COURSE DESCRIPTION
This course provides training in Biological Chemistry Laboratory procedures. An introductory week (Lab 0) focuses on laboratory safety, orientation to the laboratory room itself, some types of quantitative calculations of protein properties, and practice submitting a document to SafeAssign. This is followed by 10 weeks of wet-bench experiments investigating proteins and nucleic acids. Labs 1 and 2 teach students about basic techniques involving buffers and spectrophotometry. Labs 3 through 6 constitute a multi-week purification of a protein in hen egg-white called lysozyme. These are followed by four weeks of purification and characterization of nucleic acids in Labs 7 and 8, which include modern methods such as DNA fingerprinting (restriction enzyme digests) and amplification of small amount of genetic material (PCR polymerase chain reaction). Lab 9 is a computer project on bioinformatics, using internet data bases of protein and nucleic acid structures and sequences. The laboratory portion of the course is accompanied by one lecture per week (recitation) given by a faculty member in NSC 225 (3:00-3:50 PM on Fridays), where students learn the theory behind the methods they are using and are taught how to quantitatively analyze their data.

2 cr, lab course
Prerequisite: none listed
It is expected that students will have completed one semester of organic chemistry.
Because Biochemistry department majors take BIO 215 before taking their BCH 403 biochemistry lecture course, BIO 215 requires no pre-requisite or co-requisite of any biochemistry course. Appropriate background material will be presented in BIO 215 recitation.

Detailed list of experiments: See Appendix I
Detailed list of recitation topics: See Appendix II
Calendar: See Appendix III

EXAM SCHEDULE:
Exam I  Mar 9  Labs 0-3
Exam II  April 6  Labs 4-6
Exam III  May 16  Labs 7-9

STUDENT LEARNING OUTCOMES
Course objectives:
A. Learn basic lab techniques: pH buffers, UV/visible absorption spectrometer
B. Develop an ability to write very good lab reports: introduction, results, discussion
C. Develop an ability to maintain a real-time detailed laboratory notebook in ink
D. Integrate results from different experimental procedures applied to the same system
E. Develop effective quantitative reasoning skills
F. Write conclusions: distinctly different, non-trivial, based on lab observations
G. Retrieve information from national databases in a bioinformatics computer lab
H. Learn how to purify a protein: different separation methods, different assays
I. Learn how to purify, amplify, and assay nucleic acids

For details regarding course objectives, assessment instruments, and links to departmental program objectives, see Appendix IV (Excel spreadsheet).
COURSE REQUIREMENTS: Summary of points:

Exams: Exams I & II @ 140 pts. Exam III @ 160 pts. 440 points

Labs: 440 points

- 9 Lab reports @ 40 pts: 360 points
- Optional lab 1 resubmission: report 1 = avg of original and resubmitted scores
- Lab notebook (checked twice @ 20 pts): 40 points
- 10 quizzes (at the beginning of the lab period) @ 4 pts: 40 points

If the exam grade or lab grade is an F, then the course grade is an F. You must pass both parts to pass the course. Otherwise the course grade will be an average of the exam and lab grades (each worth 50% towards the combined average).

ACADEMIC CONTENT

Students are required to read and understand the classnotes.
Students must complete the exams and lab experiments on schedule.
Attendance in class is expected, but absences from recitation lectures will not be recorded.

MAKE-UP and REGRADING POLICY

Make-up exams will be provided when the student has a valid medical excuse or family emergency, or makes arrangements with Dr. Snyder (referred to below as Dr. S) ahead of time (such as for varsity athletic events, medical school interviews, religious obligations). Unexcused absences will result in a grade of 0. Students who miss an exam must phone Dr. S (645-4939) and talk with him personally before 5 PM on the day of the exam. E-mails are NOT acceptable substitutes for talking to Dr. S, nor are written notes, nor is a phone voice mail message, nor are messages left with any other person.

