

COURSE INFORMATION

Credit Hours: 2 **Course description:** A practical approach to providing students with the basic skills they will be expected to have in upper-division biology courses, including lab safety; methods and units of scientific measurement; scientific record-keeping, communication and library research skills; and summarizing and presenting data. Lecture and lab, with a significant web-based component.

Prerequisites: (MATH-092-499 or MATH-092A-499Z or NEIU Math Placement Result 30-45 or ACT Math 22-36 or Accuplacer College Level Math-020-120) and (ESL-120 or ELP-099 or NEIU English Placement Writing 7-9 or ENGL-101-102 or (Accuplacer WritePlacer 4 and Accuplacer Sentence Skills 095-120) or (Accuplacer WritePlacer 5-8 and Accuplacer Sentence Skills 020-120)) and (READ-095-116 or ACT Reading 20-36 or NEIU English Placement Reading 5-9 or Accuplacer Reading Comp-080-120).

Co-requisites: Students are expected to take this course concurrently with BIO 201.

Course meetings and locations: Thursdays, 5:40 – 7:30 pm in BBH-356

FACULTY INFORMATION

Instructor: Dr. Elyse Bolterstein **E-mail:** e-bolterstein@neiu.edu

Office: BBH-352A **Phone:** 773-442-5742

Office hours: Mondays and Wednesdays 9:30-10:45 am, Thursdays 4-5:30 pm, or by appointment

E-mail communication: 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 not reply until the next business day. **You must use your NEIU e-mail for all email communication. Also, include a subject or it may go to junk mail.**

COURSE MATERIALS**Required texts/supplies:**

Hofmann, A.H. 2015. Writing in the Biological Sciences: A Comprehensive Resource for Scientific Communication. 2/e. New York: Oxford University Press. 360 pp. (ISBN: 978-0-19-024560-3)

Chemistry – Spiral Side Bound 100 set. _Hayden McNeil (ISBN 978-1-4292-2454-3).

Note: You can use the same lab notebook for BIO 150 & BIO 201- purchase only one.

Recommended texts:

Harris, M., Taylor, G., and Taylor, J. 2005. Math and Statistics for the Life Sciences. (ISBN: 1-4292-0557-1)

McMillan, Victoria E. 2006. Writing Papers in the Biological Sciences. Boston MA: Bedford-St. Martins. (ISBN 0-312-44083-9)

Knisely, Karin. 2009. A Student Handbook for Writing in Biology, 3rd edition. Sunderland MA: Sinauer (ISBN: 1-4292-3491-1)

Oxford Dictionary of Biology. 5th edition. 2004. New York NY: Oxford University Press. (ISBN 0-19-860917-5)

COURSE OBJECTIVES / STUDENT LEARNING OUTCOMES

By the end of the semester, the successful student will have learned the basic skills required to conduct themselves appropriately in a biology laboratory, how to collect, organize and communicate scientific findings. Specifically, the student will:

1. know how to conduct themselves safely in the lab, respond appropriately to mishaps in the lab, and be able to dispose of laboratory waste materials properly.
2. be able to measure length, volume, and mass, accurately and in the correct scientific units.
3. be skilled in the use of instruments and devices used in the biology lab, including microscopes, pipettes, balances and spectrophotometers
4. be able to maintain an effective laboratory notebook and to write an effective lab report
5. know how to use library databases in order to find relevant primary literature
6. be able to calculate and understand the meanings of basic descriptive and inferential statistics
7. understand how to present data using appropriate graphs and tables
8. be proficient in using the basic capabilities of word-processor and spreadsheet programs
9. be able to effectively collaborate while working in groups

STUDENT TASKS / ASSIGNMENTS / REQUIREMENTS

****All assignments will be due at the beginning of class unless otherwise stated**

****All grades will be posted on Desire 2 Learn. It is your responsibility to be sure your grades are in order. Any grade discrepancies can be changed within 7 days of the Desire 2 Learn post date. After 7 days the score will stand as listed in Desire 2 Learn.**

Weekly assignments: Regular homework will be assigned throughout the semester. Graded assignments may include quizzes, diagnostics, tutorials, watching and taking notes on online videos, etc.

Notebook entries: You will be expected to maintain a lab notebook that meets guidelines that will be specified in handouts that your instructor will provide. Notebooks will be collected and evaluated on a schedule and using a rubric provided by your instructor.

Group experiments: Students will work in groups to design and execute an independent project in which they manipulate a single factor in order to determine its effect on the growth and viability of cultures of yeast. Group members will communicate using e-mail or D2L in order to design the experiment, and then set up the experiment and collect data as a group. Each member of the group will then be responsible for independently analyzing the data and producing a complete research poster that presents the experiment and its results. Each group will then present its experiment to the class. The posters and presentations will be evaluated using guidelines and/or rubrics that will be provided in advance by your instructor.

