

Biology
Sarah Martinez, B.S., M.S.
2014 – 2015

Goal:

The goal of this course is to generate a biological understanding of life by focusing on the characteristics of living things, the diversity of life, and how organisms and populations change over time in terms of biological adaptation and genetics. Throughout the year this course provides an opportunity for students to develop scientific process skills, laboratory techniques, and an understanding of the fundamental principles of living organisms. This course also acts as an AIMS (Arizona Instrument to Measure Standards) Science preparatory class, and is a requirement for all sophomores. Semester 1 will focus on the science of biology, the chemistry of life, cellular structure and function, cellular growth and division, DNA and RNA, transcription, protein synthesis, genetics, meiosis, and human heredity. Semester 2 will focus primarily on Darwin's theory of evolution, evolution of populations, the history of life, classification of living things, the biosphere, ecosystems and communities, populations, human evolution, primatology, and humans in the biosphere.

Competencies and Objectives:

Students will gain a biological understanding of living organisms by examining a number of life science concepts, including: the nature of life, ecology, cells, genetics, evolution, and classification. Students will practice concepts by completing assignments, examinations, and laboratory activities. Examinations and assignments will test the student's knowledge and understanding of concepts through challenging questions and analyses. Laboratory activities will expand the student's learning experience by providing a "hands on" examination of scientific concepts.

Students will learn that science is not simply the memorization of various concepts; rather, they will learn that science is a process of gathering and evaluating information, looking for patterns, and then devising and testing possible explanations. Even students who plan no further science study will benefit from this class for it makes them better able to appreciate their world and to understand the many scientific and technological issues that face them.

Students will gain an understanding of various topics covered in the following major areas of the Arizona Science Curriculum: (1) Inquiry Process; (2) History and Nature of Science; (3) Science in Personal and Social Perspectives; (4) Life Science; (6) Earth and Space Science. Specifically, the following state standards will be covered: SCHS-S1C1, S1C2, S1C3, S1C4; SCHS-S2C1, S2C2; SCHS-S3C1, S3C2, S3C3; SCHS-S4C1, S4C2, S4C3, S4C4, S4C5; S6C1, S6C2, S6C3. For a detailed description of the standards listed above, please visit: www.ade.az.gov/standards/science/highschool.pdf

Prerequisite:

Chemistry and Algebra 1-2.

Materials:

You are required to have a **large spiral notebook that is dedicated to this class, and this class alone. Your notebook should contain folders or you should have a separate folder** to keep all returned assignments and tests. All returned assignments and tests are excellent tools to study with for major exams (midterms and finals). **You are required to bring your notebook to class every time, along with your own writing utensils** (pen, pencil, highlighters). These materials will not be provided for you.

Textbook: *Biology* (Miller and Levine, 2006). Students are encouraged to read the chapters that correspond to class units. The diagrams and tables in the textbook are used in the class notes. The textbook often goes into more detail than we have time to cover. While the textbook will be used as a guide, the information given in class notes is absolutely essential. **Therefore, class attendance, good note taking, and referencing the textbook are all crucial to your success in this class.**

Read carefully: YOU ARE TOTALLY RESPONSIBLE FOR RETURNING YOUR ASSIGNED TEXTBOOK AT THE END OF THE YEAR. THE SERIAL NUMBER IN YOUR BOOK WILL BE RECORDED NEXT TO YOUR NAME IN OUR RECORDS. IF YOU TEXTBOOK IS LOST, DAMAGED, OR NOT RETURNED, YOU WILL RECEIVE AN “INCOMPLETE” IN THAT COURSE UNTIL THE BOOK IS PAID FOR. AT NO TIME SHOULD YOU EVER TAKE SOMEONE ELSE’S TEXTBOOK. YOU CAN KEEP YOUR TEXTBOOK IN THE CLASSROOM, BUT YOU WILL NEED TO TAKE IT HOME AT TIMES. SEE METRO’S TEXTBOOK POLICY (PAGE 7) FOR MORE DETAILS.

Methods & Procedures

Methods of Evaluation: For each unit covered (see pages 8-9), there will be at least one major assignment (ex: lab report, question/answer, presentation), and at least one test. Please see the “Evaluation” section (page 4) for percentage values per category, and for policies on absences and late work (page 5). While it is not absolutely required, it is appreciated when assignments and lab reports are typed. Spelling and grammar are always considered when grades are assigned.

