

BIO 216: Molecular Biology

Dr. Jennifer Larimore

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Office Hour: M/W 9 - 10AM

Class Lecture: Tues/Thurs 8:30 - 9:45 AM

Lab: Tuesday 2-5 PM Room 206 West

Required Text and Materials:

1. *Molecular Biology*. AP (Academic Publishing) Cell Press. Second edition. David P. Clark and Nanette J. Pazdernik. ISBN number is 978-0-12-378594-7. Copyright 2013.
2. *Neuroscience Basics*. Larimore. 1st Edition. Academic Press

Course Description:

In this class, we will examine topics that serve as the foundation for many different science disciplines. We will cover transcription, transcriptomics, translation, gene expression, genomics, protein synthesis and proteomics. These varying topics apply to cancer biology, plant biology, evolution, and neurobiology. How an organism makes and uses the molecules required for life is the basis of our understanding of many greater and complex pieces of knowledge.

Course Objectives:

This course is required of BMB majors, and is an elective in the Neuroscience and Biology majors. While the lab component has Neuroscience content, the course is designed to enhance the scientific maturation of all STEM majors taking the course. The course objectives are based on skills that are required by scientific employers, medical school and graduate school: critical thinking, scientific skills, team work, motivation, integrity, and scientific communication (both written and oral).

Skill Objectives:

1. Critical thinking/Problem Solving – through weekly article analysis, students will be able to critically read and evaluate scientific literature. Through designing experiments and inquiry-driven laboratory experiences, students will sharpen their ability to think critically about molecular biology.
2. Oral Communication – through article presentations and lab poster presentations, students will demonstrate their abilities to present scientific findings to a broad audience.
3. Written Communication – through weekly assignments and the final manuscript in lab, students will demonstrate their ability to write scientifically.
4. Teamwork/Collaboration – working with a lab team as well as a team for presentations will enable the students to practice real-world teamwork competencies that are taught as a part of SUMMIT.
5. Digital Technology – students will learn how to navigate various online resources to complete assignments and collaborate with peers. Students will actively use Canvas, PubMed, Google Drive and Powerpoint.
6. Research Skills – as a result of this course, students can design an experiment, analyze the results, draw conclusions, and report on the research both with scientific writing and an oral presentation. The laboratory portion of this course is designed to enhance the learning in the lecture as well as progress the career of each student as a scientist.
7. Career Management – at the end of this course, there is a day to add the relevant skills gained from this course to a student's CV or resume. Additionally, there will be time to work on personal statements and discuss cover letters.

Credit and workload:

BIO 216 Lecture is a 3-credit course. In addition to 3 hours in-class time, you will be spending a minimum of 4-6 hours per week in preparation for our class sessions, including reviewing lecture material, completing reading assignments and answering discussion questions in writing before coming to class. BIO 216 Lab is a 1 credit course. In addition to the 3 hours in-class lab time, you will be spending a minimum of 2-4 hours per week in preparation for our lab sessions.

Lecture Grades:

Exams	200 points (2 x 100 points)
Paper Analysis.	50 points (10 x 5 points)
Article Present.	40 points (2 x 20 points)
DRQs	50 points (12 x 5 points)
Quizzes	20 points (10 x 2 points)
In Class Work	50 points (10 x 5 points)

Total Lecture. 410 points

Manuscript	100
points	
Final Presentations	40
points (2 x 20 points)	
Manuscript Drafts	35
points (5 x 7 points)	
Pre-lab Quizzes	25
points (5 x 5 points)	
Test on Larimore Chap	30
points	

Total LAB Points 230 points

93 -100	A
90 - 92.9	A-
87 - 89.9	B+
83 - 86.9	B
80 - 82.9	B-
77 - 79.9	C+
73 - 76.9	C
70 - 72.9	C-
67 - 69.9	D+
63 - 66.9	D
60 - 62.9	D-
Below 60	F

LAB Grades:

*additional points or assignments may be added by Dr. Larimore

Academic Honesty for your work as a scientist:

You are responsible. Review each course syllabus for the professor's expectations regarding course work and class attendance. Violations of the honor code results in consequences ranging from failure of the assignment, failure of the course, to expulsion from the college. You should speak with your professors if you need clarification about any of these policies. By placing your name on ANY assignment, you are stating that you completed that assignment with academic honesty. Cheating in this class may keep your grade where you want it, but it will not help your career long term – you cannot cheat the GRE or the MCAT. You have to. Learn this material in order to succeed in science. Additionally, academic dishonesty is reported to medical schools and graduate schools as per their request. Finally, anyone caught cheating relinquishes the privilege of asking for a letter of recommendation from the professor and will receive a 0 on the assignment. Acts of academic dishonesty will be turned over to Honor Court.