Religious excuses: letter 1 week in advance from rabbi/priest/pastor/other with need and dates
Medical excuses: letter from a doctor telling what dates the student should be excused
UB health clinic: Doctor must be willing to state in a phone call that he/she is certain that you were too sick to take the exam. In many cases, complaints of stomach aches or headaches do not generate such a statement, because there are no physical data (such as elevated temperature, signs of infection) to indicate disease.
Mental health: letter from a licensed M.D. psychiatrist indicating what dates you should be excused. Without this, a student’s personal claim of “exam stress” will not be honored.
Family emergency: letter from parent, with documentation of funeral/wedding/location/dates
Excused absences: student may make up the exam as soon as the medical/family emergency is over, provided that the student spoke with Dr. S on the date of the original exam.
Unexcused absences OR undocumented excuses OR failure to speak with Dr. S on the day of the exam may result in a grade of 0.
Three exams on the same day: see Dr. S before that date to request a make-up date for the Bio 215 exam if you want that option. Two exams on the same day: must take the Bio 215 exam as scheduled.

Requests for regrading of exams must be made no later than 1 week after grades are posted at UBLearns in your personal gradebook. Exams are photo-copied before being returned to students, to discourage their being altered before any regrading.
Cutoffs for exam letter grades (%) : These are approximate cutoffs. The actual cutoffs may be lower if the instructor assesses that exams were more difficult than anticipated.

<table>
<thead>
<tr>
<th>Range</th>
<th>grade</th>
<th>Range</th>
<th>grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.00-92.00</td>
<td>A</td>
<td>75.99-72.00</td>
<td>C+</td>
</tr>
<tr>
<td>91.99-88.00</td>
<td>A-</td>
<td>71.99-68.00</td>
<td>C</td>
</tr>
<tr>
<td>87.99-84.00</td>
<td>B+</td>
<td>67.99-64.00</td>
<td>C-</td>
</tr>
<tr>
<td>83.99-80.00</td>
<td>B</td>
<td>63.99-60.00</td>
<td>D+</td>
</tr>
<tr>
<td>79.99-76.00</td>
<td>B-</td>
<td>59.99-52.00</td>
<td>D</td>
</tr>
</tbody>
</table>

Incompletes :

A student who is physically unable to take one of the exams in the course or needs to miss more than two labs (for example, because of an extended illness documented by a doctor's detailed letter) may request to complete that work in Spring 2019, receiving an "I" in the course in 2018. This is very rarely done. That student may not restart the whole course next year. The submitted exams and lab reports have been completed, and those grades will be saved and used to calculate the final average when the missed work has been finished. "A grade of incomplete (I) may be given to students who have not completed all of the assigned work in a course if they have a passing average." This quoted rule is the official university policy. If you have an F average, you do not have a passing average and may not receive an "I". If you are failing the first half of the course, you should resign with an R grade before the deadline for that option.

Reference to UB Incomplete Policy :
http://undergrad-catalog.buffalo.edu/policies/grading/explanation.shtml

OFFICE HOURS
Instructor : Cooke 373A : 645-4939 : hrs to be announced, or by appointment
TAs : office hours and location to be announced

ACADEMIC INTEGRITY
Reference to the UB Academic Integrity Policy
http://undergrad-catalog.buffalo.edu/policies/course/integrity.html
Use of cell phones during exams is strictly forbidden : use will be penalized
Exams must be turned in on time : continued writing after 3:50 PM will be penalized

OFFICE OF ACCESSIBILITY RESOURCES
UB’s Accessibility Resources Office : for students needing special accommodations on exams
60 Capen Hall ; 645-2608
http://www.buffalo.edu/studentlife/accessibility
Required purchases at Follett’s bookstore (The Commons):
  - New 2018 Lab manual / recitation notes: approx $32 = 2 volumes @ $16 each
    NO SUBSTITUTIONS; OLDER USED LAB MANUALS ARE NOT ALLOWED
  - Laboratory notebook - Numbered pages with carbon, 4x4 quad-ruled approx $17
    Roaring Spring 77645
    NO SUBSTITUTIONS ALLOWED

Course webpage:  http://ublearns.buffalo.edu

Bring to recitation and lab the first week Jan 29 - Feb 1:
  - Calculators, 2018 Lab manual Volume I, your laptop computer if you own one
  - You will use your laptop to practice submitting a short single-spaced Word document to SafeAssign.
  - We can provide “loaner” lab manual copies in lab for use during the 1st week.