Classroom Expectations: The following is a list of expectations and rules that must be followed during this course. ***It is very important that all students and parents are aware of these expectations in order to avoid detentions on the student’s record.***

(1) **RESPECT FOR OTHERS:** Respect must be shown at all times for those around you. Discriminatory comments of any kind are totally unacceptable and will not be tolerated (i.e. comments regarding race, religion, appearance, sexual orientation, etc.). Metro is a COMMUNITY OF TOLERANCE, and this should be demonstrated at all times. It is also crucial that everyone respects “the right to learn”. This means that it is totally unacceptable for any student to disrupt the learning process of any other student. Action in the form of detentions and/or referrals to administration will take place for disruptive behavior.

(2) **ATTENTION IN CLASS:** It is expected that each student will devote their time in class to the subject at hand. Socializing during note taking and class discussions will not be tolerated and detentions will be issued. Sleeping during class is unacceptable, and this action will result in a detention each time. Assignments for other subjects may not be worked on during this class. **Note taking is essential in this class and a detention will be given each time notes are not being taken.**

(3) **LEAVING THE CLASSROOM:** If a student needs to use the restroom or the water fountain, they must notify the teacher and take the classroom pass. Only 3 students will be allowed to take the pass per class, after which the pass will be “retired”. Students may not use the pass to go to the vending machines or another classroom. Unless an illness or emergency is being faced, a person may only leave ONCE during a class. If a student leaves the classroom for an extended period of time (more than 5 minutes), they will face disciplinary action. If a student leaves the classroom without permission, this action will result in a detention. High school students may not use the restroom during the allotted junior high times (see posted bathroom schedule in each classroom).

(4) **CELL PHONES AND OTHER ELECTRONIC DEVICES:** Cell phones and other electronic devices (video game devices, iPods/mp3 players) must be OFF and IN A BAG during class. Students can check their messages between classes and at lunchtime, BUT NOT DURING CLASS. In the case of emergency (ex: death, illness, hospitalization), parents should call the school directly or (if possible) come to the school to pick up their child. Arranging a pick-up time from school, or other such issues, are not considered emergencies, and therefore, students should have their cell phones off during class. **If a student uses their cell phone during class, it will be taken away and given to administration, and a detention will be issued. If a cell phone is taken away more than once, a student may be banned from bringing their phone to campus.** Also, students may not wear their headphones in class (except occasionally during test taking).

(5) **SAFETY IN THE LABORATORY:** For your own well being, and for the well being of others, please be extra cautious when handling lab equipment. Anyone seen intentionally trying to cause damage to lab equipment, classroom supplies, themselves or others will receive a referral to administration and will potentially pay a fine. We must care for the limited lab supplies that we have.

(6) **KEEPING THE SCIENCE ROOM CLEAN:** Please dispose of all garbage in the bin at the front of the room when class is over. Any garbage found around your desk after class will result in a detention. If an item is recyclable, please make sure you put it in the appropriate reciprocal (blue bin). Also, always push in your chair before leaving the room. Metro Arts is a community – we all contribute to the mess, therefore, we all help to clean up the mess!

(7) **BE PREPARED:** You are responsible for bringing all the materials you will need for any given class. Also, it is imperative that you be prepared for experimentation: this involves reading the lab ahead of time and knowing what you are expected to do. Being prepared will make the course that much more enjoyable for you!

Overall, this course requires a high level of respect and discipline in order to be successful. I am always available for extra help, and you can talk to me at anytime after class or after school to clarify any issues you may have.

Evaluation:

GRADING STRUCTURE (PER QUARTER)	PERCENTAGE OF GRADE
PARTICIPATION/CLASSWORK: - 10% for attendance (absences and tardies result in loss of the day's participation points*; unexcused absences result in -10% of the quarter grade). - 10% for participation in class discussions, group reviews, and lab activities. - The teacher will be tracking this daily.	20%
ASSIGNMENTS such as lab reports, question/answer, labeled drawings/models, presentations. All assignments are weighted the same, so everything is important – everything counts!	40%
EXAMS: All exams are weighted the same, so each one is important – everything counts!	40%
TOTAL (FOR THE QUARTER)**	100%**

*Students can make up lost participation for excused absences and excused tardies by coming to the teacher upon return and completing missing class work. This must be done within 1 week of an excused absence or excused tardy.

Each semester grade is calculated as follows: the first quarter of the semester is worth 45%; the second quarter of the semester is worth 45%; the final exam is worth 10%. There are 2 semesters in the school year. Therefore, once a **quarter grade is calculated (as shown in the table above), 45% of the quarter grade is taken to calculate the semester grade. For example, if a student earned 90% for the first quarter, and 85% for the second quarter, and then earned 95% on his or her final exam, the **semester** grade would be calculated as follows:

$$\begin{array}{l} \text{Quarter One} \quad \text{Quarter Two} \quad \text{Final Exam} \\ (90\% \times 0.45) + (85\% \times 0.45) + (95\% \times 0.10) = \mathbf{88\% \text{ for Semester 1}} \end{array}$$

Everything will be given a percentage score as well as a letter grade. Percentage scores allow for accurate calculation of overall grades, however, the school will only report letter grades. Please see the scale below to see how percentages and letter grades correspond.