Plagiarism: do attribute all ideas taken from other sources; this shows respect for other scholars. Plagiarism can include portraying another's work or ideas as your own, buying a paper online and turning it in as if it were your own work, or not citing or improperly citing references on a reference page or within the text of a paper. Passing off someone else's work as your own represents intellectual fraud and theft, and violates the core values of our academic community. Plagiarism is passing off any work that is not yours as your own work **** EVEN WITH A CITATION****. If you are using a source and citing the source, the information from that source **STILL** must be reworded in your own voice. Putting a citation behind a statement gives ownership to that source, but, if you do not reword that information, it is plagiarism. Do not cut and paste from the slide, your book, your neighbor, Wikipedia, or the internet. To further your science education, you need to be able re-word science in your own voice. If your answers are not your own, you will receive a 0 for the assignment. **All cases of academic dishonesty will be turned into Honor Court.**

Intellectual Fraud: do not falsify or create data and resources or alter a graded work without the prior consent of your professor. This includes making up a reference for a works cited page or making up statistics or facts for academic work.

Cheating: do not allow another party to do your work/exam, or submit the same or similar work in more than one course without permission from the course instructors. Cheating also includes taking an exam for another person, looking on another person's exam for answers, using exams from previous classes without permission, or bringing and using unauthorized notes or resources (i.e., electronic, written, or otherwise) during an exam. Cheating also includes when you help another student complete a take home exam, give answers to an exam, talk about an exam with a student who has not taken it, or collaborate with others on work that is supposed to be completed independently.

Lectures and Class:

Class time will be interactive, therefore listening to the lecture AND reading the assigned chapters prior to class arrival is required and will further your understanding of the material and will prove beneficial to your overall experience within the class. Come prepared to participate in class discussions on both the text material and any assigned readings. There will be in class assignments that will be graded.

Why a flipped classroom? Studies demonstrate that taking ownership of your learning and being able to take material at your own pace enhances your learning of the material. Molecular Biology has a lot of topics and experiments that allow for further exploration of the topic. So the lecture material covers the basics and we will learn how to apply that material in class.

Quizzes:

There will be a quiz for each assigned lecture and lab. The lecture quizzes will be on the power point lecture material and in-class activity work. The quiz # listed on the syllabus corresponds with the lecture # of the videos on Canvas. There will be a lab quiz over the lab for that day every lab period. It will cover material on the experimental procedure which can be found both in the book and in the lab manual.

Why quizzes? Studies demonstrate that studying in small chunks will help you retain more information and for a longer period of time than cramming for a test the night before. This is to help you avoid cramming for a test.

Cumulative Tests:

There will be tests spaced throughout the semester. The tests will be written to assess your understanding of the information covered in class and your ability to apply and analyze the information. Be ready to design experiments to answer a question. Tests are cumulative and may contain lab material.

Why tests? To retain information! And to take that information one step further and apply it.

Weekly Directed Reading Questions (DRQs):

These function as review questions for each chapter and can assist you in learning the information covered in the lecture. They highlight what the professor believes is the important information in the chapter. Each DRQ will be posted to Canvas prior to the lecture. Answer these questions as you read the assigned chapters prior to lecture. Turn these questions in for 5 points per worksheet. No late work will be accepted for DRQs. Ever. So do not ask. DRQs are due the day before lecture at noon. Your answers **MUST** be in your own words. You cannot quote any sources. Your answers cannot be cut and paste from any sources. If you cut and paste from a source or another student, you will receive a 0 on the assignment without any chance to make it up. There will be a spot on Canvas to turn in the DRQs.

Why DRQs? Studies demonstrate that studying in small chunks will help you retain more information and for a longer period of time than cramming for a test the night before. This is to help you avoid cramming for a test.

