

BIO 305: Biology behind the Crime Scene Laboratory:

Lab section times, locations and instructors:

You may attend ONLY the lab section for which you are officially registered unless approval has been given by both instructors to attend another section for a special circumstance

Laboratory Instructors:

Questions about lab and lab assignments should be directed to your laboratory instructor.

Instructor:	<u>Dr. Ty C.M. Hoffman</u>
E-mail:	ty@asu.edu
Office location:	FAB N181E
Office hours:	T 09:25 - 10:25; W 13:40 - 14:40; and by appointment via email
Lab sections taught:	F 09:00-11:45

Other instructors to be determined.

NOTE: This Laboratory Syllabus is in addition to the overall BIO 305 Class Syllabus. All policies stated in the Class Syllabus also apply to the laboratory section. This separate Laboratory Syllabus covers areas specific to the lab in more depth.

Overview

This is a laboratory and lecture course exploration of the laboratory technology behind such common forensic techniques as fingerprinting, blood typing, DNA work [Southern blots; DNA replication through the Polymerase Chain Reaction (PCR); and even paternity testing], as well as plant, pollen and insect identification. You'll get to explore for yourself if the writers of CSI shows have taken "poetic license" with their portrayal of the science, clarity of results, turnaround time, and a variety of other variables. We may even have a guest lecture from a real area CSI lab scientist – let's hope she or he won't have to testify in court that day!

What this class IS: A (hopefully fun) basic exploration of biology laboratory techniques that could be used in a crime lab setting.

What this class is NOT: Because this is a non-majors "biology class for college lab credit only," it WILL NOT qualify you to work in a crime lab – you need a 4-year, lab science degree in order to even apply to most crime labs.

Required Lab Materials:

Safety Glasses or goggles: You must obtain a pair of **laboratory** safety glasses like those available from the bookstore or a Home Depot, etc with side protection

Laboratory Notebook: You will need to buy a hard-bound laboratory notebook that does not have perforations. It can be either lined or graphed paper. You can buy one at Wal-Mart or Dollar Tree for a dollar or they are available at the bookstore. See “Laboratory Notebook Guidelines” section for further details.

Laboratory Protocols: Protocols [lab instructions/lab handouts] will be posted on the class Blackboard site about 1 week prior to each lab. The student must bring a printout of all protocols for the day to each lab class. The day’s laboratory handouts must be read in their entirety before the day of laboratory class; the student must complete a prelab of the day’s laboratory proceedings **before** attending each lab to show the student has read the protocol and is prepared for lab [see instructions below]. Also, the student will be quizzed on the day’s laboratory handouts [including protocols and background information] at the start of each lab session.

Laboratory Policies:

Academic Integrity: Students are required to read and act in accordance with University and Arizona Board of Regents policies as listed in the class syllabus. ****A note about Academic Integrity/Plagiarism in the lab: If you are caught cheating on any lab assignment, including notes, presentations, and quizzes, you will receive a grade of zero on that assignment AT THE VERY LEAST. Please note that copying your lab partner’s notebook write-up is considered plagiarism. All work must be put into your own words. Offenders may be subject to further disciplinary actions. See lecture syllabus for more details.**

Assignments and Grading: Your final grade will be based on student performance in both the lecture and laboratory parts of the course. Please refer to your **overall class syllabus** for the full grade-point distribution and grading scale. Assessment of learning for the laboratory portion of this course will be based on the following point assignment and grading scale, and will be assessed by your laboratory instructor:

Lab Items Number/Times assessed Given Points per Item Total Points

Group lab presentation:	100 points
Laboratory notebook: 2 x 50 =	100 points
Laboratory Quizzes: 10 x 5 =	50 points
Total Points:	250 points

Attendance: Attendance is essential to doing well in this or any class. See the overall class syllabus for more details about attendance. **You may attend ONLY the lab section for which you are registered.** Lab quizzes cannot be taken or made up if the student is late and/or absent. For the

most part, LABS CANNOT BE MADE UP IF MISSED (see below.) LABORATORY EXERCISES CAN ONLY BE PERFORMED DURING THEIR SCHEDULED LABORATORY CLASS TIMES. **Missing more than 2 labs for any reason, excused or unexcused, will result in a failing grade in the class.**

