

**BIO 390-02: BIOLOGY SENIOR SEMINAR**  
**College of Arts & Sciences Syllabus**

**COURSE INFORMATION:**

Credit Hours: 3 credits.

Course Description: This course is intended for students who are within two semesters of graduation. The goals of the course are to provide students with the opportunity to explore topics of particular interest to them, in greater depth than is usually possible within the context of topic specific courses, and to assess whether students are able to integrate knowledge gained from different courses and/or disciplines. As part of the course, students will be required to take the Major Field Test in Biology. This course fulfills the capstone requirement for the Biology Major.

Course Prerequisites (all require minimum grade of C): BIO-301, BIO-303, BIO-305, and three Biology elective courses. Biology Majors only.

Course Hours and Classroom: **Mon. & Wed. 9:30 – 10:45 am** Class meets in **BBH-356**.

**FACULTY INFORMATION:**

Instructor: Dr. Elyse Bolterstein  
Email: [ebolter@neu.edu](mailto:ebolter@neu.edu)  
Phone: 773-442-5742

Office Location: Room BBH 352-A  
Office Hours: Mon. & Wed. 10:45-11:15 am  
Mon. 2:30-3:30 pm  
Tues. 1:00-3:00 pm  
*Other times available upon request.*

**COURSE MATERIALS:**

***You will need a writing guide used in BIO 150 or 305. Choose one.***

- Writing in the Biological Sciences, by A. H. Hofmann. ISBN 978-0-19 976528-7 (1<sup>st</sup> ed.); ISBN 978-0190245603 (2<sup>nd</sup> ed.), *or*
- Writing Papers in the Biological Sciences, by McMillan. ISBN 0-312-44083-9 (4<sup>th</sup> ed.); ISBN 978-0-312-64971-5 (5<sup>th</sup> ed.) ISBN 978-1-319-04713-9 (6<sup>th</sup> ed.)

**COURSE OBJECTIVES / STUDENT LEARNING OUTCOMES:**

1. Integrate scientific knowledge gained in previous courses from diverse disciplines in biology
2. Evaluate, interpret, discuss, synthesize, and critique articles from the primary literature
3. Effectively communicate research findings via written and oral presentation and discussion
4. Critically evaluate oral presentations and written samples from their peers
5. Practice civic responsibility as a scientist
6. Search for jobs, respond to job ads, and create an effective résumé/CV as part of a job application package. Or, write a personal statement appropriate for applying to graduate or professional school.

## STUDENT TASKS / ASSIGNMENTS / REQUIREMENTS:

**Attendance:** The backbone of this course is class discussion and participation. You will receive 2 points for every class that you are on-time, prepared, and participating. You will receive 1 point if you are late and 0 points if you are absent or not prepared for or participating in class.

**Scientific writing:** Writing skills are crucial to success in almost any career, and you will be expected to write clearly structured arguments supported by scientific data. All students are encouraged (and some may be required) to receive feedback from NEIU's writing tutors. See <http://www.neiu.edu/university-life/learning-support-center/writing-tutoring> and Call (773) 442-4568 to make an appointment.

- *Searching and reading the primary literature:* You will choose a topic related to biological health issues (e.g. spread of diseases, cellular responses to drugs, health impacts of water pollution, environmental health of wildlife and plants). After your topic is approved by me, you will search the biological literature and find at least ten primary research articles. For six of those articles, you will complete assignments designed to help you more quickly and effectively read and understand a primary research article.
- *Review paper:* You will write a mini-review consisting of 7 concisely written pages. Your review paper will include an introduction with background information and objectives, a review body that provides a critical synthesis of the primary literature, and a conclusion that gives the challenges to the field or directions for future research. You are expected to thoughtfully cite at least 6 primary research papers. Information from different articles must be integrated to support the points made in your review paper, and you will interpret the articles to provide an informed perspective.