Weekly Article Analysis:

A peer-reviewed articles from primary literature will be assigned each week for reading to accompany discussion of current research. Article analysis sheets will be due before class (see Canvas), even for the groups presenting.

The article analysis sheets should be typed and loaded to Canvas prior to class as a PDF with your last name and the date in file name. Failure to follow instructions will result in a loss of points.

Why article analysis? While it may seem like pointless task, especially if you never study any of these diseases, the overall skill of being able to digest a primary article is necessary in so many science fields. Scientific literature is almost its own language and being able to pick out the key information is a necessary skill in any science field.

Article Presentation:

There will be assigned groups that correspond to the lab groups. These group presentations are expected to be well prepared and be no shorter than 50 minutes. If it is less than 50 minutes, points will be taken off. You will be graded on Creativity, Organization, Scientific Content, and Preparation.

Why article presentations? Public speaking in a science field will be necessary, whether its to get a job or to discuss your findings at a meeting, or to recruit potential donors to a cause, public speaking in science is a skill that is absolutely necessary.

The group preparing the article presentation will need to create a google slides/keynote/PPT presentation. Because each member of the group will be graded individually, each group member needs to save their own slides as a PDF and load that to Canvas prior to class. Each group member should present at least 1 figure.

Criteria	5: Excellent	4: Good	2-3: Fair	1-2: Poor
1. Organization (5)	<ul style="list-style-type: none"> • Clear title • Clearly defined sections • Clear flow of topics • Easy to follow 	<ul style="list-style-type: none"> • Clear title • Sections defined • Generally easy to follow, though may require rereading for clarity 	<ul style="list-style-type: none"> • Title present • Sections unclear or inappropriate • Takes effort to follow thoughts and ideas 	<ul style="list-style-type: none"> • Title unclear or absent • Sections unclear or absent • No flow of ideas • Cluttered, messy
2. Creativity (5)	<ul style="list-style-type: none"> • eye-catching • Diagrams clearly labeled • Good balance of text and graphs or pictures • Engaging use of color 	<ul style="list-style-type: none"> • Neat • Some use of color • Diagrams present • Fair balance of text and graphs or pictures 	<ul style="list-style-type: none"> • Bland • Little or no color • Diagrams absent or unclear • Mainly or all text 	<ul style="list-style-type: none"> • Bland • Boring • No variety in layout • Diagrams absent • Majority is text
3. Science Content (5)	<ul style="list-style-type: none"> • contains all the necessary information to understand the project • Information is explained in a very understandable fashion • No excess information that is distracting • All abbreviations are defined 	<ul style="list-style-type: none"> • contains most of the information necessary to understand the project • Information is explained in a pretty understandable fashion • The majority of the information is not distracting • Most abbreviations are defined 	<ul style="list-style-type: none"> • contains some of the information necessary to understand the project • Information is poorly explained • Excess information is distracting • Some abbreviations are defined 	<ul style="list-style-type: none"> • contains little to no information necessary to understand the project • Information is not explained • Excess information is distracting • abbreviations are not defined
4. Oral presentation (5)	<ul style="list-style-type: none"> • Well-rehearsed without long pauses • clear articulation • appropriate eye contact, voice volume 	<ul style="list-style-type: none"> • Well-rehearsed with some pauses • Articulation, eye contact, voice volume generally adequate 	<ul style="list-style-type: none"> • Obvious lack of rehearsal • Lacking in one of areas: articulation, eye contact, voice volume 	<ul style="list-style-type: none"> • Obvious lack of rehearsal • lack of conveyed information • lacking in one <u>ore</u> more of the following areas: articulation, eye contact, voice volume

Your presentation should include the following three sections:

a. Introduction section – give background information to help our class understand your topic. Why is this experiment important? What background information will help us understand what was done (reference the papers cited in the introduction)? State the hypothesis. Give data from at least 2 prior studies.

b. Results section– the graphs, the tables, figures, etc - should include a figure legend and a figure title. Any time you present a piece of data, always explain what the audience is looking at (this is a western blot or images of a cell), what method was used to obtain the data (and explain it if we haven't covered it in class), and what the

data mean (your interpretation), how does that tie back to the hypothesis, and why the data are important to the paper and our understanding. Each person in the group should present at least one figure. If there are not enough figures in a paper, look up figures from either previous research and present those in the introduction or look up figures from studies after the paper and present those in the conclusion.

c. Conclusion section– simple statements to describe the key, take-away points from the experiment and their importance in the field of study. How did the study contribute to the hypothesis?