Religious holidays/documented responsibilities/documented emergencies: Please see individual sections/overall class syllabus for other notes about these topics. In general, written documentation is required for all laboratory absences. Reasonable accommodations will be made in cases of religious holidays/obligations, documented military responsibilities, or documented emergency situations. In some cases of religious obligations, documented responsibilities, or extraordinary documented emergency circumstances that prevent a student from attending his or her lab section, a student may be allowed to attend another lab section if room permits, however, once all lab sections have completed a particular laboratory exercise that lab cannot be made up. LABORATORY EXERCISES CAN ONLY BE PERFORMED DURING THEIR SCHEDULED LABORATORY CLASS TIMES. In order to attend an alternate lab section and turn in assignments during the alternate lab section, contact your lab instructor via e-mail at least 2 weeks in advance. The student must have **IN WRITING** the permission of ALL instructors involved before the student may attend any other laboratory section [verbal permission may be granted ONLY for emergency situations.] **It is your responsibility to provide instructors with *written documentation* of holidays and obligations at least 2 weeks in advance [emergencies as soon as possible,] - and a plan to cover the missed course material, including obtaining missed lecture notes from a classmate. Failure of the student to provide *written documentation* in any of the cases above may result in an inability for accommodations to be made and points to be lost.** Missing more than 2 labs for any reason, excused or unexcused, will result in a failing grade in the class.

Cell Phones: Cell phones must be turned off during lab. **Cell phone use in lab presents both a safety risk to you [because you're not paying full attention] and a risk that you may contaminate your cell phone with chemicals and/or biological specimens.** Students seen using a cell phone in any way during lab may be asked to leave the laboratory for the duration of the time period and lose the remainder of points for that lab. The one exception is exercises in which pictures can be taken, in which case a camera phone may be used only for taking pictures as long as safety precautions are used. In extenuating cases (i.e., pregnant spouse, hospitalized family member,) the student must inform the instructor of the situation BEFORE lab begins.

Classroom conduct in the laboratory: All students are expected to conduct themselves with the maturity expected of adults in a University laboratory. Often laboratory exercises require communication and cooperation between students and/or lab groups. Students are expected to provide necessary information in a cooperative manner. Disruptive, disrespectful, harassing, offensive, and/or threatening behavior toward other students and/or instructors in the laboratory will not be tolerated. Disrupting the laboratory exercises of another student and/or group of students will also not be tolerated. Students who are disrupting the class, especially in a way that compromises the safety of the laboratory, will be made to leave the classroom and lose the remainder of points for that lab. Using any laboratory materials in a manner that compromises the safety of the student and/or others will also result in the student be made to leave the laboratory. See the overall class syllabus for further details.

Course/Instructor Evaluation: The course/instructor evaluation for this course will be conducted online 7-10 days before the last official day of classes of each semester or summer session. Your response(s) to the course/instructor are anonymous and will not be returned to your instructor until after grades have been submitted. The use of a course/instructor evaluation is an important process that allows our college to (1) help faculty improve their instruction, (2) help administrators evaluate instructional quality, (3) ensure high standards of teaching, and (4) ultimately improve instruction and student learning over time. Completion of the evaluation is not required for you to pass this class and will not affect your grade, but your cooperation and participation in this process is critical. About two weeks before the class finishes, watch for an e-mail with “ASU Course/Instructor Evaluation” in the subject heading. The email will be sent to your official ASU e-mail address, so make sure ASU has your current email address on file. You can check this online at the following URL: <http://www.asu.edu/epoupdate/>

Disability requiring accommodation: Reasonable accommodations will be made for students with a DRC-documented disability requiring accommodation. **See the overall class syllabus** for further information, however, requests for accommodations in laboratory should be made as soon as possible. Disclosure of any disability is optional and confidential; however, seeking assistance early will better allow the campus and the class to serve your needs.

E-mail: The instructors encourage asking questions, especially if you need clarification on assignments and lessons. *While you may occasionally receive an immediate reply, expect most replies to take some time.*

Prelab: See “Prelab and Signature” section in Laboratory Notebook on the next page as well as specific prelab instructions on page 11.

Lab Group Presentations: More details to come. There will be a simulated crime scene in the lab from which your group will need to collect and analyze evidence. **THIS IS A GROUP PROJECT.** Your group will present its findings in PowerPoint during your laboratory period in your lab classroom the last week of class.

Laboratory Notebook:

The lab notebook is where you document everything that happens, including your observations and data, changes to the protocol, experimental conditions, and other pertinent information. Treat the notebook like you are a crime scene investigator and the notebook is your documentation of the work you did and results you found that may be called into question in a trial. It is also the place where you answer the questions asked in the lab handouts. The completeness and preciseness of this notebook is essential to your science education. **Notebooks will be signed by the instructor at the end of each class after you have cleaned your area, and nothing may be added afterwards unless authorized by your instructor.** Therefore, it is imperative to complete your assignment prior to leaving the lab. Notebooks will be graded twice during the semester: a first notebook grading after Lab #6 and a second notebook grading after all regular labs have been completed. The notebook will be graded for such things including, but not limited to, correctness of notes and answers, neatness, organization,

completeness, correct formatting, etc. See “Laboratory Notebook Guidelines” for further instructions and requirements.