Laboratory safety: Student attire, and use of aprons and gloves
  - The rules for lab courses in Biological Sciences are attached (see Appendix V).

Students who show up for lab without the proper clothing will not be permitted to remain in the lab room that day. They will be given an unexcused absence, or may return to their home/dorm to change clothes and return. In the latter case, the 2nd arrival will be “late” and treated accordingly.

Lab report (including SafeAssign online submission) and lab notebook rules: See Appendix VI

Good behavior: definitions, and consequences for absences, tardiness, academic dishonesty
  - See Appendices VII and VIII

Lab report format: See Appendix IX
## APPENDIX I

<table>
<thead>
<tr>
<th>Week (Mon-Thur)</th>
<th>Lab #</th>
<th>Experiments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE BASICS</strong></td>
<td></td>
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</tr>
<tr>
<td>January 29 - Feb 1</td>
<td>0</td>
<td>Estimation of protein MW, UV abs, and charge Lab safety; chicken egg development; layout of your lab room (H237 or H223)</td>
</tr>
<tr>
<td>February 5-8</td>
<td>1*</td>
<td>pH and Buffers</td>
</tr>
<tr>
<td>February 12-15</td>
<td>2*</td>
<td>Spectrophotometry : protein assays</td>
</tr>
<tr>
<td>February 19-22</td>
<td>Report Workshop</td>
<td>Lab Report #1 is returned; small groups review copies of reports lacking student names</td>
</tr>
<tr>
<td><strong>THE EGG</strong></td>
<td></td>
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</tr>
<tr>
<td>February 26 - March 1</td>
<td>3*</td>
<td>Protein purification : ion exchange extractions</td>
</tr>
<tr>
<td>March 5-8</td>
<td>4*</td>
<td>In-the-lab recitation - Theory for Lab 4 Enzyme kinetics : hen egg-white lysozyme</td>
</tr>
<tr>
<td>March 12-15</td>
<td>5*</td>
<td>Protein purification : gel filtration chromatography</td>
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<tr>
<td>March 19-22</td>
<td></td>
<td>NO LAB WORK : Spring break</td>
</tr>
<tr>
<td>March 26-29</td>
<td>6*</td>
<td>Protein electrophoresis : SDS / polyacrylamide</td>
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<tr>
<td>April 2-5</td>
<td></td>
<td>Review session for Exam II</td>
</tr>
<tr>
<td><strong>THE GENES</strong></td>
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<tr>
<td>April 9-12</td>
<td>7A*</td>
<td>DNA plasmid isolation</td>
</tr>
<tr>
<td>April 16-19</td>
<td>7B*</td>
<td>DNA agarose gels, restriction enzyme analysis (one joint lab report for 7A and 7B)</td>
</tr>
<tr>
<td>April 23-26</td>
<td>8A*</td>
<td>RNA isolation</td>
</tr>
<tr>
<td>April 30 - May 3</td>
<td>8B*</td>
<td>PCR : splicing events in Daphnia ribosomal RNA (one joint lab report for 8A and 8B)</td>
</tr>
<tr>
<td>May 7-10</td>
<td>9</td>
<td>Bioinformatics</td>
</tr>
</tbody>
</table>

*Quiz weeks (4 pts each) : questions on background theory and lab procedure : all labs except #0 and #9 Quizzes are at the beginning of the lab period : you must arrive on time
## APPENDIX II