ANY information on your slide is FAIR GAME for a question. If you put it on a slide, BE ABLE TO EXPLAIN IT!! I will take off points if you cannot explain something on your slide. Things to consider: less text is better, diagrams are always helpful, keep the background info relevant, keep all additional information relevant, if it's boring to you, it's boring to your audience. Additional information on the specifics of the presentation can be found on Canvas.

BIO 216: Molecular Biology LAB

General Lab Direction:

We are analyzing if endosomal proteins are altered in cells expressing Rett mutations as well as in brain sections from MeCP2 deficient mice ****UNDERSTAND** science is messy and rarely follows a schedule. Because this is an inquiry based lab, the dates in the syllabus are merely a suggestion. These dates will change. We will be using western blot analysis and immunohistochemistry to analyze our hypothesis. Because we are looking at a neurodevelopment disease model, there are a few chapters in the book I wrote that are assigned early in the semester. This is to serve as a light background to help ensure an understanding of the material being covered.

Lab Expectations: For each lab, you are expected to read ahead to understand what protocols we are running in lab that week. You will need to bring a personal hard copy of your lab manual to lab - no devices in lab, no food or drinks either. Because of some of the chemicals, closed toed shoes and protective eye wear is necessary. As we are looking at protein levels, we do not want to contribute personal protein to the samples, so hair needs to be out of the way - whatever that looks like on an individual basis is fine.

PRE-Lab Quizzes:

You will have quizzes before a few of the labs. These are given at the very start of lab. Students coming to lab late will not be allowed to take the quiz. The quiz covers the technique and the overall understanding of the lab that day.

Why pre-lab quizzes? So that you will be prepared for lab session by reading and understanding the lab protocol.

The lab manuscript:

At the end of the semester, you will write a manuscript with an title, abstract, introduction, a materials and methods section, a results section containing the data you obtained in lab, and a discussion section. You will be graded on appropriate use of scientific terminology, on construction of your report (it's overall structure), and the amount of information/appropriate information you include in your report. There will be a place on Canvas to submit this online. Submit a Word Doc with your last name in the file name. You may work with your group to generate ideas. You may not copy another student's work. If you copy another student's work on a draft or on the final, you will receive a 0.

WHY we are doing this? No matter what field of science you end up in, you will have to master the skill of scientific writing. Science doesn't do any good unless it is communicated with other scientist. Manuscripts are the primary tool for that communication.

Rough drafts

Each section of the final lab manuscript including the figures are due throughout the semester for 5 points each. These are to be submitted on Canvas as a word doc with your last name as part of the file name.

5 points	3.5 points	2 points	1 point	0 points
The section is proper length. Highly informative, complete and clear to understand. Appropriate vocabulary is used.	The section is proper length. Informative, complete and clear. Appropriate vocabulary is used.	The section is proper length. Somewhat informative and clear. Appropriate vocabulary is used sometimes	Not very informative or clear. Appropriate vocabulary is rarely used.	Not very informative or clear. Appropriate vocabulary is not used.

Plagiarism and Citations:

In your article at the end of this class, you will need several outside sources. At no point can you copy work from another student. If you do so, you will receive a 0 on the assignment. If you use an outside source, you **MUST** reword the content from that source in your own words. If you do not reword the content from the outside source, you will receive a 0 on the assignment. If you use an outside source as a reference, make sure you use the first occurrence (first person to describe a mutation/animal model, etc – don't simply cite a review that mentions the first mutation). Remember that you are writing an introduction on material that I do my research on, so you cannot turn in something less than your full effort. As we go through the semester, each paper we read will be an example of how to write each of these sections. Pay close attention to each of these sections in the papers we read not only for class, but in **HOW** those sections are written.

The Format:

When a scientist writes up their results to publish in a journal, they have to follow that journal's style of manuscripts. We will practice that in this class. Your paper must follow the specifications for submission to Molecular Biology of the Cell (MBoC) for each section and for the references. Focus on the section labeled: Preparing a manuscript submission for review: <http://www.molbiolcell.org/site/misc/ifora.xhtml#C2>.