Prelab and Signature: Before you come to lab each week, you must complete a prelab with objectives, materials, & procedures (see specific instructions later in the syllabus.) **Prelabs MUST be handwritten**, with the exception of the materials list. Prelabs will be checked quickly and initialed by the instructor at the beginning of lab, then more thoroughly graded at the time of the notebook check. **Students missing an appropriate prelab at the start of the lab may be turned away from lab and miss all points for the day’s laboratory exercises.** At the end of each laboratory session you will receive a signature in your notebook from your lab instructor. This signature will be given when your area is clean and you are finished with the laboratory. If you do not have the prelab initialed and/or you did not complete the laboratory exercise you will not get full points when your laboratory notebook is graded.

Laboratory Quizzes: At the beginning of each laboratory class, a quiz will be given over a combination of the previous week’s material and the current day’s laboratory procedures and background information. **This means that you must read all the day’s laboratory handout(s) prior to attending that particular class and arrive prepared for lab!** The quiz starts PROMPTLY when class begins, and there will be a time limit. **STUDENTS MUST ARRIVE ON TIME FOR LAB IN ORDER TO TAKE THE LABORATORY QUIZ.** If you arrive late for a quiz or do not attend lab, you will not be allowed to take the quiz. There will be no make-up quizzes.

Lab Schedule: All laboratory exercises must end promptly to give prep instructors time to reset and prep for the next lab. **Everyone must leave the lab on time.** Lab exercises are designed to take the full lab period. This means that you need to be prepared, to keep on task, and to use your time efficiently to finish on time. There will not be time in the lab for chatting with friends or “catching up” on missed handout reading. You need to leave enough time to clean your area and get your notebook signed. You’ll need to make sure that your lab benches are in the same condition when you leave as when you arrived in the lab in terms of how the equipment is organized and cleanliness. Students running late will be unable to finish the laboratory exercise and may lose some points for that lab exercise.

Safety Procedures

Proper Lab Attire:

Your clothing for the laboratory should protect you as well as allow you to fully participate in lab. Thus, all pants, dresses, skirts, etc. must at least cover past your knees and shirts should have narrow sleeves. Clothing should NOT be baggy, torn, or frayed. In case of emergency, clothing needs to be easy to remove. Students wearing anything that doesn’t fully cover past the knee and/or protect their arms may be asked to change and/or given a lab coat for the laboratory period. Also, some labs may involve substances that may stain your clothing – so wear clothing that you don’t mind being stained. Your shoes must protect your feet and allow you to comfortably walk around, sit and/or stand for nearly 3 hours. Your shoes thus need to be sturdy, low-heeled and closed all the way around. **NO OPEN SHOES ARE ALLOWED IN THE LABORATORY AT ANY TIME.** Students wearing

inappropriate footwear may be asked to change their shoes and/or be given ugly protective shoe coverings (if available) for the laboratory period.

Up to five (5) points “rental fee” may be deducted from the student’s lab score for the day if shoe coverings and/or a lab coat are provided.

Proper Eye Protection:

Students must have LAB safety glasses or goggles available for every lab. **UP to five (5) points “rental fee” may be deducted from the student’s lab score for the day if safety glasses are provided.**

***Students must have adequate eye and foot protection as well as follow other safety rules in order to be allowed to participate in laboratory exercises, therefore, a student not following proper safety rules or instructions may be asked to leave the lab and will lose all points for that laboratory exercise.**

When needed, additional protective equipment such as gloves will be provided by the instructors.

General Safety Considerations

◆As much as possible keep all areas you are working in neat and clean – **willingly clean up any area that needs it!**

◆Do not place chemicals in the trash or down the drain – all waste will be collected in a properly labeled waste container typically located in the hood.

◆Do not place glassware in the trash – all glass or other sharp objects that could poke through a trash bag should be placed in the glass box containers.

◆Place **only** glassware and sharp objects in the glass disposal bins – no trash, gloves, or paper towels!

◆Proper attire is required in a working lab is for the protection of your body, legs, arms, hands, face, and feet to prevent injury by contact. [see **Proper Lab Attire** above]

◆When clothing is supplemented with further protective when necessary (aprons, various gloves, safety goggles, lab coats, etc) **USE THESE**

◆Good personal hygiene is necessary. You should have ingrained habits of hand washing, keeping fingers away from your face when working, and **ALWAYS** having loose hair controlled.