**Oral presentations:** Your communication skills will be enhanced through multiple oral presentations.

- *Persuasive presentation:* A crucial skill in the workplace (and in life!) is to be able quickly persuade peers of a topic's importance. In a short, 2-min. oral presentation, you will present a biological topic related to health that is receiving media attention. You must develop an argument with logical structure, support that argument with relevant information, and fit your presentation within a required limit. You may use notecards, but may not read or use slides. You will answer questions at the end of your presentation and obtain suggestions for improving your speaking skills.
- *Small science chalk talks:* You will choose one or two graphs / data sets from a single paper you are reading and explain them (and the experiment) using only the chalk or white board. "The experiment was \_\_\_\_\_ and this graph / data shows \_\_\_\_\_ and it means \_\_\_\_\_." Your presentation will be approximately 5-6 minutes.
- *Evaluation of scientific seminars:* You will attend and evaluate two scientific seminars sponsored by the biology department or elsewhere at NEIU. (A list of approved seminars will be provided; many, but not all, will be during activity hour.) The goal is to identify effective presentation techniques that you could use to improve your own presentations. Your summaries will be due to D2L *within one week* of attending the seminar.
- *Research seminar:* You will provide thorough background information about a biological topic related to water and present data (e.g. graphs) from two primary research papers as examples/case studies. The papers will be among those cited in your review paper, and content of both papers must be integrated with respect to the main topic. The presentation will follow the standard 12-min. format at a scientific meeting, with an introduction, methods, results, conclusions, followed by questions.
- *Group orientation video:* As graduating seniors in our department, you are in a great position to give advice to new biology students. You will work in groups to create videos that we can show at department orientation.

**Professional development:** Graduation is not a guarantee of success- you must also be able to convince potential employers, graduate schools, or professional schools of your competence.

- *Civic engagement/service project:* You will be required to do some type of volunteer or service work. You must arrange your own activity. You will be required to write a paragraph of what describing what you did and what you gained from the experience. If allowed, you will take a photo of the experience and submit that with the paper. This can work as a resume booster and a way to foster connections within your chosen career path. Choose something meaningful to you and your career. Project time should be about an hour. *Volunteer service must not be strictly religious (unless that is your career path).* Although you are only required to conduct a minimum of two hours of service for this course, you are encouraged to extend your experience into a longer project. Your choice of service project must be approved by the instructor.
- *Informational interview:* One of the best ways to learn about the steps necessary to succeed in a career (and to make necessary connections) is to conduct an “informational interview.” After identifying a professional working in a biological field of your interest, you will develop a list of relevant questions and interview him/her.
- *Resume, cover letters, and personal statement:* After searching for a job ad or a graduate school announcement, you will create an appropriate resume/CV and write a cover letter. Personal statements are also crucial for admission to graduate school or health professional school. If choosing a career that does not require a personal statement for example, you are planning on directly entering the work force, a one page paper on your career goals
- *Mock interview:* You will develop answers to potential interview questions and practice those answers through a mock “interview” with your classmates.
- **Extra Credit:** Students can earn points by applying for any science related position during this term. Simply obtain the job ad or position announcement, gather your application materials, and show me proof that you actually applied for the position / internship / school / scholarship, etc. *20pts.*

**COURSE GRADING (500 POINTS TOTAL):** **A:** 513-570 pts. (>90%), **B:** 456-512 pts. (80-89%), **C:** 399-455 pts. (70-79%), **D:** 342-398 pts. (60-69%), **F:** 0-341 (<60%)

<b>Professional development (130 pts. total)</b>	
Networking assignment (informational interview and presentation)	25 pts.
Career packet (resume, personal statement, cover letter) and peer review	70 pts.
Civic engagement/service project	20 pts.
Mock interviews*	15 pts.
<b>Oral presentation (125 pts. total)</b>	
Persuasive oral presentation*	15 pts.
Small science talks*	15 pts.
Research seminar*	55 pts.
Evaluations of scientific presentations/seminars at NEIU (2 x 10 pts.)	20 pts.
Group orientation video	20 pts.
<b>Scientific writing: review of primary literature (255 pts. total)</b>	
Summaries of 7 primary research papers (7 x 15 points)	105 pts.
Review paper preparation (lit search, outline, drafts, and peer review)	50 pts.
Review paper final submission	100 pts.
<b>Attendance, Participation and preparation for class (60 pts. total)*</b>	
Includes in-class assignments, take-home preparatory assignments for in-class work, peer review of classmates' work and attendance	60 pts.
<b>TOTAL</b>	<b>570 pts.</b>

\* *Students with unexcused absences forfeit the opportunity to gain these points.*

## COURSE POLICIES AND STATEMENTS:

**The best way to obtain a good grade:** Take advantage of the ample opportunities to earn points in this class! Numerous smaller assignments will prepare you for higher-stakes assignments. As a general rule of thumb, successful students spend 2-3 hours per week working outside of class per credit hour. For a 3-credit course such as BIO 390, that amounts to 6-9 hours per week. Be prepared for this commitment and plan your time accordingly.