Your lab report will contain the following elements:

10 points Proper Format of the Paper and Citations

10 points The Manuscript is polished, reflects corrections from the draft, flows well, and exhibits the student's best effort.

10 points Abstract: a brief summary with 1-2 sentences of background information, the lack of knowledge that this will research will address, the hypothesis and a 1-2 sentences of the results summarized

20 points Introduction. In this section you will need to do the following:
 A. Give the background information that is necessary to understand the results section
 B. Describe what is unknown about the field of study we are exploring and why these studies are important
 C. Give your hypothesis

20 points Results (NOT JUST THE FIGURES AND FIGURE LEGENDS - IT IS MORE THAN THAT!!)

In This section you will need to the following: (USE THE PAPERS FROM CLASS AS AN EXAMPLE FOR THIS SECTION)

- A. Include your figures
- B. Describe the following for each figure:
 - a. In a few words, what method did you use to generate the figure?
 - b. In a sentence or 2, describe the goal of the experiment.
 - c. Describe your findings
 - d. Do these findings support your hypothesis or not?

20 points Conclusion. In this section you will need to do the following:

- A. Recap the main findings from the experiments
- B. State if all the findings support your hypothesis
- C. Discuss how these findings impact the field of study –why are they important
- D. Suggest a natural next step from these experiments.

10 points Materials and Methods. In this section you will need to do the following:

- A. Describe the materials used for the experiments, even if it was an experiment conducted by the instructor.
- B. Describe the methods used for the experiments, even if it was an experiment conducted by the instructor.

The SpARC and Scotties with Nerves Poster Presentation:

Your entire Lab group will be presenting your results two times this semester - SpARC and Scotties with Nerves.

Why a poster presentations? Public speaking in a science field will be necessary, whether it's to get a job or to discuss your findings at a meeting, or to recruit potential donors to a cause, public speaking in science is a skill that is absolutely necessary.

Each group will present for approximately 5 - 10 minutes. If you rush through this, people will not understand what you are saying. This is your lab grade. Take your time. Each person in the lab group is expected to do equal parts of the talking.

Symposium Expectations 101: During the poster session, your poster stays up the whole time. You will need to dress and act professionally. Phones and devices stay put away. If you are not presenting, you should be visiting other posters to gain academic experience.

Your lab group will need to save a PDF version of your poster and upload it to Canvas. All group member names should be in the filename.

For EACH section – make sure you have rehearsed your section at least 4-5 times. Your information should be understandable to someone who DID NOT conduct this research, but someone who is familiar with science. Consider practicing your information with a non-science major friend and see if they understand your presentation. Your information should be well organized, well explained. You need a good balance of text and diagrams for each section!

To make a poster, open PPT or Google slides. In preferences, set the page format as 3 feet tall by 3 feet wide. White background/black font – Times New Roman.

Introduction section – give background information to help our class understand your topic. Why is this experiment important? What background information will help us understand what was done? State the hypothesis.

Methods section – highlight the techniques used to gather the data. Explain what we are measuring and what we used for those measurements. You don't have to give step by step on how to do it, just what these are and why we are using them for our experiment. The underlying concept to cover is why were these techniques used and how will they address the question that is stated in the hypothesis?

Results – the graphs, the tables, etc - should include a figure legend and a figure title. Any time you present a piece of data, always explain what the audience is looking at, what you did to arrive at the data you are seeing (what method you used), and what the data mean (your interpretation) and why they are important.

Conclusion – simple statements to describe the key, take-away points from the experiment and their importance in the field of study. How did the study contribute to the hypothesis? Also, this should include future studies – what would propel this study if there was something more to be added to it.

You will be graded on the construction of your poster, AND the presentation of your poster. You will not only need to focus on the construction described above, but, you will need to present your poster in a coherent, interesting, engaging, and prepared manner.