◆Eating, drinking and smoking are prohibited in all labs.

Perhaps most important to your safety is the use of common sense:

◆**Be prepared** for what you are doing on that day by **planning ahead.**

◆Always label, date, and put your initials on ANY chemical you make.

◆Follow lab protocols carefully while ensuring that ANY new protocols of your design that you wish to employ have been cleared by one of your instructors.

◆Use chemicals and laboratory materials **only** in the manner instructed. Do NOT play with any chemicals or equipment. Do NOT compromise the safety of yourself or others.

◆**KEEP ALL AREAS CLEAN!**

◆Wash hands after coming into contact with any chemicals.

- ◆Ask questions, research answers.
- ◆**ALWAYS keep notes on what you did in your lab notebook!**

General Security Considerations

- ◆In general, equipment is to remain where it is; however, it may become necessary to move some equipment to a new location temporarily. It is YOUR responsibility to move it back to the place from whence it came before the end of your laboratory session.
- ◆Each bench is equipped with the same materials and, in general, sharing materials between benches is discouraged unless instructed.
- ◆**ALWAYS** keep your working area clean – “OWN” that space – if there is a mess, take it personally. Your work area reflects on your team and the kind of science that you do. Groups will not be allowed to leave until their area is sufficiently clean and **may lose points** if an area is continually left messy.

Specific Safety Information

ACID: Handling of liquid acids for preparing solutions

- ◆Always wear gloves, goggles, apron/lab coat, long pants, and solid shoes when handling acids in ANY form.
- ◆Wipe down your workbench, fume hood, or sink spaces before and after working with acids.
- ◆Work in the fume hood with stronger acids.
- ◆Cold water is to be running at a moderate rate in the sink any time that you are handling a strong acid. Handle acid bottle only by the handle. If no handle is present, grasp the acid bottle by the labeled side.
- ◆**Always have another person in the room when handling acid.**
- ◆Always be sure that acid containers are appropriately labeled.
- ◆Wipe up any splashes or spills immediately and rinse the sponge well. **DO NOT use paper towels to be disposed of in the trash.**
- ◆Triple rinse all emptied glassware that has come in contact with acid, this includes graduated cylinders, beakers, flasks, funnels, and acid bottles before they are returned to the cabinet. Remove labels after emptying.
- ◆If water comes into contact with the surface of a glove that has acid on it, the glove will become very warm quickly. Do not be startled; simply rinse the glove with more water.

Immediately rinse any area of skin that comes into contact with acid (or strong base) with a copious amount of cool/cold water. Do NOT cover the skin from view and immediately notify your instructor (an incident report must be filed). Monitor the skin area for at least 8 hours looking for reddening or blistering. Medical attention should be provided if necessary.

Handling Other Chemicals

Solid Chemicals: Always label your secondary container with the chemical name and date.

- ◆Place bottle lids face up (open side) on a clean working surface.

◆Once you have removed a solid chemical from the container, it cannot go back in the original container, dispose of unused solids as chemical waste.

◆Replace the lid on the container when finished.

Liquid Chemicals: Always label secondary containers with chemical name & date – even water.

◆Goggles or safety glasses need to be worn when handling dangerous or toxic liquids.

◆Never place the lid of a liquid chemical face down on a surface – hold it between your fingers (if it is a stopper) or place it face up on a clean work surface.

◆Do not remove liquid directly from its container with a pipette unless instructed to do so. Instead pour a small amount into a beaker and pipette from the beaker, discarding excess chemical into a proper waste receptacle.

Disposal of Chemical Waste

◆Different types of waste receptacles are available for your use. Dispose of waste only as instructed.

◆**ALWAYS notify an instructor of ANY spill without leaving the site unattended for someone else to walk into.**

Handling Glassware

◆If glassware is broken, first ensure that nobody comes into inadvertent contact with the glassware and then summon an instructor to properly dispose of the broken glassware –

DO NOT ATTEMPT TO CLEAN IT ON YOUR OWN!!

◆You should always inspect glassware before you use it for cracks or breaks. **Do not use a broken piece of glassware under any circumstances.**

Lab Cleaning Protocols

Cleaning Work Area Protocol

◆***You are responsible for cleaning your lab bench and leaving it in the condition that you have found it in. Your lab instructor will be inspecting your work area upon your departure and your team will not be allowed to leave until the area is sufficiently clean.***

◆The pipettes should be returned to the racks, and the sink should be free of foreign materials, with the water turned off. The bench top should be wiped down thoroughly before you leave when appropriate.

