

**Syllabus: BIO 251 (IX) Introduction to Biology Research
Edgewood College, Fall 2016**

Dr. Nicole Kime

Catalog Description:

An introduction to the scientific process that provides a framework for independent undergraduate research. In this course, we discuss strategies for reading and writing in the sciences, consider scientific ethics, and practice experimental design and biostatistics. Students also plan for future undergraduate research. Bio 251 is a general education course - we use a semester writing project to synthesize course material, and also emphasize the use of information technology in the sciences.

Time and Place: **Section 001:** 9:00 – 10:15 Monday and Wednesday, MAZ G14
 Section 002: 10:30 – 11:45 Monday and Wednesday, MAZ G14

Prerequisites: Completion of Biology 151 or 181 with a grade of CD or higher.
 Completion of or concurrent enrollment in Biology 152 or 182.

Instructor: **Nicole Kime, Ph.D.**
 Office: MAZ G08. Office hours will be posted on Blackboard.
 Office Phone: 608-663-3446
 Email: nkime@edgewood.edu. I try my best to respond to emails within 24 hours on weekdays, and by 4:00 PM on Monday for emails sent after 4:00 PM on Friday.

Course Objectives:

In Bio 251, we will take a practical look at how one goes about conducting research in the biological sciences. We will discuss strategies for reading and writing in the sciences, consider scientific ethics, and practice experimental design and biostatistics. To demonstrate your accumulated knowledge of course material and your proficiency in writing for Biology, you will write a final paper that describes a potential research project like the one required of all Edgewood Biology Majors. These are our goals for Bio 251:

Reading, Writing, and Speaking about Biology

1. Search for, read, discuss, and evaluate primary journal articles in the sciences.
2. Practice writing research proposals, research reports, and personal communication in the sciences.
3. Practice effective oral presentation of biological research.
4. Engage in scientific discourse to support and provide constructive criticism to your peers.

Ethics of Animal & Human Research, Participating in the Collaborative Scientific Community

1. Choose (and be chosen by) a faculty mentor or research group with whom you'd like to conduct research.
2. Discuss and defend our ethical obligations to human research participants and animal research subjects.
3. Consider the standards that guide interactions among individuals in a collaborative scientific community.
4. Incorporate ethical considerations into planning for undergraduate research / internships.

Hypothesis Testing (Experimental Design and Statistics)

1. Understand how questions, hypotheses, and predictions are used in the biological sciences.
2. Design experiments to test a particular hypothesis.
3. Practice exploratory analysis and graphing of quantitative data.
4. Develop proficiency in the philosophy and practice of biostatistics.

Individual Research Proposals (Final Project)

1. Pursue in-depth background research on a topic of interest.
2. Develop an experimental protocol for a (real or hypothetical) undergraduate research project.
3. Prepare a formal written research proposal that integrates class material and demonstrates proficiency in writing.
4. Use peer review and oral presentation to gather and use feedback from your peers.

Writing in Bio 251:

A Part of Edgewood's General Education (X Tag): Bio 251 is part of the General Education curriculum as an enriched experience in written communication. This means that we will fulfill the following goals:

USE A VARIETY OF COMMUNICATION MEDIA AS BOTH SOURCES AND RECEIVERS OF MESSAGE.

1. Engage in a variety of communicative actions, both written and oral.
2. Interpret written oral and visual media intelligently and critically.
3. Produce discourses appropriate for a range of contexts including personal, academic, public, organizational, and intercultural.

A Part of Edgewood's Biology Curriculum: Writing in the sciences is a process, not just an endpoint. Most writers develop a stronger understanding of difficult concepts as they write, revise, and consider how to best communicate their ideas to someone else. In this course, you will gain experience in several of the venues in which biologists are expected to write.

Your big semester project is a research proposal. ***The primary purpose of this assignment is to assimilate the topics of the course and demonstrate that you understand how they all fit together (it is your final exam). The paper must also demonstrate proficiency in writing (for the X-tag).*** You may also use this project to convince a faculty mentor that you are capable of completing advanced undergraduate research, or to document your plan for completing a particular project.

Information Technology in Bio 251:

A Part of Edgewood's General Education (I Tag): Bio 251 is part of the General Education curriculum as a cornerstone experience in information and technological literacy. This means that we will fulfill the following goals:

APPLY A REPERTOIRE OF CREATIVE AND INFORMATION-SEEKING STRATEGIES TO INVESTIGATE AN ISSUE OR TOPIC.

1. Develop an understanding of the social, ethical, and legal issues affecting the access to and use of information and technology, such as plagiarism, copyright, privacy, and socio-political issues.
2. Use, understand, and appreciate computing technology as a tool of information and knowledge management.
3. Use computing technology effectively on one's field(s) of study.

A Part of Edgewood's Biology Curriculum: Information technology is used in all aspects of the scientific process. Although some types of technology are specific to particular disciplines, there are common ways that biologists use technology to do background research, explore funding and research opportunities, access information about animal or human research ethics, organize information, graph and analyze data, and present material to various audiences. We will practice using (but not abusing) common web and campus resources.

