckley Inclement Weather Schedules.)

**Announcements invoking the late schedule or other options referenced above are aired on area radio and television stations and are sent as text and email messages to those enrolled for this service.*

Student Conduct

In classrooms, online, laboratories, and during any activities that are part of course requirements, students are expected to observe reasonable rules of conduct.

Sexual Harassment & Assault

Federal law, Title IX, and Concord University policy prohibits discrimination, harassment, and violence based on sex and gender (Including sexual harassment, sexual assault, domestic/dating violence, stalking, sexual exploitation, and retaliation). If you or someone you know has been harassed or assaulted, you can receive confidential counseling support through the Concord University Counseling Center (304-384-5290). Alleged Violations can be reported non-confidentially to the Concord University Title IX Coordinator at 304-384-6327 or titleix@concord.edu. Reports to Campus Security can be made at (304-384-5357). As an employee at Concord University, I am a mandatory reporter which means I must report any sexual misconduct I am made aware of. This includes verbal or written (such as in an assignment) disclosures of sexual harassment or sexual assault.

Technology Services

Contact the CU Help Desk at extension 5291 from campus or 304-384-5291 off campus. You may also e-mail cuhelpdesk@concord.edu.

Syllabus Disclaimer

"This syllabus is subject to change based on the needs of the class. Please check it regularly."