**Friday afternoon Recitations - Spring 2018**  
NSC 225, 3:00-3:50 PM

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 2</td>
<td>About Lab 1: Regulating pH with buffers</td>
</tr>
<tr>
<td>February 9</td>
<td>About Lab 2: Spectrophotometry: protein assays</td>
</tr>
<tr>
<td>February 16</td>
<td>About Lab 3: Protein purification: ion exchange extractions</td>
</tr>
<tr>
<td>February 23</td>
<td>How to analyze data from Lab 3</td>
</tr>
<tr>
<td>March 2</td>
<td>About Lab 5: Protein purification: gel filtration chromatography</td>
</tr>
<tr>
<td>Given by your TA</td>
<td>About Lab 4: Enzyme kinetics assays</td>
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<tr>
<td>during your lab</td>
<td>Week of Mar 5 - Mar 8</td>
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<tr>
<td>March 9</td>
<td>EXAM I (Labs 0-3)</td>
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<tr>
<td>March 16</td>
<td>About Lab 6: Protein electrophoresis: SDS/polyacrylamide</td>
</tr>
<tr>
<td>March 23</td>
<td>SPRING RECESS</td>
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<tr>
<td>March 30</td>
<td>About Lab 7A: DNA plasmid isolation</td>
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<tr>
<td>April 6</td>
<td>EXAM II (Labs 4-6)</td>
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<tr>
<td>April 13</td>
<td>About Lab 7B: DNA analysis: Restriction enzyme digests</td>
</tr>
<tr>
<td>April 20</td>
<td>About Lab 8A: RNA isolation</td>
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<tr>
<td>April 27</td>
<td>About Lab 8B: RNA splicing in Daphnia: RT-PCR (reverse transcriptase polymerase chain reaction)</td>
</tr>
<tr>
<td>May 4</td>
<td>About Lab 9: Bioinformatics (using the Internet to analyze DNA and protein sequences)</td>
</tr>
<tr>
<td>May 11</td>
<td>Review session for Exam III</td>
</tr>
<tr>
<td>Final exam week</td>
<td>EXAM III (Labs 7-9). Note: this is not accumulative.</td>
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<tr>
<td></td>
<td>(Turn in Lab report #9 to your TA before this exam.)</td>
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<td></td>
<td>Wednesday May 16, 3:30-6:30 PM, NSC 225</td>
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<tr>
<td>SUN</td>
<td>MON</td>
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<tr>
<td></td>
<td>PROTEINS</td>
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<tr>
<td>Jan</td>
<td>Labs 29</td>
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<td></td>
<td>Feb 4</td>
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<td></td>
<td>Feb 11</td>
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<td>Feb 18</td>
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<td>Feb 25</td>
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<td>Mar 4</td>
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<td>Mar 11</td>
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<td>Mar 18</td>
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<tr>
<td></td>
<td>Recess</td>
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<td>Mar 25</td>
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<td>Mar 26</td>
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<td>Apr 1</td>
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<td>Apr 8</td>
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<td>Apr 15</td>
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<td>Apr 18</td>
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<td>Apr 22</td>
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<td>Apr 29</td>
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<td>May 6</td>
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<td></td>
<td>May 13</td>
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<tr>
<td></td>
<td>May 18</td>
</tr>
<tr>
<td></td>
<td>Graduation</td>
</tr>
<tr>
<td></td>
<td>May 20</td>
</tr>
<tr>
<td></td>
<td>May 25</td>
</tr>
</tbody>
</table>