Criteria	5: Excellent	4: Good	2-3: Fair	1-2: Poor
1. Organization (5)	<ul style="list-style-type: none"> Clear title Clearly defined sections Clear flow of topics Easy to follow 	<ul style="list-style-type: none"> Clear title Sections defined Generally easy to follow, though may require rereading for clarity 	<ul style="list-style-type: none"> Title present Sections unclear or inappropriate Takes effort to follow thoughts and ideas 	<ul style="list-style-type: none"> Title unclear or absent Sections unclear or absent No flow of ideas Cluttered, messy
2. Creativity (5)	<ul style="list-style-type: none"> eye-catching Diagrams clearly labeled Good balance of text and graphs or pictures Engaging use of color 	<ul style="list-style-type: none"> Neat Some use of color Diagrams present Fair balance of text and graphs or pictures 	<ul style="list-style-type: none"> Bland Little or no color Diagrams absent or unclear Mainly or all text 	<ul style="list-style-type: none"> Bland Boring No variety in layout Diagrams absent Majority is text
3. Science Content (5)	<ul style="list-style-type: none"> contains all the necessary information to understand the project Information is explained in a very understandable fashion No excess information that is distracting All abbreviations are defined 	<ul style="list-style-type: none"> contains most of the information necessary to understand the project Information is explained in a pretty understandable fashion The majority of the information is not distracting Most abbreviations are defined 	<ul style="list-style-type: none"> contains some of the information necessary to understand the project Information is poorly explained Excess information is distracting Some abbreviations are defined 	<ul style="list-style-type: none"> contains little to no information necessary to understand the project Information is not explained Excess information is distracting abbreviations are not defined
4. Oral presentation (5)	<ul style="list-style-type: none"> Well-rehearsed without long pauses clear articulation appropriate eye contact, voice volume 	<ul style="list-style-type: none"> Well-rehearsed with some pauses Articulation, eye contact, voice volume generally adequate 	<ul style="list-style-type: none"> Obvious lack of rehearsal Lacking in one of areas: articulation, eye contact, voice volume 	<ul style="list-style-type: none"> Obvious lack of rehearsal lack of conveyed information lacking in one <u>are</u> more of the following areas: articulation, eye contact, voice volume

Academic Policies:

e-mail: Instructors will make announcements regularly via e-mail. It is your responsibility to check your Agnes Scott email account daily. When responding to a professor over email, take care that your email is professional. Examples here: <https://medium.com/@lportwoodstacer/how-to-email-your-professor-without-being-annoying-af-cf64ae0e4087#.jldd3bxes>

Technology: No laptops or tablets should be out unless you have the instructor's permission. All devices should be put away for the duration of class unless directed otherwise by the instructor. If you are on your phone in class, it is my prerogative to answer your calls or texts as it is my class. Cell phones should be in the silence mode prior to entering the classroom or lab. Minimize potential distractions if you are using a laptop or tablet in class to take notes. This would include refraining from 'surfing the web' during class. You will be asked to leave class or lab if you are using your cell phone or laptop to conduct business other than that of the class.

Honor Code: All work performed in this course must be in accordance with the Agnes Scott College Honor Code.

ADA: If you have a disability that may have some impact on your work in this class and for which you may require accommodations, please the Office of Academic Advising to register for services. Students that receive accommodation checklists, please meet with me to discuss the provisions of those accommodations as soon as possible.

Title IX: For the safety of the entire community, any incidence of or information about sexual misconduct must be reported immediately to Title IX Coordinator Karen Gilbert (kgilbert@agnesscott.edu, 404-471-6435) or Deputy Title IX Coordinator Kristian Contreras (kcontreras@agnesscott.edu, 404-471-6394).

Inclusion: This course adheres to the principles of diversity and inclusion integral to the Agnes Scott community. We respect people from all backgrounds and recognize the differences among our students, including racial and ethnic identities, religious practices, and gender expressions. We strive for our campus to be a safe space in which all students feel acknowledged and supported. At the same time, we understand that course content, critical inquiry, and classroom dialogues give us opportunities to examine topics from a variety of perspectives. Such discourse is a defining feature of a liberal arts education, and can compel debates that challenge beliefs and positions, sometimes causing discomfort, especially around issues related to personal identities. While we uphold and preserve the tenets of academic freedom, we request and invite your thoughtful and constructive feedback on ways that we can, as a community of learners, respectfully assist and challenge one another in our individual and collective academic work.