Text and Readings:

- Kinsely (2013) A Student Handbook for Writing in Biology, Fourth edition
- Ruxton and Colgrave (2011) Experimental Design for the Life Sciences, 3rd edition.
- HHS Office of Research Integrity (2007) Responsible Conduct of Research (PDF download).
- Kime et al. (n.d.) Biology Student Guide (course readings and resources accessed via Blackboard).
- Dytham (2011) Choosing and Using Statistics. **[RECOMMENDED]**

Course Website:

I will use **Blackboard** to communicate our class schedule, distribute required and recommended readings, post assignments, and report grades. You will submit most assignments via Blackboard for grading. Please access this site regularly to check for updates; if you have trouble navigating around BB, please let me know ASAP.

Time Commitment, Attendance, and Participation:

Plan to spend an average of 10-12 hours per week on readings, class time, and assignments for Bio 251... assuming, of course, that you work consistently on our big projects over the course of the semester and don't put them off 'til the last minute 😊.

This course works best if we all turn up on time, and if we are all prepared for group discussions and computer lab projects. If you must miss class, I'll ask you to get notes from another student in the course. In addition, you may not get credit for group assignments that require discussion with other students.

Please come to class!

If you are not present when I take attendance at the beginning of class, or if you are unprepared for class (e.g. you have clearly not done the readings), you will be marked as absent.

You will fail the course after seven unexcused absences (this is 25% of our course meetings).

This attendance policy may be waived if you will need to miss multiple classes because of a personal emergency. Examples of emergencies include car accidents and serious health crises of the student or someone in the student's immediate family. Events that can be planned in advance are not emergencies; this includes weddings, vacations, birthdays, conferences, etc.

Assignments:

Bio 251 has NO EXAMS! Instead, you will submit assignments at the end of each week of the course. Most will be submitted online, and in many cases there are MS Word or PDF forms for you to fill in, save, and submit.

When submitting work via Blackboard, please ATTACH your submissions in PDF, DOC, or DOCX format.

Other file formats cannot be converted by BB for online grading and will not be accepted. Feedback and grades for all assignments will be posted on Blackboard.

You'll notice that assignments vary in their **point value**. In general...

- **5 points = Checkpoint assignments.** These demonstrate that you are making progress and / or participating in in-class work. I'll look to see whether these have been sufficiently completed and provide general feedback.
- **10-20 points = Building block / single-topic assignments.** These demonstrate your understanding of a single topic. I'll grade for content, and provide feedback for improving your final projects.
- **25-100 points = Cumulative portfolio assignments.** These demonstrate that you can integrate topics across the course. Grades are based on your understanding of course content AND your ability to put it all together.

Assignment Due Dates:

The content and timeline of this course means that completion of one assignment is often necessary to proceed to the next topic. I also recognize that allowing students to turn in late assignments shifts the balance of fairness away from those who contributed work on time. Therefore, **I do NOT accept late assignments.**

If you must request an extension, please **send your request via email at least 24 hours prior to the due date.** If I approve your request, I will send an alternative due date in reply.

Grades:

Final grades will be determined by your work in the following three areas:

- **Progress Assignments (60% of your course grade):** A collection of smaller assignments, worth 20 points or fewer, that address individual topics in the course, encourage collaboration, and guide you to completing final projects.
- **Final Project Portfolio (40% of your course grade):** Four cumulative assignments that ask you to integrate course material. These are due nearer the end of the semester and include 1) a personal statement and curriculum vitae, 2) a cumulative “Big Stats” assignment, 3) your final research proposal writing project, and 4) presentation of your research proposal in an in-class seminar.

The threshold for grades will be as follows:

90% = A, 88% = AB, 80% = B, 78% = BC, 70% = C, 68% = CD, 60% = D, < 60% = F.

The Fine Print:

The instructor and the College reserve the right to modify, amend, and/or change the syllabus (calendar, assignments, topics, requirements, grading policy, etc.) during the term as the curriculum, program, and/or student needs require. Changes may be e-mailed, posted on Blackboard, or announced during class meetings.

From the College: Edgewood College Academic Policies

Source: Edgewood College Student Rights & Responsibilities

<http://www.edgewood.edu/Portals/WWW/pdf/About/StudentRightsResponsibilities.pdf>

Title IX Statement

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, here are some resources to consider:

Confidential Resources:

- Counseling Services: Megan Cobb mcobb@edgewood.edu, 663-2281, DER 206
- Health Services: Kimberly Moreland, 663-3262, PRD 209, kmoreland@edgewood.edu
- Dominican Life: Mary Klink, 663-3451, PRD 222, MKlink@edgewood.edu
- Dane County Rape Crisis Center: 2801 Coho St #301, Madison WI 53713, (608) 251-7273

Non-Confidential Resources:

- Title IX Coordinator: Pam LaValliere 663-4304, DER 214, plavalliere@edgewood.edu
- Dean of Student’s Office: Tony Chambers 663-3205, PRD 217, tchambers@edgewood.edu
- Academic Dean’s Office: Kelley Grorud 663-6925, DER 222, kgrorud@edgewood.edu

Incomplete Grades

Incompletes may only be given when they are initiated by the student and the proper procedure is followed.