A	90-100	Highly Proficient
B	80-89	Above Average Proficiency
C	70-79	Average Proficiency
D	60-69	Below Average Proficiency
F	0-59	Failing

Absences and Late Work:

As per the Metro Arts homework policy, anything not submitted on the due date will not be accepted, and a failing grade (0%) will be issued. Also, students will serve lunchtime detention until the assignment is completed and turned in, and the failing grade will not be changed (i.e. the failing grade of 0% will remain).

Students are responsible for turning in a **hard (paper) copy** of their work on the day it is due. Excuses about printers not working will not be accepted. Students can email their work to themselves in an appropriate format and print it off at school. Trying to sort through excuses can lead to unfairness, so these policies will be adhered to at all times throughout the school year – no exceptions.

It is your responsibility to come to me after being absent to copy missed notes, collect assignments, and take tests. I will not chase you down - it is your education, and therefore, your responsibility. On your first day back after an absence, you will immediately take any missed test, if applicable. If you miss a lab, you will be given an equally challenging assignment in its place. You will need to come in at lunch or after school to copy any missed notes. **I NEVER PHOTOCOPY NOTES FOR ANYONE, WHETHER THEY ARE MY NOTES OR ANOTHER STUDENT'S NOTES, SO PLEASE DON'T ASK.** After your first day back, anything left unscheduled will be considered late and a failing grade will be issued.

If a student's absence on a test day is unexcused, the student will earn 0% (F) on the test. If the teacher discovers that a student "skipped" class in order to avoid turning in an assignment or taking a test, the student will automatically earn 0% (F) on the assignment/test. Please see Metro's attendance policies (attached) for more details about the consequences of unexcused absences and tardies.

"Re-dos" and "Re-takes":

Students are usually given the opportunity to re-do assignments and retake tests. The final grade on an assignment will be an average between the original grade and the "re-do" grade (example: $(60\% + 90\%)/2 = 75\%$ final grade on assignment). The final grade on a test will be an average between the original grade and the "re-take" grade (example: $(60\% + 90\%)/2 = 75\%$ final grade on test). The teacher reserves the right to decide whether a student may re-do an assignment or re-take a test, depending on the circumstances.

Note cards/"Cheat sheets":

Note cards or "cheat sheets" are usually allowed on tests and exams, but it is ultimately up to the teacher. When cheat sheets are allowed they must be hand written – no typed cheat sheets will be allowed. Cheat sheets must be submitted with the test/exam. No photocopies of cheat sheets will be allowed. Students may not share their cheat sheets with other students. Students seen copying another student's cheat sheet will receive a referral and will have to take the test at another time.

Family Link:

All assignments, due dates, and test dates will be posted on Family Link. Grades will also be posted on Family Link as soon as they are available. Students and parents are strongly encouraged to familiarize themselves with Family Link as quickly as possible. This will be the easiest and most efficient way for students and parents to stay organized and up to date throughout the year. Quarterly progress reports are also posted on Family Link. Overall, Family Link is an excellent tool for teachers, students, and parents alike. It is expected that we all use Family Link on a regular basis to ensure that expectations are clear, and to facilitate the success of every Metro student.

Metro Arts High School
Biology, Anatomy/Physiology, Human Evolutionary Biology
Detentions and Referrals Summary
Sarah Martinez, B.S., M.S.

The following will earn you a Detention:

- Not having a writing utensil in class
- Not having your notebook in class
- Not taking notes in class
- Speaking to and/or disturbing the people around you during class (ex: talking during note taking; goofing off during lab)
- Swearing/cursing/using profanity in class
- Trying to eat and/or sneak food in class
- Missing assignment
- Using your cell phone or any other electronic device (without permission) in class
- Being unprepared for lab (ex: not knowing what the lab is about; not knowing how to follow procedure)
- Drawing on tables, desks, or any other objects (other than paper) in the science classroom
- Talking or causing a distraction of any kind before testing is complete (testing is not complete until every last student is finished)

The following will earn you an Automatic Referral to Administration (Matt Baker):

- Disrespectful behavior (ex: making fun of others in class; snapping at, or speaking disrespectfully to the teacher and/or other students; making comments under your breath towards the teacher and/or other students)
- Being careless with and/or intentionally damaging lab equipment
- Violent actions or threats of violence towards others (physical, verbal, written, etc.)