Lab 9 report is due by EXAM III, which is during Final week, Wed May 16 3:30-6:30 PM NSC 225.
<table>
<thead>
<tr>
<th>Number</th>
<th>Program Learning Outcome</th>
<th>Depth</th>
<th>APPENDIX IV: Specific outcome objectives for your course</th>
<th>Assessment Instrument</th>
<th>% of students with grade = or &gt;70% *</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Students will develop a broad background in the biological sciences and achieve an understanding and appreciation of basic biological concepts and principles. They will become proficient in five broad areas of biology: evolutionary biology, cell biology, physiology, biochemistry, and genetics.</td>
<td>2</td>
<td>A. Learn basic lab techniques: pH buffers, UV/visible absorption spectrometer</td>
<td>Exam I</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Students will acquire laboratory and field skills necessary to answer biological questions and an ability to understand and employ scientific methodologies. They will be able to understand how to obtain, critically evaluate, and communicate experimental results</td>
<td>3</td>
<td>B. Develop an ability to write very good lab reports: introduction, (methods), results, discussion</td>
<td>Lab reports 1-2, 4-8</td>
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<td></td>
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<td></td>
<td>C. Develop an ability to maintain a detailed laboratory notebook recoding observations in ink when they happen</td>
<td>Lab notebook grade (evaluated twice)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Students will gain understanding of how to integrate knowledge across biological sub disciplines and to synthesize examples, facts, or hypotheses from more than one level of organization into a coherent whole. They will also obtain the ability to integrate the physical sciences (chemistry, physics, and mathematics) with biology.</td>
<td>2</td>
<td>D. Integrate results from different experimental procedures applied to the same system (lysozyme purification)</td>
<td>Exam II: two particular multiple choice questions</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Students will develop effective quantitative reasoning skills and be able to operate as a scientist to formulate and test appropriate biological hypotheses. They will be engaged both independently and collaboratively in the scientific process and learn to critically evaluate the veracity and value of published information.</td>
<td>3</td>
<td>E. Students will develop effective quantitative reasoning skills and be able to operate as a scientist to formulate and test appropriate biological hypotheses.</td>
<td>Lab report 3: measuring E 1% to distinguish lysozyme from other proteins</td>
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<td></td>
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<td></td>
<td>F. Learn how to write good conclusions: distinctly different, non-trivial, based on lab observations instead of recitation theory</td>
<td>Exam I: one particular essay question</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Students will be able to retrieve information from multiple sources, to analyze this information and communicate it precisely in both written and oral forms.</td>
<td>1</td>
<td>G. Retrieve information from national databases in a computer lab on bioinformatics</td>
<td>Lab report 9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students will develop an interest in lifelong learning and be able to evaluate and advance knowledge in biology. Students will be exposed to current problems in biology, as well as develop an appreciation for the nature of living organisms, the mechanisms of life function, the different levels of biological organization and the interactions among organisms and their environments.</td>
<td>0</td>
<td>NA</td>
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<tr>
<td>7</td>
<td>Students will learn to appropriately place biological knowledge into an ethical context, appreciate the importance of ethical conduct in science and demonstrate knowledge of contemporary social and ethical issues related to biology and the professional responsibilities of a biologist.</td>
<td>0</td>
<td></td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Students will complete a more advanced level of study in areas of their choice to obtain a deeper coverage of at least one of the five broad areas.</td>
<td>3</td>
<td>Learn how to purify a protein and assay different fractions with multiple techniques: UV/visible absorbance, light scattering, concentration, ionic charge, molecular weight, light scattering. Learn how to purify, amplify, and assay nucleic acids (DNA and RNA): plasmid purification, rRNA purification, agarose gels, reverse transcription, PCR.</td>
<td>Exam II</td>
<td>Exam III</td>
</tr>
</tbody>
</table>

* Defined success level: 50% of students having a grade of at least 70%
APPENDIX V

Student Instructional Laboratory Safety

The University at Buffalo is committed to promoting a safe and environmentally sound campus environment that is conducive to the highest level of education and research. The Environment, Health and Safety department (EH&S) anticipates, recognizes, evaluates and controls all safety hazards at the University while striving to protect human health and the environment.

Your participation in this and other laboratory classes is an integral part of your education. As students at the University, you share in the responsibility to protect your health, the health of your colleagues and the environment. The University administration, EH&S, and Biological Sciences faculty require that you abide by all University, Local, State and Federal policies regarding Safe Laboratory Practices and Hazardous Waste management. These rules are available on-line through the gateway at:

http://www.buffalo.edu/facilities/ehs/lab-safety.html

Specifically, Safe Laboratory Practices include:

- Attending lab in proper attire—open-toed shoes, skirts and shorts are not allowed
- Wearing the proper Personnel Protective Equipment (PPE) such as a lab coat or apron, gloves and eye protection is required as directed by the responsible faculty member or classroom instructor
- Disposing of waste in an appropriate and safe manner
- Absolutely NO eating or drinking in the lab
- Washing hands after removing gloves/PPE, and after completing the laboratory teaching session
- Not using your cell phones or computers without removing your PPE and thoroughly washing your hands

If you have questions regarding the safe handling and disposal of biological organisms or other biohazardous waste and/or chemicals, please ask your classroom instructor or teaching assistant. Other resources available to you include the EH&S Laboratory Safety Manual and the CDC’s Biosafety in Microbiological and Biomedical Laboratories (BMBL) (http://www.cdc.gov/biosafety/publications/bbml5/).

