

Course Outline for Biology 40S

Bio Lab
Mrs Johnson 2020 – 2021

Units	Approximate Timeline
Unit 1: Genetics – Understanding Biological Inheritance	25 classes
Unit 2: Genetics – Mechanisms of Inheritance	25 classes
Unit 3: Evolution	23 classes
Unit 4: Biodiversity	12 classes

Objectives

Unit:	Understanding Biological Inheritance
Topics:	outline Gregor Mendel’s principles of inheritance, use Punnett squares to solve a variety of inheritance problems using appropriate terminology, use pedigree charts to illustrate and predict inheritance patterns in a family tree, discuss ethical issues related to genetic testing, describe meiosis and how it produces genetic variability in offspring, and explain and identify chromosomal abnormalities from karyotypes.
Unit:	Mechanisms of Inheritance
Topics:	outline significant scientific contributions/discoveries that led to the current understanding of the structure and function of DNA, describe the structure of DNA and how it replicates, compare DNA and RNA, outline the steps involved in protein synthesis, relate the consequences of gene mutation to the final protein product, discuss how gene mutations contribute to variation, investigate an issue related to the application of gene technology in bioresources and/or humans.
Unit:	Evolution
Topics:	define the term evolution and explain how it has led to biodiversity, describe and explain the process that led Charles Darwin to formulate his theory of evolution by natural selection, outline the main points of the theory, define the phrase “survival of the fittest,” explain how natural selection leads to changes in populations – include different types of natural selection, distinguish between natural and artificial selection, outline how scientists determine changes in a gene pool and how genetic variation in a gene pool can be altered, describe how populations can become reproductively isolated, differentiate between convergent and divergent evolution, distinguish between the two models for the pace of evolutionary change.
Unit:	Biodiversity
Topics:	define the concept of biodiversity, explain why it is difficult to determine the definition of species, describe the dynamic nature of classification and give examples, describe types of evidence used to classify organisms and determine evolutionary relationships, compare the characteristics of the domains of life, compare the characteristics of the kingdoms in the Eukarya domain, investigate a group of organisms, discuss a variety of reasons for maintaining biodiversity, describe strategies used to conserve biodiversity, select and use appropriate tools or procedures to determine and monitor biodiversity in an area, investigate an issue related to the conservation of biodiversity.

Evaluation

Task	Weighting
Knowledge and Understanding	70%
Scientific Skills and Inquiry	15%
Science, Technology, Society and the Environment	15%
Final Exam	25% (not included in the above weighting)
*The above weightings are subject to change depending on how the year evolves due to the pandemic.	

Materials

Bring the following materials to **every** class: your science binder, red and blue pens, pencil, eraser, a scientific calculator and a ruler. You may also be asked to bring other materials for specific activities or assignments. You will not be signing out a textbook. You will use one in class from time to time and will be able to sign it out if necessary.

A Few Things You Need to Know About Me....

Who...

- I graduated from university in 2006 with majors in biology and mathematics and started my first teaching job that fall.
- I have been at Stonewall Collegiate since 2010.

Where...

- I can be found in one of three places: the Bio Lab, Room 207 or the Chem Lab.
- The classes I teach are scheduled in the morning only. There will be some days that I am in the building all day, but you may not be able to find me in the afternoon. I will be in the building for at least part, if not all, of the lunch hour.
- Our class will be set up on Brightspace. I will put all class notes, assignments and answer keys on there. I update at the end of each teaching day.

When...

- If you have questions or want to set up a time to meet with me, please message me on Brightspace.
- I am happy to help you out before school or at lunch. Please set up an appointment with me.
- If you miss a day, please check Brightspace before our next class. Do not wait to ask me for what you missed when you return. This will help you to not fall behind.

What...

- In order to make the most of our time together, I have a few important rules:
 - 1. The Golden Rule**
 - Treat others as you wish to be treated. In this classroom, we treat each other kindly and with respect. We listen to what other people are saying, we use our manners and we cooperate with one another.
 - Using manners includes...
 - entering quietly to avoid disruption if you are late.
 - saying please and thank you

- appropriate use of cell phones
 - Cell phones are a major disruption to our learning. They will not be permitted during class time unless I give you permission to use it for an educational purpose (access Edmodo, research a topic being discussed in class, etc). Please keep your cell phone in your pocket, purse, backpack, etc. Also, please remember that you must never take photos or videos of people without their permission.

2. Set Yourself Up to Succeed

- Come to class regularly and participate. I can guarantee that you will do well if you show up and put in an effort.

3. Take Responsibility

- Let me know ahead of time if you will be missing a test.
- Schedule a time to make up missed tests and labs within 1 week.
- Don't allow yourself to fall behind. Set up a time with me if you are having difficulty before it affects your mark.

4. Safety First

- The science lab is a potentially dangerous place. Always follow lab safety rules and treat every chemical as though it were hazardous.
- No food or drink in the lab, other than bottled water.

The Assessment Policy at S.C.I.:

Creating the Grade:

- Grades will be based only on the demonstration of an individual student's knowledge and skills of the outcomes for each course:
 - Only items marked by the teacher will determine a student's grade
 - Grades are based on individual student achievement, not group achievement
- When determining a grade, the teacher will decide whether there is sufficient evidence of achievement. If not, the mark can be reported as an "IN" (incomplete). Teachers will determine with students and parents/guardians a plan for completion of work.

Establish, communicate, and apply consequences for late and missing work:

Students must understand that there will be consequences for not completing assignments that provide evidence of learning or for submitting those assignments late. If, after establishing and clearly communicating expectations regarding assignments, setting and communicating timelines for assignments, and supporting student learning using the strategies provided above, student work is still late or missing; teachers will apply the following strategies:

- confer with the student and, where appropriate, with the student's parent/guardians about the reasons for not completing the assignment, and consider the legitimacy of reasons;
- develop an agreement with the student to complete the work;
- require the student to complete missing work during lunch by attending the Assessment Completion Centre (ACC). ***This scenario has not yet been ironed out given the new Covid protocols***

If, after completing the steps above, the student does not hand in the assessment by the agreed upon deadline, a zero may be used as a mark as the student has not demonstrated any knowledge or skill of the outcome.

The consequence for not completing work is to complete the work. Late marks will not be subtracted from an assignment as it is purely punitive and doesn't measure learning. The assignment will either be completed or given a zero.

The full policy is available on the SCI website under "Student Handbook".