Exams: There will be two exams, each of which will include a practical component (identifying, describing the use of, and/or demonstrating ability to use a variety of lab equipment and materials) and a component that includes problems (including unit conversions and other mathematical problems, construction and interpretation of graphs and statistics, and questions of fact about the systems studied in the course).

Grading: Final grades for the course will be assigned on a straight scale ($\geq 90\%$ = A; 80-89.9% = B; 70-79.9% = C; 60-69.9% = D; $< 60\%$ = F) according to the number of points earned on the following assignments:

Item	Points
Weekly Assignments (pre-test, math diagnostic, videos, etc.)	25
Online quizzes (6 x 20 pts, lowest is dropped)	100
Notebook entries (5 x 10 pts)	50
Biological Abstracts/Endnote Web	10
Microscope use	15
Midterm/Practical Exam	50
Group experiments - online discussion	10
Group experiments - scientific poster	50
Group experiments - group presentation	15
Final Exam	50
TOTAL	375

Final grades and extra credit: 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, extra credit, re-submissions, retakes or rounding-up will be given to raise a grade no matter how close you are to the next letter grade. Do not ask - the answer will be no.*

COURSE POLICIES & STATEMENTS

Absence, Attendance and Punctuality Policy: *You must make every effort to be present and punctual for class.* Because we meet only once a week, missing even a single class is detrimental. In many cases, you will be able to complete an assignment only if you were present in class to conduct the laboratory work. If you are absent, it is your responsibility to turn in your homework on time or incur point deductions for late work.

**** If you must miss a class due to a religious holiday, you must notify your instructor by *Fri, January 29.* ****

Academic Integrity Policy: 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>. *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 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.

You will be working closely together in class discussions, in the laboratory, and on group projects, where group efforts are a must. However, when individual efforts are called for (assignments, exams, quizzes, writing in your lab notebook, etc.) – they must be accomplished alone. *Even copying a phrase or sentence, without quote marks and a source reference, whether that phrase or sentence is from a lab partner, book, article, or the internet, is plagiarism.*

IT IS YOUR RESPONSIBILITY TO ASK FOR CLARIFICATION ANY TIME YOU ARE UNSURE ABOUT ORIGINALITY OF WORK.

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. Contact them in building D, room 104, at (773) 442-4595 or <http://www.neiu.edu/university-life/student-disability-services>.

Campus Safety: It is recognized that a safe university environment is a shared responsibility of faculty, staff, and students, all of whom are expected to familiarize themselves with and cooperate with emergency procedures, found at http://homepages.neiu.edu/~neiuemp/Emergency_Procedures/MainCampus/, and on NEIUport on the MyNEIU tab. You can also register for *N-Alert* through NEIUport to receive security and weather-related closure announcements via text, phone, or e-mail.

ADDITIONAL ELECTIVE INFORMATION

Preparation for class: You will be expected to read the required reading assignments before coming to class. *You are also responsible for printing handouts posted on D2L and bringing them to class.*

Late policy: *For full credit, assignments must be turned in by the designated time and date.* If an assignment is turned in within 24 hours after a due date, 10% of points will be deducted. An additional 10% of points will be deducted for every additional day that an assignment is turned in late, but **assignments submitted more than 5 days late will not be accepted.** *No late assignments will be accepted after the final exam.*

Make-ups: Even with an excused absence, there is NO guarantee that you will be able to make up a lab activity (some labs cannot be set-up again once they have been removed from the classroom. *Make-ups for quizzes/exams will be given only in cases of documented illness/emergency (i.e. doctor's note).*

Grading: I will make every effort to return graded material no later than two weeks after the assignment is due. If you believe I have made a mistake in grading your work, *you must bring your concern to my attention within one week of receiving the graded assignment.* I will not reconsider an assigned grade after one week has passed since returning an assignment to the class.

Desire2Learn (D2L): *It is your responsibility to regularly check Desire2Learn as well as your NEIU e-mail address.* I will frequently post handouts, changes to the course schedule, etc. on D2L.

You can access D2L at <https://neiu.desire2learn.com/> or by logging into NEIUport (<https://neiuport.neiu.edu/cp/home/displaylogin>) and selecting the D2L icon in the upper right.

In both cases, login using the same NetID and password that you use for NEIUport.

Withdrawing from the course: *Students who wish to withdraw from the course must do so themselves through NEIUport or the Registration Office.* 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.