You may also direct questions to me personally.

Best of luck in your studies,
Dr. David R. Pawlowski
Biosafety Officer
drp@buffalo.edu
APPENDIX VI

Lab Reports: You may not write reports in the lab room.

Lab reports are due at the BEGINNING of your lab section, one week after the data are collected.

Exceptions are an optional Lab 1 rewrite and Lab 2 due the week after the lab report workshop, Lab 5 which is due the week after Spring break, and Lab 9 which is to be turned in by the final exam. For each lab, one hardcopy printed report and one complete electronic report (data tables and figures included) must be submitted to your TA. Also, one abbreviated electronic report (single-spaced Word doc) with data tables and figures omitted must be submitted to SafeAssign.

Any of these 3 reports turned in late: no reports will not be graded (score = 0).

Lab report figures and tables in the complete electronic version sent to the TA must be in an electronic form. Ask your TA if you need help using Excel to construct graphs. Any hand-drawn figures in the hardcopy version, such as hand plots on semi-log paper, will need to be photographed or scanned for inclusion in the complete electronic report. Discussions of lab results and lab questions with TAs and Dr. Snyder is certainly permitted and generally encouraged. Members of the same lab group team will have the same raw data in their notebooks. However, each student must write their report individually, not collaborating with another student in any way, and not copying someone else’s work. Collaboration will be treated as a case of academic dishonesty.

Labs 7A and 7B (DNA isolation and analysis) will be written up in one combined report, as will Labs 8A and 8B (RNA isolation and analysis). The reason is that very little data are generated during the isolation weeks.

TAs will assign numerical grades. Approximate letter grade equivalents are as follows:

- A+ = 40
- A = 38
- A- = 36
- B+ = 34
- B = 32
- B- = 30
- C+ = 28
- C = 26
- C- = 24

If the grades given by your TA are significantly higher or lower than in other sections, a different scale may be used for your section.

Lab notebooks:

One of the most important skills you can learn is keeping a good notebook. We require a specific type and format of note-keeping in Bio 215 which serves as one example of good data-recording.

Purchase a Laboratory notebook (model # 77645) at Follett’s bookstore on the North campus:

Before each lab, use the next available white sheet in your notebook to record a flowchart for the work you are going to do that day. Use one of the sheets of carbon paper provided in your lab notebook and place it between the white and yellow sheets to make a copy. Save the carbon paper for reuse at home.

Record data in ink, in linear order, as things happen in real time. Pick up 1 piece of carbon paper in the lab room for use during your lab period, and place it between the white and yellow sheets with the same page number before recording data. If working with a lab partner, both partners must keep separate notebooks. Data may not be recorded in pencil, data may not be recorded on separate sheets for later copying into the notebook, and no gaps may occur on the data pages. If you record an individual fact incorrectly, draw one thin line through it and write the correct information beside it. If you realize a whole data set is wrong for some reason, write a note below it and then record new data below the wrong set, continuing your minute-by-minute diary in a linear manner. Do not scratch out a wrong data set. It is better to write down too much than to write down too little. At the end of each lab, draw a line under your data, sign and date your notebook, and have the TA sign under your signature (witnessing your work) before you go home. Tear out the yellow carbon copies of your notebook (flowchart and recorded data), staple them together, and given them to your TA at the end of the lab period.

Your lab reports will be based on the data in your notebook.
APPENDIX VII : GOOD BEHAVIOR : We understand that anyone might have a personal problem on a single occasion regarding arriving on time, submitting reports, transportation or parking issues, computer malfunctions, and so forth. Absences, tardiness, missed deadlines, and working together on reports will have consequences as described below. The room clock in your lab room (H237 or H223) is the official clock for use by TAs and will be synchronized with the time of day broadcast by the Coast Guard (and used by most cell phones). Unless otherwise excused, students must attend labs on the days and times for which they are registered.