◆Always empty the ice buckets when appropriate and place them face down in the lower right corner of the, so the excess water drains to the sink.

◆You are also responsible for any mess you have made outside of your bench and the surrounding area.

LABORATORY SAFETY POLICIES SUMMARY

Division of Mathematical and Natural Sciences

- Food, drinks and all tobacco products are prohibited in the lab.
- You must come to lab properly dressed. This means long pants, closed toe shoes, a lab coat (optional), and safety glasses. Do not wear loose clothing or dangling jewelry.
- Always wear safety glasses when working with chemicals
- Inform your instructor immediately if you injure yourself at anytime during the lab, have a chemical spill, or a breakage.
- Always make sure your belongings are not obstructing the aisle space.
- At the end of the lab session, make sure your station is clean and ready for the next student.
- Notify the instructor immediately if you have any medical condition that may require special precautionary measures in the laboratory.

Pregnancy

If you are pregnant, or plan to become pregnant while enrolled in the laboratory, please inform your instructor. While it is ultimately your decision whether or not to stay enrolled in the lab, it is our recommendation that you postpone taking the lab until after your pregnancy. You may request a list of chemicals that will be used during the semester to discuss with your doctor.

Emergency Evacuation

In the event that an evacuation occurs during the lab period, do the following:

If time permits, secure your station (i.e. turn off the hotplate and remove the reaction from the heat source) and take your personal items. Walk to the designated exit and down the stairwell. There will be a practice drill during the first lab session, so make sure you know which exit to use.

Do not use the elevators. If you are unable to walk down the stairs and require special assistance, please inform your instructor. Gather outside at the designated staging area where your instructor will take roll and account for all personnel.

Wait for notification that it is safe to re-enter the building

Hazardous Waste

All chemical & biological waste must be disposed of in accordance with ASU policy - **Nothing goes down the drain!** Instructions for waste collection will be provided by your instructor.

Assumption of Risk and Liability Form

An Assumption of Risk and Liability form is posted on the lab Blackboard site. Please read this before attending the first lab meeting. A lab copy will be provided for your signature. If you are a minor, print the form from Blackboard and have your parent/guardian sign the form.

Prelab

You must have recorded your prelab in your lab notebook (*handwritten*) and have it ready **AT THE BEGINNING OF LAB** [students without an appropriate completed prelab for the day's lab may be turned away from lab and lose all points for the lab for that week.]

Your prelab must include: [Make sure to use ALL handouts for the day]

The laboratory exercise # & title, the date (including the year), and any page numbers.

♦**PURPOSE** [*handwritten*]: Briefly explain the purpose of the lab exercise. This is often found in the first part of the lab protocol and/or listed as the objectives for that particular exercise.

◆**MATERIALS:** List materials needed for the exercise. Bulleted lists work best, or you may neatly cut and tape the materials list from your protocol in this space.

◆**PROCEDURE** [*handwritten*]: You will need to summarize the procedures from the laboratory protocol handout(s) in this part. The procedures will be listed in your protocol(s), and, unless told ahead of time, assume that you will be doing all sections from all handouts. **This must be handwritten.** Only write procedures; do not include any background information.

Laboratory Notebook Guidelines:

Keeping a notebook is an essential component of your laboratory experience. **Crime scene investigators keep a notebook as a record of their work and results and is documentation should their results, procedures, or findings ever be called in to question in a court of law.** You are required to keep one for BIO 305. Acceptable notebooks must be hard-bound (cannot tear out pages) and may have pages with pre-printed numbers but is not necessary. Notebooks such as composition books that have graph or lined paper work best and are inexpensive.

BEFORE YOU LEAVE each BIO 305 Laboratory, you **MUST get your notebook signed by your instructor** to receive credit. No additional notes may be added for a lab session once it is over.

The notebook will be graded twice during the semester (see “Laboratory Notebook” section above.) Even if there is one data recorder for the group, ALL students will be responsible for transferring the data to their notebooks prior to the end of the laboratory period unless your instructor tells you of an exception during specific labs. Please note that any written work must be in your own words, not one of your lab partners words.

All notebooks must have the following:

◆**Name & Lab partners’ names** – Make sure you put your name, BIO305, lab section, and semester on the outside of the notebook, as well as your name and all your lab partners’ names on the inside cover of your notebook.

◆**Table of Contents** – The first page or two of your notebook should be designated for a table of contents, appropriately titled as such. Below the “Table of Contents” title, each lab exercise should be listed with the date performed (including the year as some court cases take years to go to trial), as well as the corresponding page numbers:

Ex.