**Absence Policy:** Attendance and punctuality are required. Unlike many courses, the focus of Biology Senior Seminar is to gain skills rather than be tested upon subject matter. In-class activities will help you master skills that are typically challenging, such as developing synthesis in a review paper. **The in-class activities will be worth more than 10% of your final grade (equivalent to one letter grade).** Those who miss an activity due to absence or arriving late forfeit the opportunity to gain these points.

▶ A doctor's note or documentation of another unavoidable emergency is required for an excused absence. You must tell me in advance if you need to be excused for a religious holiday. Absences that are not excused include (but are not limited to) car problems, public transportation issues, wedding/baby shower, sick without documentation, taking sister/friend/grandma to the dentist/doctor/mechanic, and going out of town or on trips. If you have an excused absence, then I will do my best to see that you can make up an activity, but beware that there is NO guarantee. Make-ups will not be allowed after one week of the missed activity.

**Due dates:** This class is structured so that large assignments are completed gradually. To ensure that you keep up and do not fall behind, a grade for an assignment will be penalized 10% for each calendar day it is late. Every student will get a late pass which will be recorded the first time an assignment is late (no matter what assignment it is). After that late pass, the regular 10% per calendar day penalty will be applied. **If an assignment is late more than a week (7 days) from the original due date, you will NOT receive any points (this includes the late pass; that is, you only have 1 week after the original due date to submit your first late assignment).** NOTE: There are assignments for which the late pass CANNOT be applied. These will be announced in class.

**Academic Integrity:** 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> Any violation, such as cheating or plagiarism, is grounds to *fail* the course. The violation will also be referred to the Office of Student Rights and Responsibilities, who may impose additional sanctions.

▶ **A Note on Original Work:** You will work closely with classmates during in-class activities. However, your *submitted work must be individual effort and written in your own words*. We use software to detect copying from the internet and from other students, including those who have taken the course previously or even at other universities, so *don't try to copy from any source*. Copying even part of one sentence (without quote marks and a source reference) is plagiarism, whether those words are copied from the internet, a classmate, a book, or an article. **Please understand that it is never worthwhile to conduct an honor violation. Infractions are sad, because they show that a student does not believe in his or her ability to perform well. Dishonesty can ruin a career; it is crucial to be in the habit of always conducting honest work. It's important to realize that sharing your work with a friend is cheating and has the same consequences as copying.**

**Classroom/Lab Behavior:** In accordance with NEIU's Classroom Disruption Policy, found on p. 32 of the Student Handbook (<http://www.neiu.edu/university-life/student-rights-and-responsibilities/student-handbook>), students who disrupt the class will be given a verbal warning. Students who continue to disrupt the class will be required to leave the classroom. Any further disruption can result in the involvement of Public Safety and/or the expulsion from the class. *Note: All inappropriate classroom*

*behaviors, including chatting or sleeping during class, are disruptive. Browsing the web, checking email, and texting also distract you, me, and the students around you.*

**Feedback about student work:** Although the instructor will provide feedback about student work, students are responsible for applying that feedback to improve their performance throughout the course. More often than not, instructor's feedback quality reflects the student's assignment quality. In addition, feedback *will not highlight every single error*. This is done purposefully. Students that learn to find and identify their own weaknesses improve their writing much more successfully than those that do not. A typical error may be pointed out only once either through feedback *given to the entire class as a group or individually* and the student will be responsible for working on or fixing that issue in different parts of the same paper/assignment and in subsequent assignments.

**E-mail:** The University requests that instructors contact students at their NEIU e-mail addresses, and all class announcements will be sent to your NEIU e-mail. You must regularly check your NEIU e-mail account (or set it to forward mail to an account that you do check regularly).