Content Warning: This course will explore the human brain and behavior, which might raise issues of racism, sexism, classism, heterosexism, cissexism, ableism, and other kinds of privilege. I invite you to come see me if want more information. If you feel you will be unable to fully participate in the course requirements, set up a meeting with the course instructor to determine appropriate accommodations.

Deadlines: Attendance and participation will be assessed periodically to determine your engagement and commitment to this class. Students are expected to attend all class periods, except in cases of documented illness or emergency. If a missed class cannot be avoided because of illness or emergency, it is **STRONGLY** recommended that you contact the instructor **IN ADVANCE**, or within 24 hours of the class period. Should an emergency or crisis arise, such that you miss class, you must provide legitimate documentation in order for the instructor to consider allowing you to make up missed work.

It is your responsibility to keep up with the class material. Thus, if you miss class, it is up to you to find out from a reliable source if you missed an assignment. It is also your responsibility to stay on top of presentation, quiz and exam deadlines. In-class assignments (such as the experimental design projects), presentations, and quizzes will NOT be available to make up later, unless you have a documented excuse, OR you have contacted me ahead of time.

Course Evaluations: At the end of the semester you will receive an e-mail asking you to submit an evaluation of the course. Please give feedback! Your input is important to the college as a whole and to us as instructors. We take your comments very seriously.

Academic Honesty: The Agnes Scott College honor code embodies an ideal of character, conduct, and citizenship, and is an important part of the College's mission and core identity. This applies especially to academic honesty and integrity. Passing off someone else's work as your own represents intellectual fraud and theft, and violates the core values of our academic community. To be honorable, you should understand not only what counts as academic dishonesty, but also how to avoid engaging in these practices. You should:

- review each course syllabus for the professor's expectations regarding course work and class attendance.
- attribute all ideas taken from other sources; this shows respect for other scholars. Plagiarism can include portraying another's work or ideas as your own, buying a paper online and turning it in as if it were your own work, or not citing or improperly citing references on a reference page or within the text of a paper.
- not falsify or create data and resources or alter a graded work without the prior consent of your professor. This includes making up a reference for a works cited page or making up statistics or facts for academic work.
- not allow another party to do your work/exam, or submit the same or similar work in more than one course without permission from the course instructors. Cheating also includes taking an exam for another person, looking on another person's exam for answers, using exams from previous classes without permission, or bringing and using unauthorized notes or resources (i.e., electronic, written, or otherwise) during an exam.
- not facilitate cheating, which can happen when you help another student complete a take home exam, give answers to an exam, talk about an exam with a student who has not taken it, or collaborate with others on work that is supposed to be completed independently.
- be truthful about the submission of work, which includes the time of submission and the place of submission (e.g., e-mail, online, in a mailbox, to an office, etc.).

You should understand that penalties result from dishonest conduct, ranging from failure of the assignment to expulsion from the college. You should speak with your professors if you need clarification about any of these policies.

