

**BIO 427: Current Topics in Genetics, Fall 2018**  
**College of Arts & Sciences Syllabus**

**COURSE INFORMATION**

**Credit Hours:** 3

**Course Description:** Advanced study and analysis of selected topics within the field of Genetics, with emphasis on topics that are at the forefront of advances in the discipline.

**Course Prerequisites:** Graduate standing and BIO 303 with a minimum grade of C.

**Meeting times:** Mondays, 5:40 – 8:30 pm in BBH 354

**FACULTY INFORMATION**

**Instructor:** Dr. Elyse Bolterstein    **Office Location:** BBH-352A

**E-mail:** [e-bolterstein@neiu.edu](mailto:e-bolterstein@neiu.edu)    **Phone Extension:** 773-442-5742

**Office Hours:** Mon. 3-4:15 pm, Tues. 1-2 pm, Wed. 9:30-11 am, or by appointment

E-mail is the easiest and fastest way to contact me. Please plan ahead and allow time for a reply. On regular business days, I can usually reply within 24 hours. On weekends and holidays, I may need to reply on the next business day. **You must use your NEIU e-mail for all e-mail communication. Include a subject or it may go to junk mail.**

**COURSE MATERIALS**

**Recommended Text:**

Davis, M., K. Davis, and M. Dunagan. 2012, *Scientific Papers and Presentations, 3<sup>rd</sup> ed.* Academic Press, New York, NY.

**COURSE OBJECTIVES AND STUDENT LEARNING OUTCOMES:**

- Summarize main findings presented a scientific paper.
- Critique experiments, analysis, and interpretation presented in scientific literature
- Identify and utilize credible sources of scientific literature
- Lead classmates in discussion of a primary research article
- Develop several novel experimental ideas for a research project in genetics
- Give feedback to classmates in peer reviews
- Present proposed research ideas to your classmates

## **STUDENT TASKS/ASSIGNMENTS**

### **Weekly reading assignments**

As you move further in your scientific careers, you'll likely find that you obtain most of your information from scientific articles. Similarly, in this class we will be reading mostly primary research articles, along with some review papers, to learn about topics in genetics. Each week you will be responsible for reading 1-2 primary papers along with chosen background information.

### **Participation, figure presentation, and in-class assignments**

Science isn't a spectator sport! Since discussion will largely comprise our class time, it's critical that everyone participates. Participation includes, but is not limited to: attending class, asking questions, making comments, clarifying points, providing critiques, and attentive listening. To help stimulate discussion, I may ask you to respond to a writing prompt and discuss with your peers. There are 10 points available for participation each week of class. Full points will be awarded to students demonstrating each of these activities during every class. Points cannot be made up for absences, but you may drop your lowest participation grade.

### **Critique published papers**

Learning to critically read and evaluate scientific literature and synthesize that information in writing is an essential skill for all scientists, but particularly for beginning graduate students. This assignment will be based on the Paper Summary Critique Guidelines for the Biology MS portfolio with more information provided in class.

### **Topic presentations and paper discussions**

Each week we will discuss a topic related to genotoxicity. Four of our meetings will be dedicated to student presentations on a genotoxicity topic of their choosing. You will work with a group of 3-4 students to present your topic including background information leading a discussion of 1-2 primary papers. Point distribution will be decided upon by group members.

### **Grant Proposal**

Mid-semester you will work with your presentation groups to write a research proposal to submit for graduate funding to an organization such as Sigma Xi. You will identify a question of interest to your group in which the answer is currently unknown. You will search background literature, summarize it in a way that highlights the importance of your proposed work, propose a way of answering your question, and suggest reasonable outcomes of the proposed work. You must also provide a well-reasoned budget for your work. Proposals will be reviewed and critiqued by classmates.

### **Editing and Review**

In this class, you will participate in both informal and formal reviewing of your peers' writing. We will have several in-class activities where you provide feedback on early writing stages of assignments. Additionally, each of you will proofread a grant proposal and review paper, making relevant editorial comments on the manuscript that will help the author prepare an improved revised draft.