- ▶ Hints for a quicker e-mail response (from me or from anyone!): Put your question in the subject. A vague subject such as "question" or "hello" isn't written to illicit a prompt response. Be more specific, such as "Confusion about research paper summary." Also, make your e-mail easy to read and understand. Write in complete sentences, use capitalization, and proofread before sending to make sure that your question is clear. Don't write a long, rambling e-mail, but insert line breaks after a few sentences as appropriate. In academia (just as in the workplace), e-mail is the format used for professional communication, and you should treat it as such. Don't write as if texting a friend!

**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/).

**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>.

**Undocumented Student Project:** All students are welcome at NEIU. Please obtain more information and a resource guide at [www.neiu.edu/undocumentedstudents](http://www.neiu.edu/undocumentedstudents) to, and let me know if I can be of help in any way.

## COURSE OUTLINE & SCHEDULE (SUBJECT TO CHANGE)

*Listen in class and regularly check D2L for changes to schedule and due dates.*

Week/Date		Topic/Activity	Read	Due to D2L by 9:30 am unless otherwise noted
1	1/7	Introduction	Hofmann: Ch 10 (1 <sup>st</sup> ed.), Ch 11 (2 <sup>nd</sup> ed.); McMillan: Ch 5	
	1/9	Starting a review paper	Hofmann: Ch. 2 (1 <sup>st</sup> ed.), Ch 4 (2 <sup>nd</sup> ed.); McMillan: Ch 1	Review paper topics (in class)
2	1/14	Persuasive presentations		
	1/16	Applying for jobs/school part 1		Article 1 Review
3	1/21	<b>NO CLASS – MLK Birthday</b>		Literature search assignment
	1/23	Applying for jobs/school part 2		Resume and CL drafts
4	1/28	Applying for jobs/school part 3		Article 2/3 Review
	1/30	Mock interviews		Mock interview questions/preparation
5	2/4	Mock interviews and application wrap-up		Article 4/5 Review (one can be a review paper)
	2/6	Writing a review paper	Hofmann: Ch 10 (1 <sup>st</sup> ed.), Ch 11 (2 <sup>nd</sup> ed.); McMillan: Ch 5	Personal statement draft
6	2/11	Writing a review paper	Hofmann: Ch 10 (1 <sup>st</sup> ed.), Ch 11 (2 <sup>nd</sup> ed.); McMillan: Ch 5	Article 6/7 Review
	2/13	Interpreting complex graphs; drawing conclusions from data	Hofmann: Ch 5 (2 <sup>nd</sup> ed. only); McMillan: Ch 2	
7	2/18	Preparing effective visual aids; explaining data	Hofmann: Ch 12 (1 <sup>st</sup> ed.), Ch 13 (2 <sup>nd</sup> ed.); McMillan Ch 10	Annotated outline that demonstrates synthesis
	2/20	Small science talks		
8	2/25	Scientific writing	Hofmann: Ch 3 & 4 (1 <sup>st</sup> ed.), Ch 2 & 3 (2 <sup>nd</sup> ed.); McMillan: Ch 8	Final career packet (resume, cover letter, personal statement)
	2/27	Assessing synthesis	Hofmann: Ch 7 (1 <sup>st</sup> ed.), Ch 8 (2 <sup>nd</sup> ed.); McMillan: Ch 7	
9	3/4	Creating tables and graphs for review paper		
	3/6	Peer review of review papers		Complete draft of review paper
10	3/11	Revising and rewriting	Hofmann: Ch 7 (1 <sup>st</sup> ed.), Ch 8 (2 <sup>nd</sup> ed.); McMillan: Ch 7	
	3/13	Video work day		Revised review paper, after receiving comments from peer
<i>Spring break is Mar. 18-24.</i>				
11	3/25	Meet with instructor to receive feedback about review paper		Service project write-up
	3/27	Meet with instructor to receive feedback about review paper	Hofmann: Ch 15 (1 <sup>st</sup> ed.), Ch 16 (2 <sup>nd</sup> ed.); McMillan Ch 10	
<i>Last day to a drop course this semester is Fri. Mar. 29.</i>				

12	4/1	Informational interview presentation		Informational interview reflection
	4/3	Peer review of slides		
13	4/8	Student seminars 1		Final submission of review paper (will receive 2 week extension for seeing writing center)
	4/10	Student seminars 2		
14	4/15	Student seminars 3		
	4/17	Student seminars 4		
15	4/22	TBA*		
	4/24	TBA*		
16	4/29	Watch student videos		