Lab #1: Measurement and Equipment Use (1-28-10).....pp. 1 – 8

Lab #2: Fingerprinting (2-4-10).....pp. 9 - 17

◆**Page Headings** – **Each and every page** (excluding Table of Contents) should have the number of the lab, the title of the lab, date (including the year as some court cases take years to go to trial), and page number. If it is a continuation of the same lab, you may abbreviate the lab title after the lab number and write “continued” or “cont.” in parenthesis after the title. All page numbers should continue in sequence throughout the notebook. Keep them consistently in the same place on a page.

Using your notebook for observations, data, questions, and conclusions:

During class you note the following types of information in your notebook:

◆OBSERVATIONS/DATA: ALL observations and data that you collect during lab should go in the notebook. This includes drawings and any required tables or graphs. Be sure to appropriately label everything. To save time, tables may be cut out from the protocols/handouts and neatly taped in. If there are numerous sections of the procedure, you should include subheadings, such as “Part I” or “Part II”. ALWAYS use **past tense** and record accurately – record what you actually did; if you broke a beaker, record it; if your rinse went 7 minutes instead of the 5 indicated, record it as 7 minutes. You need enough detail to recall what you did. These notes must be entirely scientific in nature – comments on lab partners/their behavior are unacceptable.

◆ANSWERS TO QUESTIONS: Your lab protocol may contain questions that you must answer *during* the laboratory exercises. The answer must be handwritten in the notebook. As long as the answers are clearly labeled with the question number, answers do not need to be in order nor repeat the question. Answers to questions should be in your own words.

◆CONCLUSION OF RESULTS: At the end of each lab, write a sentence or two that **briefly** and clearly summarize your lab results based on your scientific data (if there was more than one section to the lab, make sure to include a result from EACH section). You should also include (if known) with what certainly you know those results. i.e. 99.9% accuracy, 1/1,650,000 chance, etc. How accurate were your results? Be specific. Saying that you got “most” correct or even “75% correct” is not as specific as saying “**We got 3 out of 4 trees correct in the order of how long the bodies have been dead.**”

For example: “**I identified 2 ridge endings, a bifurcation, and an enclosure in my point by point fingerprint.**” Note the use of PAST TENSE.

Next, write your conclusion about those results. How are the results you obtained significant to a crime scene investigator or important in studying crime scenes/forensics? This is where you APPLY your knowledge. Think about why we would have you do this lab in a crime scene class.

For example: “**Fingerprints are important pieces of evidence to find at a crime scene because no two people have the same fingerprints, including identical twins.**”

This is NOT a place to talk about what you “learned.” Also, this is NOT a place to talk about whether or not the lab was fun/easy or to comment on the behavior of your lab group – **it’s a scientific statement based on your results, data, and observations.** Students will lose points for a conclusion of results not based solely on their scientific results from data/lab observations.

A few other reminders about writing in your lab notebook:

-- **Always write in pen.** Pencil is unacceptable. NEVER use white-out or erase your work or tear out a page of your notebook. If you make mistake, draw ONE line through it, initial it, and re-write! Scribbling over work is unacceptable. Erasing, scribbling through data, white-out, tearing out pages could all be interpreted as trying to cover up or hide data and the integrity of your work may be questioned in court. Initialing any cross-outs authenticates that you are the one that crossed it out.

--Always **write in past tense** – you write about what you did.

--**NEVER leave a blank page**, unless instructed to do so by your laboratory instructor. This could be interpreted like you are going to go back and add data later. If you end up with blank space within a lab of 1/3 of a page or more or accidentally leave a page blank, draw one line through it and write “left blank on purpose” and initial.

--**Sign ALL drawings** with a full signature to authenticate that you are the one that did the drawing.

--Keep your notebook **organized and consistent**. Your handwriting must be legible or your data could be questioned. Keep everything consistent, if you put the page numbers on the top right corner of the first lab, keep them there, don't put them on the bottom left of the next lab. You may write on both sides of a page or if you choose, you may write on only the fronts of the pages (without having to put a line through the back of every page) so long as you consistently do this with every lab.

--At the end of a write-up (i.e., after the conclusion of results), **get your instructor's signature** so that nothing can be added later.

Note the page heading when continuing a lab onto a subsequent page. You may need subheadings under “Observations/ Data.” Bulleted observations, labeled pictures, tables, and figures are useful tools in this section. The more detail, the better!