Rewrites on all writing assignments will be accepted within 2 weeks of receiving your grade. You must include a "response to reviewers" summary of improvements with each re-submission.

### **Exams**

There will be one online exam at the beginning of the term to assess your knowledge of genotoxicity mechanisms and methods covered in class.

### Grading Policies and Formulae

Points	Assignment
50	Methods online exam
150	Topic presentations
	25 Annotated bibliography
	25 Presentation outline
	50 In-class presentation
	50 Paper discussion
130	Research Proposal
	10 Research question and hypothesis
	10 Outline and references
	15 Draft 1
	20 Peer review
	75 Final draft
70	Summary critiques (2x 30 pts + draft)
100	Participation (includes figure presentations)
<b>500</b>	<b>Total</b>

Points	Letter Grade
> 89.5%	A
79.5 – 89%	B
69.5 – 79%	C
< 69%	Failing

All assignments will be due at the beginning of class unless otherwise stated. Work will be considered late if it is received after the specified deadline. A grade for an assignment will be penalized 10% for each calendar day it is late. Assignments turned in more than a week past the due date will not be graded.

I will usually return graded material within one week after the assignment was due. No grades will be discussed until at least 24 hours after the assignments are returned. If you believe that I've made a mistake in grading your work, you must write a memo explaining the objection and bring it to my attention within one week of receiving the graded assignment. I will not reconsider the assigned grade after one week of the posted date. No assignments will be accepted after the due date of the final paper.

Please note that your grade at the end of the class will be based solely on the assignments and exams turned in up to and including the final. No extra projects, no re-submissions, no re-takes or no extra credit will be given to raise a grade no matter how close you are to the next letter grade.

**Course Outline:** The outline for weekly course topics, reading assignments, and due dates can be found on p. 5.

### COURSE POLICIES AND STATEMENTS

**Absence Policy:** You are expected to respect your classmates by arriving on time for each class period. Often participation points will be awarded for in-class activities and informal peer-reviews. These points cannot be made up if you miss class.

**Academic Integrity Policy:** I expect professional conduct from each member of the class. Our classroom will function best in an atmosphere of mutual trust and respect. You can do your part in establishing such an atmosphere by treating others with the dignity and respect you would like for yourself.

By enrolling in this course, you are bound by the NEIU Student Code of Conduct: <http://www.neiu.edu/university-life/student-rights-and-responsibilities/student-code-conduct>. I believe that all of us know how to conduct ourselves with honesty and integrity, and that we will do so to the best of our ability.

**ADA Statement:** Northeastern Illinois University (NEIU) complies with the Americans with Disabilities Act (ADA) in making reasonable accommodations for qualified students with disabilities. To request accommodations, students with special needs should make arrangements with the Student Disability Services (SDS) office, located on the main campus in room D104. Contact SDS via (773) 442-4595 or <http://www.neiu.edu/university-life/student-disability-services>.

**Campus Safety:** Web links to Campus Safety: Emergency Procedures and Safety Information can be found on NEIUport on the MyNEIU tab or as follows:  
[http://homepages.neiu.edu/~neutemp/Emergency\\_Procedures/MainCampus/](http://homepages.neiu.edu/~neutemp/Emergency_Procedures/MainCampus/).

**Cheating/Plagiarism:** You are expected to adhere to the University Student Code of Conduct (<http://www.neiu.edu/university-life/sites/neiu.edu.university-life/files/documents/tfneumei/conductCode.pdf>) Cheating and plagiarism can result in getting zero for the assignment /exam, failing the entire course or being referred to the Chair of the Department of Biology and/or the Office of the Student Rights & Responsibilities depending upon the individual case. The instructor reserves the right to use any means necessary to detect cheating and/or plagiarism including, but not limited to, electronic means.

**Course Communication:** The University requests that instructors contact students at their NEIU e-mail addresses. You must regularly check your NEIU e-mail account (or set the account to forward mail to an account that you do check regularly). Communication between the instructor and students via personal e-mail accounts (e.g., @gmail.com or @yahoo.com) will not occur.