DEFINITIONS :
Absence : not showing up, or arriving more than 60 min late, or leaving early
1st week of school : lab starts immediately : week of Jan 29-Feb 1
In the case of absences excused by Dr. Snyder, students should attend another lab later in the week if possible. If this cannot be done, TAs will provide data to serve as a basis for a lab report. Students must contact Dr. Snyder (645-4939, gsnyder@buffalo.edu) before missing their lab to be considered for an excused absence or makeup.
Arriving late for lab for any reason : Arrival 5 minutes or more after the lab’s scheduled start
Missing a deadline for a lab report : not bringing the hard copy report with you to lab on the date due or not submitting both electronic reports by the deadline

Copying (or sharing) parts of a report :
Lab partners will of course have the same raw data, but all graphs, discussion, and answers to questions must be done independently. "Unacceptable sharing" will be any instance where both the TA and Dr. Snyder believe that two lab reports have more in common than could be explained by coincidence, or any instance where SafeAssign identifies a high percentage of similarity with a report submitted in 2018 or previous years in portions not directly copied from the lab manual.

CONSEQUENCES :
Unexcused absence (not showing up, or arriving more than 60 min late, or leaving early) :
1st time : warning
2nd, 3rd, …. time : loss of one whole letter grade in the course for each of these
Arriving late (5-60 min) in lab for any reason (including parking or transportation problems) :
1st time : warning
2nd time : loss of 10 pts in lab portion of course
3rd, 4th, …. time : loss of one whole letter grade in the course for each of these
You must see the TA to have your time of late arrival written on your lab report.
Missing a deadline for report submission : Not turning in any of the 3 required reports :
Grade = 0. If you have a printing problem or an excused absence, submit an electronic version to Safe Assign and to your TA on time and ask the TA how to later give them a hard copy.
Sharing portions of a lab report :
Must meet with Dr. Snyder in person to discuss this issue.
1st conviction : reports will be regraded, giving 0 pts for copied portions. In addition, at the end of the course the overall grade for both the donor and receiver of information will be lowered by 1 whole letter grade (a B becomes a C, and so forth). Furthermore, resigning from BIO 215 will require Dr. Snyder’s permission.
2nd conviction : F in the course, resigning will be blocked.
1st or 2nd time : Filing of an official report of Academic Dishonesty to the Vice Provost of Undergraduate Education. This is accessible to the Pre-Health Committee. When applying to dental or medical school, you must report your conviction.
In BIO 215, breaking either rule below constitutes academic dishonesty.

(1) You may not try to access lab reports written by students from previous years, including any that might be posted on the Internet.

(2) You may not discuss any portion of a lab report with anyone other than the instructor or the TAs. You may not receive information or data except from the instructor or a TA, nor may you give any data or information to anyone else including your lab partner. If your lab partner for some reason is missing data, he/she needs to ask a TA for data to use in their report.

FALSIFYING A MEDICAL EXCUSE

Falsifying a medical excuse is a violation of academic integrity. Altering or falsifying a document containing the signature of a physician or physician assistant is a felony crime. Cases of falsifying a medical excuse will be handled with the BIO 215 academic dishonesty procedures, but may also result in more severe steps being taken by the Biological Sciences Department, UB, or the criminal justice system.

APPLICATION TO MEDICAL/DENTAL/VETERINARY/OPTOMETRY SCHOOLS

If you are planning a career in dentistry, medicine, or any other field that goes through the pre-health committee, of which Dr. Snyder is a member, you should read the following section of the application you will be giving to the committee. University procedures for dealing with academic dishonesty require Dr. Snyder to communicate any disciplinary action in BIO 215 to the Office of Academic Integrity (see URL to university procedures in the syllabus for this course).