For more details regarding Metro's Policies and Procedures in regards to detentions and referrals, please see the Metro Arts Policies and Procedures Handbook.

Important Information From The Metro Arts Policy Manual About Tardies, Attendance, Credits, and Textbooks

It is the parent or legal guardian's responsibility to report and excuse absences and tardies on the day they occur or before. **Call 602-258-9500 (extension 10) to report and excuse your student's absence.**

In the first period of the day, unexcused tardies (of any amount of time) will result in an immediate lunch detention that day for the entire lunch period (students will be allowed to buy food and eat). In any other class an accumulation of three tardies will result in lunch detention for the entire lunch period. If lunch detention is not attended it will result in one or more days of off campus suspension.

Suspensions due to a missed lunch detention do not allow for the make up of tests or missed assignments.

In addition to any other disciplinary actions, any **unexcused** absence in any class will result in an immediate loss of 10% of the quarter grade in the course. Continued unexcused absences will result in an additional 10% loss per absence in the relevant class until failing at 55%.

If a student misses 6 classes in a course per quarter excused or unexcused they will not receive a passing grade for the course. The grade will be recorded as failing at 55%. Exceptions to this rule may be considered for those with medically verified and documented chronic health conditions or a medically verified and documented major illness. Note that any amount of absences may affect the final grade due to loss of participation points. Students have one day per **excused** absence to make up work without penalty but cannot make up lost participation.

For absences relating to illness, bereavement, family emergencies, or school-approved family vacation to be counted as excused absences, the school must be notified of the reason for the absence no later than the day when the absence occurs by the parent or legal guardian who has custody of the student. **Failure to report and excuse the absence will result in an unexcused absence and an immediate loss of 10% of the quarter grade.**

Metro Arts will also count as excused absences date-specific court appearances, religious observances, and medical appointments that are documented by a note from the doctor's office or hospital. If an absence occurs relating to any other term or condition that is not specifically designated herein, the absence shall be counted as unexcused. Students absent for ten consecutive school days, except for excused absences identified herein, shall be withdrawn from the school, pursuant to A.R.S. §15-901 (A) (2).

Any student who fails to earn credit in an academic course will be required to recover credits in a tuition based credit recovery program.

Students are responsible for checking in all schoolbooks during every quarter and or semester exam period. A student who loses a book will receive an incomplete in that course until the book is returned or paid for. Students who do not return books when they withdraw from Metro or on or before the last day of exams will receive an incomplete as well as lose their textbook deposit. The textbook deposit is not refundable if a book is returned to us after the last day of exams.

BIOLOGY COURSE OUTLINE - SEMESTER 1 (August through December)

UNIT	SUB-UNIT	DATES	CHAPTERS (<i>Biology</i>, Miller and Levine, 2006)	LAB(S)	AZ STATE STANDARDS INCLUDED
I. The Nature of Life	(a) The Science of Biology	Through August 21 st , 2014	1 – The Science of Biology	Using A Compound Microscope	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P01,02,04,06,07), S1C4(P01-04); S2C1(P01-04), S2C2(P01-04); S3C2(P02-03); S4C5(P05)
	(b) The Chemistry of Life	Through September 12 th , 2014	2 – The Chemistry of Life	Measuring the pH Level of Foods and Beverages	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P06), S1C4(P01-04); S2C1(P01-02); S3C2(P02); S4C1(P03); S4C5(P02); S5C1(P01-04,06,07), S5C3(P07), S5C4(P03,04,11,12), S5C5(P01)
II. Cells	(a) Cell Structure and Function	Through October 3 rd , 2014	7 – Cell Structure and Function	Model of Permeability in Cells	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P02,05), S1C4(P01-04); S2C1(P01-05); S4C1(P01-05)
III. Genetics and Heredity	(a) DNA and RNA	Through October 24 th , 2014	12 – DNA and RNA	Model of DNA Replication	SCHS-S1C1(P01-04); S1C2(P01,02,04), S1C3(P02,05), S1C4(P01,03,04); S2C1(P01-03), S2C2(P01-03); S3C2(P02); S4C1(P05), S4C2(P01,02,04)
	(b) Transcription (DNA Synthesis) and Translation (Protein Synthesis)	Through November 7 th , 2014	12 – DNA and RNA	Model of Transcription & Translation	SCHS-S1C1(P01-04); S1C2(P01,02,04), S1C3(P02,05), S1C4(P01,03,04); S2C1(P01-03), S2C2(P01-03); S3C2(P02); S4C1(P05), S4C2(P01,02,04)
	(c) Cell Growth and Division (Mitosis and Cytokinesis)	Through November 14 th , 2014	10 – Cell Growth and Division	Modeling the Phases of the Cell Cycle	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P02,04), S1C4(P01-04); S2C1(P01-05); S4C5(P01-02); S5C5(P01)
	(d) Introduction to Genetics and Meiosis	Through December 5 th , 2014	11 – Introduction to Genetics	Punnett Squares	SCHS-S2C1(P01-03), S2C2(P01-03); S3C2(P02); S4C1(P05), S4C2(P01-04)
	(e) Human Heredity	Through December 16 th , 2014	14- The Human Genome	Patterns of Human Heredity	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P02,04,06,07), S1C4(P01-04); S2C1(P01-03); S4C2(P01-04)