--It is **acceptable to cut and tape a typed table or graph onto the page but make sure to use clear tape** that you can see through (do not use the opaque label tape that you cannot see through or it may look like you are covering something up). Tables should have a descriptive title, and figures should have a legend or key. Don't forget to include any necessary units of measurement or magnifications if drawings are from a microscope. For examples on how to format tables and figures see *Biology* textbook, or *Ecology* articles.

Note: These figures and the table are examples only, and it will depend on what information you are trying to record as to what type of table or figure you need to include. Choose appropriately; if you have any questions, you should always ask.

Course/Instructor Evaluation

The course/instructor evaluation for this course will be conducted online 7-10 days before the last official day of classes of each semester or summer session. Your response(s) to the course/instructor are anonymous and will not be returned to your instructor until after grades have been submitted. The use of a course/instructor evaluation is an important process that allows our college to (1) help faculty improve their instruction, (2) help administrators evaluate instructional quality, (3) ensure high standards of teaching, and (4) ultimately improve instruction and student learning over time. Completion of the evaluation is not required for you to pass this class and will not affect your grade, but your cooperation and participation in this process is critical. About two weeks before the class finishes, watch for an e-mail with "**NCIAS Course/Instructor Evaluation**" in the subject heading. The email will be sent to your official ASU e-mail address.

Withdrawals: The instructor will **NOT** withdraw students for any reason. Specifically, students should be aware that non-attendance will **NOT** automatically result in their being dropped from the course. Therefore, if a student does not attend class during the first week or for any extended period of time during the semester, they should not presume that they are no longer registered. **It is the student's responsibility to be aware of their registration status.**

Please note the following dates:

Session Date & Deadlines	Session A (7 Week Session) January 11-March 1, 2016	Session B (7.5 Week Session) March 14-April 29, 2016	Session C (15 Week Session) January 11-April 29, 2016 (Final Exams May 2-7, 2016)
Classes Begin	January 11, 2016	March 14, 2016	January 11, 2016
Drop/Add Deadline (w/out College approval)	January 12, 2016	March 15, 2016	January 17, 2016
Tuition & Fees 100% Refund Deadline	January 17, 2016	March 20, 2016	January 24, 2016
Martin Luther King Jr. Holiday Observed – University Closed	January 18, 2016		
University 21st Day	February 1, 2016	April 4, 2016	February 1, 2016
Academic Status Report #1 – Students can view ASRs in MyASU within 24 hours after the last reporting day	January 21-25, 2016	March 24-28, 2016	February 8-15, 2016
Academic Status Report #2 - Students can view ASRs in MyASU within 24 hours after			

the last reporting day	N/A	N/A	March 22-29, 2016
Course Withdrawal Deadline	January 29, 2016	April 1, 2016	April 3, 2016
Complete Session Withdrawal Deadline	March 1, 2016	April 29, 2016	April 29, 2016
Spring Break – Classes Excused	March 6-13, 2016		
Deadline to Apply for Graduation	February 15, 2016		
Classes End/Last Day to Process transactions	March 1, 2016	April 29, 2016	April 29, 2016
Final Exams	Last day of classes	Last day of classes	May 2-7, 2016
Final Grades Due	March 4, 2016	May 2-9, 2016	May 2-9, 2016
Commencement (Graduate and Undergraduate)	May 9, 2016		
Degree Conferral Date	May, 9, 2016		

Any withdrawal transaction must be completed by the deadline date in accordance to the appropriate session at the registrar’s office. If not, you will still be officially enrolled and you will receive a grade based on your work completed.

*As part of a complete session withdrawal a student must withdraw from all classes in a session. Beginning the first day of classes, undergraduate students are required to work with a Student Retention Coordinator to facilitate the withdrawal process. Please refer to <http://students.asu.edu/StudentRetention>

For additional information about ASU’s withdrawal policy and the possible consequences of withdrawing from a class, contact Registration Services or your academic counselor.

Students are responsible for their registration status!

The Grade of Incomplete: A grade of incomplete will be awarded only in the event that a documented emergency or illness prevents a student who is doing acceptable work from completing a small percentage of the course requirements at the end of the semester. The guidelines in the current general ASU catalog regarding a grade of incomplete will be strictly followed. **A grade of incomplete will NOT be awarded unless there is documented evidence of extreme personal or immediate family hardship.** Changes in work hours, child-care emergencies, or other similar personal problems will not be approved as reasons for awarding incompletes. The Director of the School of Mathematical and Natural Sciences must approve all incomplete grade requests.

Reasonable Accommodations for Students with Disabilities: The Disability Resource Center (DRC) provides information and services to students with any documented disability who are attending ASU. Individualized program strategies and recommendations are available for each student as well as current information regarding community resources. Students also may have access to specialized equipment and supportive services and should contact the instructor for accommodations that are necessary for course completion.