** April 1 is the last day to drop a class in Spring 2016 and receive a "W" (withdrawn) grade. **
(No refund/credit of tuition and fees)

Classroom/Lab behavior: In accordance with the University's Classroom Disruption Policy, students disrupting class will be issued 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. (The University's Classroom Disruption Policy can be found on p. 34 of the Student Handbook (<http://www.neiu.edu/university-life/sites/neiu.edu.university-life/files/documents/tfneumei/2014-2015%20Student%20Handbook.pdf>).

Course Communication: The university expects that all communications between instructors and students is conducted exclusively through NEIU e-mail; communication via personal e-mail accounts (e.g., @gmail.com, @yahoo.com, etc.) will not occur. You must regularly check your NEIU e-mail account (or set the account to forward mail to an account that you do check regularly).

E-mail guidelines: When contacting an instructor by e-mail, you want to represent yourself in a professional manner. In addition to *using your NEIU e-mail address*, you should:

1. Check the syllabus/class handouts to make sure your question wasn't already answered.
2. If you need to attach a file, do this before you begin writing the e-mail. This will prevent you from forgetting it and having to send a follow up e-mail.
3. Include a relevant subject line. Specify the course, section, and the topic of the e-mail.
4. Address your instructor as Dr. or Professor (NOT Mr, Miss, Mrs, or Ms.)
5. Don't introduce yourself in the e-mail. You are using your NEIU e-mail address—it is already clear who the sender is.
6. Use complete sentences with proper spelling, grammar, and punctuation. Avoid abbreviations, slang, "text speak", and excessive exclamation points.
7. Keep your message concise. Make it clear what information you are asking for.

Finding sources: To complete some assignments, you will have to find references using the NEIU library and its online databases. To learn more about these resources, consult <http://libguides.neiu.edu/biology>. You may also contact the science librarian, Kelly Grossman by phone (773-442-4418) or e-mail (k-grossman@neiu.edu).

*This schedule may change depending on our progress. I will post revisions to D2L as necessary. Scheduled labs and exams will not change.

Readings refer to chapter numbers in Hofmann's *Writing in the Biological Sciences*

Wk	Date	Topic/Exercises	Reading	Assignments (due dates)
1	Jan 14	Introduction to course; Lab safety; Measurements, accuracy, precision; Lab equipment; Lab notebooks	1, 9.1-9.2	Pre-test (Jan 28), Math Diagnostic (Jan 28), and Introduction and methods for dispensing liquids lab (Jan 21)
2	Jan 21	Dispensing liquids lab; Descriptive statistics	5.1, 5.2,	Online quiz 1 (Jan 28)
3	Jan 28	Inferential statistics; perform statistics on data from volume lab	5, 6	Results (raw data and analysis) and Discussion for dispensing lab (Feb 1); research yeast biology (Feb 1)
4	Feb 4	Introduction to yeast; Finding and citing sources; structure of a scientific paper; Using Excel for statistics and graphing	4, 7, 10, Appx C	Online quiz 2 (Feb 11); Watch microscope and hemocytometer videos online (Feb 11); BioAbstracts & EndnoteWeb assignment (Feb 18)
5	Feb 11	Introduction and use of compound microscopes and hemocytometers		Introduction and Methods sections for yeast-counting lab (Feb 18); Watch sterile technique, spread-plating, and JoVE spectrophotometry videos online (Feb 18)
6	Feb 18	Sterile technique; Ways of estimating abundance/density of cells; Set up yeast cultures; spread plating cells		Online quiz 3 (Feb 25)
7	Feb 25	Counting cells with hemocytometers; calculating cell densities		
8	Mar 3	Counting colonies and calculating density of CFUs		Online quiz 4 (Mar 10)
9	Mar 10	Wrap-up of extended lab exercise; calculation of statistics for hemocytometer/plate counts	5, 6	Results and Discussion section of yeast counting lab (Mar 17)
10	Mar 17	Lab Midterm/Practical Exam ; Begin discussing group projects		Online discussion of group projects (Mar 31)
11	Mar 24	SPRING RECESS – No Classes		
12	Mar 31	Finalize group projects; Preparing effective research posters	14, Appx C	Introduction and Methods sections for group project (Apr 7)
13	Apr 7	Set up group experiments; Giving research presentations	13, Appx D	Online Quiz 5 (Apr 14)
14	Apr 14	Collect data for group experiments; set up additional experiment (optional)		Online Quiz 6 (Apr 14) Begin working on research posters
15	Apr 21	Collect additional data (optional); Analyze and discuss data from group experiments		
16	Apr 28	Final Exam		<i>Final posters due May 5 by noon</i>
	May 5	Poster Presentations: 8:00-9:50 pm		