



Course Syllabus	
Franklin High School	2019-2020
Course Title: NGSS Biology	Grade Level(s): 10
Prerequisites: NGSS Physics, NGSS Chemistry	
Course description: This lab-based course covers the foundational principles of modern life science as outlined in the Next Generation Science Standards (NGSS). We will learn the content and applications of Biology by using science and engineering practices utilized by professionals in STEM fields. Students will work in small teams to complete three major investigations during the course contributing data to ongoing research projects. <ol style="list-style-type: none">1. Students will explore ecosystem health using arthropods as an indicator species.2. Students will investigate natural selection through blue-green algae that live in extreme environments.3. Students will collaborate to engineer a food system, and will measure the changes their choices make in efficiency of food production. Additionally, there will be a focus on how we can utilize the tools of biology to solve problems identified at the local level, from air pollution to climate change, and how those local solutions can contribute to global progress on such issues.	
Standards: We will address the NGSS performance expectations for Life Science and some of the performance expectations for Earth and Space Science as well as Engineering and Technology. For a more detailed look at the specific standards, see this short link: http://bit.ly/NGSS_Bio	
Schedule of topics/units covered: The following headings provide a thematic overview of the standards for the year. <ol style="list-style-type: none">1) Structure and Function2) Inheritance and Variation of Traits3) Matter and Energy in Organisms and Ecosystems4) Interdependent Relationships in Ecosystems5) Natural Selection and Evolution.	

Differentiation/accessibility strategies and supports (TAG, ELL, SpEd, other):
In addition to being familiar with each student's identification status we use universal design strategies so that there are multiple entry points to every lesson. Assessments will be individualized, proficiency based and differentiated so that all students show evidence of academic achievement.

Final proficiencies:
Please see Assessment section below.

Assessment (pre/post)/evaluation/grading policy:

Assessment and Grading:

This class will be graded using a proficiency-based system. A student is proficient in a skill if they can demonstrate, and repeat, a thorough knowledge, understanding, and performance of the skill. The goal is to prepare all students for success in AP classes, required State assessments, college, and careers.

Proficiency will be assessed using 4 criteria, described below. All summative assignments will be categorized into a criterion and assessed based on a rubric for that criterion, available in students' science notebooks after week 2 and on all summative assignments. All scores will be on a 1-4 scale and will be averaged within each criterion to calculate the score. Then, all 4 criteria will be averaged to calculate the final grade. The grading scale information is on the next page.

1. Constructing Explanations and Communicating Scientific Information

At the end of each unit, students should be able to:

- a. explain scientific knowledge and the evidence supporting that scientific knowledge
- b. create or interpret scientific models, and connect the model to the evidence
- c. obtain, analyze and evaluate scientific information

2. Asking Questions and Identifying Problems

At the end of the 11th grade year, students should be able to:

- a. explain a scientific question and the connection between that question and content in class
- b. formulate a testable hypothesis and make predictions
- c. explain the independent variable, dependent variable, and how to measure each
- d. explain an engineering problem and the criteria and constraints specific to that problem

3. Analyzing and Interpreting Data and Designing Solutions

At the end of the 11th grade year, students should be able to:

- a. present data in tables, graphs and other relevant forms
- b. explain conclusions based on data through claim, evidence, reasoning
- c. evaluate whether the criteria and constraints of an engineering design challenge were met by the design proposed
- d. propose novel questions based on the results of an experiment

4. Applications of Science in Society

At the end of the 11th grade year, students should be able to:

- a. explain the ways in which Biology is applied to solve problems and answer questions in the real world
- b. discuss and evaluate the ethical impacts of how Biology is applied to solve problems and answer questions
- c. document the work of others and sources of information used

Your overall semester grade is calculated using the average of the four individual criterion scores. Please note that Synergy/StudentVue will not display a D, such that a grade of 2.0 is passing even if outside of progress reports, it displays as an F.

At the end of each semester (January and June), averages convert to letter grades determined by the following:

- A 4.0-3.6
- B 3.5-3.0
- C 2.5-2.9
- D 2.0-2.4
- F < 1.9

Grades should be based the student's demonstration of understanding of the standards.

Behavioral expectations:

Expectations:

All voices are to be respected and heard in this class. Scientific discourse involves discussing concepts and ideas that often have no one correct answer, with many stakeholders who have firm views on what is the best course of action. Thus, we will practice discussing a variety of science topics throughout the school year.

All rules of student conduct outlined in the student handbook are, of course, in effect in this class. Pay particular attention to rules pertaining to the policies related to cell phones and academic dishonesty/plagiarism. Science is built upon the work of many others and citing your sources is one way to acknowledge their contribution to your growth and learning.

Behavioral Expectations:

At Franklin High School, in addition to following all school rules, we expect staff and students to:

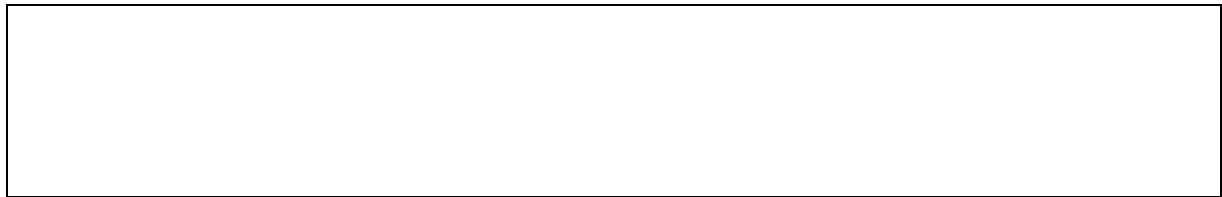
Strive to be...

Thoughtful	We celebrate the diversity and recognize the varied learning needs of our peers We put time and effort into our work We are engaged in the classroom and learn bell-to-bell
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	We process complex issues with care
Respectful	<p>We respect the diverse learning needs of our peers.</p> <p>We follow directions and class norms.</p> <p>We do not use racist, sexist, or homophobic language of any kind.</p> <p>We keep distractions, such as electronic devices, put away during class time, unless otherwise directed.</p>
Organized	<p>We are present and on time for class.</p> <p>We bring all necessary materials.</p> <p>We keep track of assignments, deadlines, and activities.</p>
Neighborly	<p>We only leave class when we have a hall pass.</p> <p>We treat the learning environment with care.</p> <p>We clean up after ourselves.</p> <p>We help when we see a need.</p>
Generous	<p>We share our resources with each other.</p> <p>We offer a fresh start to staff and ourselves.</p> <p>We help each other when needed.</p>

If problems arise as a result of disregard for behavioral expectations, these are the **consequences**:

1. Warning
2. Talk to you, privately if possible
3. Conference with you and school support team / Level 1 Report documentation
4. Call Home
5. If these steps do not resolve the problem, a conference with school administrator will be necessary / Level 2-3 Referral



Safety issues and requirements:

All students are required to return a signed district Science Safety Agreement form prior to participation in any lab work.