Academic Integrity and Code of Conduct:

As defined in the *ASU Student Academic Integrity Policy*: <http://provost.asu.edu/academicintegrity>.

Each student has an obligation to act with honesty and integrity, and to respect the rights of others in carrying out all academic assignments. A student may be found to have violated this obligation and to have engaged in academic dishonesty if during or in connection with any academic evaluation, he or she:

- Engages in any form of academic deceit;
- Refers to materials or sources or employs devices (e.g., audio recorders, crib sheets, calculators, solution manuals, or commercial research services) not authorized by the instructor for use during the academic evaluation;
- Possesses, buys, sells, obtains, or uses, without appropriate authorization, a copy of any materials intended to be used for academic evaluation in advance of its administration;
- Acts as a substitute for another person in any academic evaluation;
- Uses a substitute in any academic evaluation;
- Depends on the aid of others to the extent that the work is not representative of the student's abilities, knowing or having good reason to believe that this aid is not authorized by the instructor;
- Provides inappropriate aid to another person, knowing or having good reason to believe the aid is not authorized by the instructor;
- Engages in plagiarism;
- Permits his or her work to be submitted by another person without the instructor's authorization; or
- Attempts to influence or change any academic evaluation or record for reasons having no relevance to class achievement.

BIO305 follows the ASU Academic Integrity Policy in the administration of all course examinations and assignments. Violations of the University Academic Integrity policy will not be ignored. Penalties include reduced or no credit for submitted work, a failing grade in the class, a note on your official transcript that shows you were punished for cheating, suspension, expulsion and revocation of already awarded degrees. The university requires that the implementation of any of these penalties for violations of the academic integrity policy be reported to the Dean's office. The Integrity Policy defines the process to be used if the student wishes to appeal this action.

In BIO305 you are expected to follow the *ASU Student Code of Conduct* (<http://students.asu.edu/srr/code>) especially when communicating with your peers, instructors, and teaching assistants. Violations of the student code of conduct may result in withdrawal from the class.

Final Exam Make-up Policy: The final exam schedule listed in the Schedule of Classes will be strictly followed. Exceptions to the schedule and requests for make-up examinations can be granted only by the director of the School of Mathematical and Natural Sciences for one of the following reasons:

- 1) religious observances
- 2) the student has more than three exams scheduled on the same day
- 3) two finals are scheduled to occur at the same time

Make-up exams will **NOT** be given for reasons of non refundable airline tickets, vacation plans, work schedules, weddings, family reunions, or other such activities. Students should consult the final exam schedule before making end-of-semester travel plans.

If there is a last-minute personal or medical emergency, the student may receive a grade of Incomplete and make-up the final within one calendar month. The student must provide written documentation and be passing the class at the time to receive an Incomplete. A signed "Request for Grade of Incomplete" must be submitted by the student and approved by the student's instructor and the Director of the School of Mathematical and Natural Sciences.

The instructor reserves the right to make changes to this syllabus as needed.

If you find it necessary to leave a note for this instructor, please contact the administrative reception desk of the School of Mathematical and Natural Sciences located at FAB North Level 1 room N101-1.

Title IX:

Is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An

individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish discuss any concerns confidentially and privately.

Policy against Threatening Behavior:

In the classroom and out students are required to conduct themselves in a manner that promotes an environment that is safe and conducive to learning and conducting other university-related business. All incidents and allegations of violent or threatening conduct by an ASU student will be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students. Such incidents will be dealt with in accordance with the policies and procedures described in Section 104-02 of the Student Services Manual (<http://www.asu.edu/aad/manuals/ssm/ssm104-02.html>).

Potentially Offensive Content:

A notification such as the following should be included in the syllabus if appropriate for the class in question.

If you find any of the content of his class offensive, please bring your concerns to the instructor immediately.

Power Outage:

In the event of a campus power outage or other event affecting the ability of the University to deliver classes, any decision to cancel classes will be announced using the ASU emergency notification system. For this reason, it is imperative that students register with the ASU emergency notification system at: <https://cfo.asu.edu/emergency-alert>. In cases in which a limited number of buildings are affected, students should check the university website and/or call the School office at (602) 543-6050.

Emergency Evacuation Plan:

Students should be aware of the evacuation route posted on the exit door of each classroom. Students who cannot walk down stairs should notify the instructor as early in the course as possible so the instructor can provide information regarding the location of the designated meeting area on each upper floor of the building (marked with a blue sign that states Emergency Evacuation Response Area).