SEE NEXT PAGE FOR SEMESTER 2

BIOLOGY COURSE OUTLINE - SEMESTER 2 (January through May)

UNIT	SUB-UNIT	DATES	CHAPTERS (<i>Biology</i> , Miller and Levine, 2006)	LAB(S)	AZ STATE STANDARDS INCLUDED
IV. Evolution and the Diversity of Life	(a) Darwinian Evolution and Evidence of Change	Through January 16 th , 2015	15 – Darwin’s Theory of Evolution 17 – The History of Life	Identifying Homologous Structures Among Different Species	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P02), S1C4(P01-04); S2C1(P01-04), S2C2(P01,02,04); S3C2(P02); S4C4(P01,03-05); S6C3(P04-07)
	(b) Genetics and Evolutionary Theory: How Populations Evolve	Through January 30 th , 2015	16 – Evolution of Populations 17 – The History of Life	Modeling Coevolution	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P02,04-07), S1C4(P01-04); S2C1(P01-04), S2C2(P01,02,04); S3C2(P02); S4C4(P01-05); S6C3(P05,08).
	(c) Classification of Living Organisms	Through February 10 th , 2015	18 – Classification Systems	Cladograms and Dichotomous Keys	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P02,03,04,06), S1C4(P01-04); S2C1(P01-04), S2C2(P01,02,04); S3C3(P02);
V. Ecology	(a) The Biosphere	Through February 24 th , 2015	3 – The Biosphere	Energy Flow in the Biosphere	SCHS-S2C1(P01-04), S2C2(P01-04); S3C1(P01-02); S4C3(P01-03), S4C5(P05)
	(b) Ecosystems and Communities	Through March 6 th , 2015	4 – Ecosystems and Communities 8 - Photosynthesis	How Abiotic Factors Affect Different Plant Species	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P01,02,04-07), S1C4(P01-04); S3C1(P01-02);
	(c) Biomes and Populations (**INTENSIVE AIMS PREP HERE AS WELL)	Through April 24 th , 2015	4 – Ecosystems and Communities 5 - Populations	Examining Patterns of Population Growth in Bacteria	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P01,02,04-07), S1C4(P01-04); S4C3(P01-03), S4C5(P04-05)
	(d) Primates and Human Evolution	Through May 12 th , 2015	32 – Mammals (Section 3: Primates and Human Origins)	Skeletal Similarities Between Primates: From Gorillas to Humans	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P02,03,04,06), S1C4(P01-04); S2C1(P01-04), S2C2(P01,02,04); S3C3(P02); S4C3(P01-02), S4C4(P01-06)
	(e) Humans in the Biosphere	Through May 22 nd , 2015	6 – Humans in the Biosphere	N/A	SCHS-S1C1(P01-04), S1C2(P01-05), S1C3(P01,02,04-07), S1C4(P01-04); S2C1(P01-04), S2C2(P01-04); S3C1(P01-05), S3C2(P01-05), S3C3(P01-03);

Disclaimer:

The instructor may vary from content and schedule depending on the needs of the students. For instance, if a particular topic requires further explanation than was anticipated, more time may be spent on that particular topic. If a particular interest is taken in a subject during the course of the year, more time may be spent on it than was anticipated. Ultimately, any changes to the timeline of the course or the subject matter of the course will be under the discretion of the instructor.

*I look forward to the coming year. If you have any questions or concerns, please do not hesitate to email me: adrissarah@aol.com
Sarah Martinez, B.S., M.S.*

I HAVE READ THE COURSE SYLLABUS AND I UNDERSTAND THE POLICIES OF THIS CLASS:

STUDENT NAME (print clearly) _____

STUDENT SIGNATURE _____ **DATE** _____

PARENT SIGNATURE _____ **DATE** _____