DIRECT QUOTE FROM THE APPLICATION TO THE PRE-HEALTH COMMITTEE:

Please read this question carefully and if "YES," provide an explanation where indicated EVEN IF you have already completed required community service hours or believe that the disciplinary action has already been expunged from your record or records have been contained only within a particular department (e.g. residence halls). Please think back to your time at UB and at any other college (undergraduate or graduate/post-bac work) as sometimes events happened two or more years ago. If you have any question about this section of the application or are not sure if you should report an event, please consult with a prehealth advisor BEFORE answering this item and submitting your application. Remember that once you submit this application, you cannot make any post-submission changes. Please note that submitting this application authorizes the Committee to contact the Office of Judicial Affairs to run a disciplinary review on each applicant as well as to contact the Office of Academic Integrity for any issues such as plagiarism or cheating.” The question on the application reads:

“Have you ever been the subject of any disciplinary action due to unacceptable academic performance or conduct violations at the University at Buffalo or any other college or university? If yes, please provide the details below. “
APPENDIX VIII

Laboratory Regulations - Biochemistry 215

1. **NO SMOKING, EATING OR DRINKING** in the laboratory.

2. **NO VISITORS** are permitted in the lab.

3. **NO BAREFEET, OPEN TOE SANDALS, OR ROLLERBLADES.**

4. **ALL** students are required to purchase their own lab manuals (2018 version) and the required form of Laboratory Notebook (Roaring Spring 77645). You are to keep a “**real time**” diary in this laboratory notebook written in ink.

5. **LAB WORK AREA** - Each student/group is responsible for cleaning and neatly organizing their lab bench and glassware.
   - Wash your lab bench at the end of each lab.
   - Stools are to be put back beneath the bench.
   - Glass/plastic ware is to be rinsed after use and left to dry on the left sink board.
   - Serological pipettes are to be placed in the pipette wash container located on the right side of the sink.
   - Pipettes are to be placed tip down into the container. Pasteur pipettes are disposable and are to be discarded in the designated glass waste can.

6. **BROKEN GLASSWARE** - To avoid serious accident, broken glassware should be discarded in the designated metal container.

7. **LAB OFFICE/STOCKROOM** - Students are not permitted to enter the stockroom. If additional supplies are required, notify the lab instructor.

8. **TELEPHONE/PAGERS** - Cell phones and pagers are not to be used during the scheduled lab time as they are disruptive to the entire class.

9. **There will be no lab make-ups without Dr. Snyder’s permission!** Attend YOUR section, attend **ALL** labs, and be **ON TIME**!

10. **You may not argue with your TA in the lab room.** Step outside the room to discuss any disagreements you may have with lab report grading or other issues. Procedures in the lab manual have been developed or approved by Dr. Snyder. If you do not like them, discuss that with him.

11. **FAILURE TO COMPLY WITH LAB REGULATIONS MAY BE CAUSE FOR DISMISSAL.**
APPENDIX IX

LAB REPORT FORMAT: Point values given below may vary, depending on the experiment

I. Title Page (2 pts)
   A. Place in the upper right hand corner:
      1. Your full name
      2. Your lab day and time
      3. The date the report was submitted
      4. Your TA’s name
   B. Write a descriptive title and put the lab title in the middle of the page.

II. Objectives (6 pts)
   A. What are the purposes of this experiment?

III. Procedures (only those not given in the lab manual):
    Most procedures are already written in the lab manual. Do NOT include them in your report. Only describe changes you made to those procedures.

IV. Results (12 pts):
   A. What are your results? These are the data, without any interpretation or discussion. In published papers, these represent numbers that anyone else in the world should be able to reproduce if they follow the same procedures. Scientists may differ in what they think the data mean, but reproducible data are an achievement that cannot be taken away from you.
      For graphs and tables, tell what the eye sees (shapes, directions of trends).
   B. Tables, figures, and graphs must include:
      1. All axes, rows or columns clearly labeled with units.
      2. Legend summarizing the Table, Figure, or Graph.
      3. Number to refer to (Fig. 1, Table 1, Graph #1, etc.)

V. Answers to numbered questions in the lab manual (Q1, Q2, ….) (10 pts)

VI. Conclusions and Discussion (10 pts)
   A. What are the conclusions? What was learned?
   B. Does everything make sense? Did things turn out as expected?
   C. What might you do differently if you repeated this experiment?

If conclusions and discussion already were considered in answers to numbered questions, then briefly refer back to them by Q# without repeating everything you already wrote.