1. The student submits a “Request for Incomplete” to the instructor. The form must be signed by the student and the instructor before it is filed with the Registrar’s Office. The Request for Incomplete must be filed before or at the same time grades are submitted by the instructor.
2. Reasons for an Incomplete must be illness or emergency –a situation beyond the student’s control, which makes the student unable to finish the class. The student must have attended regularly and done the work up until the point of the Incomplete. Incompletes may not be given by the instructor for missed exams or late work.
3. If a student has not formally requested an Incomplete and misses exams or does not complete the coursework, a grade of “A” to “F” must be given for the work that has been done to date according to the course syllabus.
4. Incomplete work must be submitted and a grade given within 10 weeks of the close of the term in which the Incomplete is given, unless a request to extend the time for completion has been filed with the Registrar’s Office before the 10-week period is completed.
5. Incompletes submitted by an instructor without the appropriate form will not be accepted. If such a grade appears, the Registrar will assign a grade of “F” for the class.

Academic Honesty Policy

As members of a scholarly community dedicated to healthy intellectual development, students and faculty at Edgewood College are expected to share the responsibility for maintain high standards of honesty and integrity in their academic work.

Each student should reflect this sense of responsibility toward the community by submitting work that is a product of his or her own effort in a particular course, unless the instructor has directed otherwise. In order to clarify and emphasize its standards for academic honesty, the College has adopted this policy.

The following are examples of violations of standards for academic honesty and are subject to academic sanctions:

- Cheating on exams, submitting collaborative work as one’s own, falsifying records, achievements, field or laboratory data or other coursework.
- Stealing examination or course materials.
- Submitting work previously submitted in another course, unless specifically approved by the present instructor.
- Falsifying documents or signing as an instructor or administrator’s name to a document or form.
- Plagiarism
- Or aiding another student in any of the above actions.

Suspected violations of the Academic Honesty Policy will be reported to the Academic Dean’s Office.

Administrative Withdrawal Policy

Edgewood College reserves the right to withdraw any student from classes at any time during the semester or term for reasons such as (but not limited to):

1. Disruptive behavior that interferes with the learning of other students
2. Lack of course prerequisite(s)
3. Lack of instructor, advisor, or departmental approval for a course
4. Academic dishonesty
5. Once registered, the student retains responsibility and financial liability for all enrolled courses. Tuition refunds will not be granted when students are withdrawn by the institution for cause.

Privacy of Student Records – FERPA

The Family Educational Rights and Privacy Act (FERPA) of 1974, also known as the Buckley Amendment, provides that students have the right to see their records (accessibility) and to determine who will see their records (confidentiality). Detailed information on the provisions of the Act and its applications are included in the Student Handbook.

Learner Support

Technology Assistance Center - Help Desk

If you are experiencing any technical problems, please contact the Technology Assistance Center:

Phone: 608-663-6900

Email: Technology-Assistance@edgewood.edu

Help Desk Hours: <http://my.edgewood.edu/sites/services/itso/default.aspx>

Please be ready to provide the following information:

- Operating System: Windows Version, Macintosh OS
- Web Browser Used
- Course: Title, Instructor and Session

Academic Success and Career Development Center

The Academic Success and Career Development Center (ASCDC) assists students with a variety of learning needs. The ASCDC takes a developmental approach to helping students grow academically, professionally, and personally. Some examples of the services provided include:

- Academic advising
- Peer tutoring in introductory classes
- Drop-in assistance Math
- Study skills assistance (time management, qualitative skill development, test-taking strategies, etc.)
- Career development
- Internship placement

The ASCDC is located in DeRecci 206. You can ASCDC staff at success@edgewood.edu or 608-663-2281.

Disability and Accessibility Services

If you are a student with a documented disability and are interested in accommodations for this course, contact the Director of Students Disability and Accessibility Services, in the Student Resource Center (DER206). Each student shall be expected to make timely and appropriate disclosure and requests to effectively set up services. All requests for services and disabilities documentation are confidential. If you have questions about services, accommodations, or documentation requirements contact the Director in DeRicci 206, at 663-8347.

To make an appointment, please call 608-663-2281. Information about services, requirements and procedures can be found the website: <http://lss.edgewood.edu>

Personal Counseling Services

A place on campus where you can talk with someone confidentially about a concern.

- Individual Counseling
- Groups
- Crisis care
- Consultation
- Outreach Presentations and Workshops

<http://counseling.edgewood.edu/>

Writing Center

If you need help in writing a paper, try the Writing Center, located in the Edgewood Library

- free, drop-in tutoring and feedback
- work with you on final touches to a nearly complete draft

<http://writing-center.edgewood.edu/>

Edgewood Library Resources

<http://library.edgewood.edu/> edgewood.edu