	Date	Quiz	Reading Assignment	To Complete BEFORE class	Class Topic
Tues	1/14		Larimore Chapter 1 and 2	Read Syllabus and DRQ	Syllabus and group meetings
TUES LAB	1/14	No quiz			No Lab - READ LARIMORE 1 - 5
Thurs	1/16		Larimore Chapter 3-5		Group Meetings/Paper Assignments/ Group Agreements
Tues	1/21		3	Lecture 2: DNA, RNA, and Protein and DRQ	Personalized Medicine and TED talk on genomics - Richard Resnick
TUES LAB	1/21	Test			Test on Larimore Chapters 1-5/RTT Background/Experimental Design
Thur	1/23	L2 quiz	Young 2004	Paper Analysis	Paper presented by Group A
Tues	1/28		5 &6	Lecture 3: Manipulating Nucleic Acids and PCR and DRQ	PCR in Crime Scenes
TUES LAB	1/28	Lab quiz #1		Draft the intro and abstract for the manuscript	Manuscript and Poster Intro and Abstract Due at the end of lab
Thur	1/30	L3 quiz	Fyffe 2008	Paper Analysis	Paper presented by Group B
Tues	2/4				Run 2 WB gels
TUES LAB	2/4	Lab quiz #2 (for the week)			Transfer to PVDF/Block/1°AB
Wed	2/5				Lab group pick a time to meet Dr. L to add 2°AB
Thur	2/6				Image WB
Tues	2/11	L4 quiz	10	Lecture 4: DNA replication and Cell Division and DRQ	Ted Talk - Can we eat to starve cancer - William Li
TUES LAB	2/11	Lab quiz #3		Analyze WB and make a figure (Download NIH Image J before coming to lab)	Image J theWB and make a WB figure due at the end of lab
Thur	2/13		Samaco 2013	Paper Analysis	Paper presented by Group C
Tues	2/18 *				Pull Tissue for 1°AB (Run WB if needed)
TUES LAB	2/18	Lab quiz #4 (for the week)			Tissue to 1°AB overnight (Run WB if needed)
Wed	2/19				Lab group pick a time to meet Dr. L to add 2°AB
Thur	2/20*				seal slides (Image WB)
Tues *	2/25		11 &12	Lecture 5: Transcription and RNA processing and DRQ	Chahrour Paper
TUES LAB *	2/25	Lab quiz #5		Materials and Methods Section for Manuscript Due and for the poster	Image J Tissue /Stats on Image J data/ Figure due at the end of lab
Thur *	2/27	L5 quiz	Sztainberg 2015	Paper Analysis	Paper presented by Group D
Tues	3/3		13	Lecture 6: Protein Synthesis and DRQ	Ted Talk - Understanding Cancer through Proteomics - Danny Hills
TUES LAB	3/3		Test #1		Test #1 (Any previous Material)
Thur	3/5	L6 quiz	Xu 2017	Paper Analysis	Paper presented by Group E

	Date	Quiz	Reading Assignment	To Complete BEFORE class	Class Topic
Tues	3/10		PEAK WEEK	PEAK WEEK	PEAK WEEK
Thur	3/12		PEAK WEEK	PEAK WEEK	PEAK WEEK
Tues	3/17		SPRING BREAK	SPRING BREAK	SPRING BREAK
Thur	3/19		SPRING BREAK	SPRING BREAK	SPRING BREAK
Tues	3/24		14 & 15	Lecture 7: Protein structure, function and proteomics and DRQ	GMOs/Genomics
TUES LAB	3/24	No quiz			Image Brain sections/ Stats on Image J data/Make a figure due at the end of lab
Thur	3/26	L7 quiz	Glaich 2019	Paper analysis	Paper presented by Group A
Tues	3/31		16 & 17	Lecture 8: Transcriptional Regulation and DRQ	Gender Identification in Sports
TUES LAB	3/31	No quiz			Finalize poster/Practice Poster
Thur	4/2	L8 quiz	Clemens 2019	Submit poster for printing and paper analysis	Paper presented by Group B
Tues *	4/7*		19	Lecture 9: Analysis of Gene Expression and DRQ	CRISPR and Designer Babies TED talk - Paul Knoepfler
TUES LAB	4/7*	No quiz		Results Section of Manuscript Due	Finalize poster/Practice Poster
Thur	4/9	L9 quiz	Boxer 2020	Paper analysis	Paper presented by Group C
Tues	4/14		20 & 21	Lecture 10: Plasmids and Viruses and DRQ	Vaccines - MMR paper
TUES LAB	4/14	No quiz		Conclusion for the Manuscript due	Practice poster in front of the class
Thur	4/16	L10 quiz	Chen 2017	Paper analysis and Poster emailed to Alix Valcin for printing	Paper presented by Group D
Tues	4/21		26	Lecture 11: Molecular Evolution and DRQ	Molecular Evolution - Case study
TUES LAB	4/21	No quiz	Test #2		Cumulative Test #2
Thurs	4/23		Fahmi 2019	Paper analysis	Paper presented by Group E
Saturday	4/25				1PM - 7PM - Scotties with Nerves
Tues	4/28			SpARC	SpARC
Thurs	4/30			Peer-Review of the Manuscripts - bring 2 hard copies to class	Peer-Review of the Manuscripts - bring 2 hard copies to class
Tues	5/5			Bring 1 hard copy of your personal statement and CV to class	CV/Personal statement/SpARC EC oral reports
Wed	5/6			Last Day of Classes	Last Day of Classes
Thurs	5/7			Reading Day and Senior Finals	Reading Day and Senior Finals