Written assignments will be submitted electronically via D2L. Any student file submitted electronically that does not meet the requirements listed will not be graded. Please ensure that files are

- appropriately named (last name-Document title),
- submitted in Microsoft-Office format (e.g., .docx, .xlsx, .pptx),\* and
- submitted to the corresponding Dropbox folder.

While you are not required to use Microsoft Office products, please ensure your productivity applications are able to import/export into the compatible file formats

**Learning Support Center:** The Learning Support Center (LSC) provides peer-directed academic tutoring for reading and writing in graduate courses. Tutors are graduate and undergraduate students who are carefully selected on the basis of their own academic achievement by faculty and given supervision, training, and support to serve as tutors, mentors, and academic coaches. Appointments are strongly encouraged, and students are welcome to drop in to discuss their individual academic support needs. For more information, visit the LSC website at [www.neiu.edu/lsc](http://www.neiu.edu/lsc) or, to schedule an appointment with a tutor, call 773-442-4568.

**Withdrawing from the course:** Students who wish to withdraw from the course must do so themselves through NEIUport or the Registration Office. Neither faculty nor staff is able to withdraw a student from a course. In other words, students who simply stop coming to class but do not withdraw will receive a grade for the class that is based on (1) whatever work they did before they stopped attending and (2) the 0's they receive for all work not done after they stopped attending. In almost all cases this works out to be a grade on "F". The final deadline for withdrawing from the class is November 2, 2018. Students withdrawing at that time will not receive any refunds. Withdrawals prior to that date may be eligible for refunds. Check the Schedule of Classes for a detailed listing of deadlines and refund policies.

**Course Outline:** Note that this schedule or lecture material may change depending on our progress and class interest. I will post revisions to D2L as necessary.

Wk	Date	Topic	Reading	Deadlines
1	8/27	What is genotoxicity Genetics review		
2	9/3	<b>Labor Day - no class</b>		
3	9/10	Mutagenesis Summary critique writing	Piberger, A. L., <i>et al.</i> (2018) <i>Arch Toxicol</i> , 92(1), 541. Young, E. <i>The Atlantic</i> . March 28, 2017	Decide on topics
4	9/17	DNA damage and response Literature searches	Chequer, F. M., <i>et al.</i> (2012) <i>Food Chem Toxicol</i> . 50(10): 3447. Chequer, F. M., <i>et al.</i> (2017). <i>Toxicol Ind Health</i> . 33(10): 765.	SC I draft in class
5	9/24	<b>No class</b>		SC I due to D2L Online exam
6	10/1	Mitotic defects	Neelsen, K. J., (2013) <i>J Cell Biol</i> . 200(6): 699. Smith-Roe, S. L., (2018) <i>Environ Mol Mutagen</i> . 59(5): 416.	Presentation annotated bib
7	10/8	<b>Fall break - no class</b>		
8	10/15	Oxidative stress	Suliman, Y., (2015) <i>Environ Toxicol</i> . 30(2): 149. Nallanthighal, S., (2017) <i>Nanotoxicology</i> . 11(8) 996.	Presentation outline Team virtual meeting Grant research question
9	10/22	Model organisms in genotox	Hirsch, H. V. (2012) <i>Front Genet</i> . 3:68. Carmona, E. R., (2016) <i>Toxicol Ind Health</i> . 32(12): 1987.	Grant outline
10	10/29	Group presentation 1	<i>TBD</i>	SC II due to D2L
11	11/5	Group presentation 2	<i>TBD</i>	
12	11/12	Group presentation 3	<i>TBD</i>	Research proposal draft
13	11/19	Group presentation 4	<i>TBD</i>	
14	11/26	Ethics and regulations	Hogervorst, J.G. <i>et al.</i> (2016) <i>Sci Rep</i> . 6:34902	Research proposal
15	12/3	Grant study section	Group grant proposals	Peer reviews
16	12/10	Optional group work day		Proposal edits