

STEM: Biology Syllabus

Dr. Schurr
2016-2017
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Starpoint STEM
Room: K-31
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Welcome to STEM: Biology!

I am very excited about the new semester and look forward to getting to know each of you! Below, you will find a copy of my syllabus for your review. The students and I will go over it during class and they will sign the last page. I am asking that a parent/guardian read and sign it as well.

I believe communication between parents and teachers is critical to the development of successful students. Therefore, if you have any questions or concerns at any time, please do not hesitate to contact me.

Thank you!

Course Overview

Course Description: This course was created to allow students to explore Biology and Technology principles in new and exciting ways! In this class, students will have an opportunity to invent their own solutions to everyday problems. Many of the projects within this course promote environmentally friendly alternatives to traditional practices.

Course Objectives: Students enrolled in this course can expect to...

- Safely plan, use, and manage technological systems to solve complex design problems.
- Demonstrate their problem solving abilities throughout the technological design process (frame the problem, conduct research, develop possible solutions, select a solution, construct the solution, test the solution, redesign for improvements, and reflect & communicate).
- Successfully apply their understanding of the concepts taught within their biology class to solve technological design challenges.
- Demonstrate their understanding of the connections between math, science, technology, and engineering concepts through the successful completion of each project.
- Transfer their understanding of the concepts taught in class to other real-world scenarios.

Content: Course content may include, but is not limited to...

Unit Overview	STEM Concepts/Ideas
Introduction Technology, STEM, & Biology Laboratory Safety	What is technology? What is STEM? Technological/Engineering Design Process Technological Systems Model Safety Rules, Procedures & Assessments
Life Processes: 3RSGTEN Excretion: Metabolic waste Nutrition: Autotrophic	Calorie Nutrition, Food as input, Output, Metabolic ratio Homeostasis What is in food?
Microscopes Cells	Organelles Microscope Cell Theory/History
Biochemistry: Organic/Inorganic Compounds	Enzymes in Detergents Lactose Intolerance Enzymes
Transport: Osmosis Diffusion	Most Absorbent Paper Towel (Recycled Materials) Osmosis, Diffusion, Adsorption rates Recycled Materials
Cellular Respiration:	Ethanol Bioreactor

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Aerobic Anaerobic	
Genetics: DNA Gel electrophoresis	DNA Extraction Peas, Chicken liver, Broccoli, Strawberries
Ecology: Bioremediation Phytoremediation Hydroponics	Bioremediation What's in our water? Cell Immobilization Phytoremediation/Hydroponics Grey water recycling Plant Nutrition, Growth
Evolution: DNA	Evolution Biomimicry Camouflage

Materials Needed: For this class every student will need a **notebook, folder, and a pen/pencil**. At various times throughout the year the students may be asked to **find objects** (i.e., coffee cans, paper towel rolls, cloth, etc...) and bring them in. There is flexibility in the materials that the students choose to use for their designs, so please do not spend money on these items.

Attendance Policy:

The attendance and tardiness policies within the Code of Conduct will be followed and enforced. All students need to be in class by the last bell. If any student comes to class after the bell, they must have a pass. **Attendance and class participation are critical to success within this class.**

Missed/Overdue Work:

The equipment in K-31 is specific to this room only, so working during class time is important. It is the responsibility of the student to make up any work that s/he misses. Because students are given every opportunity to make up their work, there will be **no exceptions** once the **final deadline** has passed.

Grading Policy:

Every grade in this class is worth 100 points.

Each design challenge (project) is *typically* made up of the five following grades:

Brainstorming sketches – Used at the beginning of a project to help students generate ideas

Conclusion Questions – An assessment at the end of every project to determine what the student has learned

Process – (Rubric) Based on how the student went about solving the given design challenge

Project Performance – (Rubric) Based on how well the final design performed

Construction – (Rubric) Based on a rubric of how well the project was built

Other assignments include (but are not limited to):

Journals – Students will complete journal entries at the beginning of every class

Class Participation – Students will receive grades based on their attendance and active participation within the class

Once again, students are given every opportunity to make up their work; therefore, **no exceptions** will be made and the student will receive a **zero** once the **final deadline** has passed. If anyone is caught **cheating or plagiarizing (this includes copying and pasting information from the internet)** they will receive a zero on the project, and it may result in disciplinary action.

Extra credit might be given, but it is at the discretion of the teacher and it is applied to the student's lowest grade.

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Office Hours: Unless I have a meeting, I am usually available during 10th period (check my board for weekly updates). My official office hours are scheduled on Mondays & Tuesdays.

Classroom Rules and Expectations

Behavior Expectations: I expect that the students in my class will behave by:

- Following all classroom and safety rules.
- Showing respect for themselves, their peers, and all school faculty/staff.
- Coming to class prepared and working to the best of their abilities.

Procedures:

- 1 – All school policies in the Code of Conduct will be followed and enforced at all times.
- 2 – There will be assigned seats, when the last bell rings students need to be in their seats and ready to participate.
- 3 – **SAFETY COMES FIRST!** In order to use the tools and equipment in the technology laboratory, each student will need to complete the safety review, sign-off on the safety rules, and pass a test.
- 4 – **FOR THEIR SAFETY, STUDENTS MUST WEAR EYE PROTECTION WHEN USING ANY OF THE LABORATORY TOOLS.**
- 5 – All students are responsible for reporting injuries, broken tools, or safety concerns to the teacher.
- 6 – The five-minute bell signals clean-up, all students are required to help clean-up. No students will be allowed to leave until the teacher dismisses the class.
- 7 – **Cell phones and headphones are not permitted in class.** If I see them, I will take them and turn them in to the office.
- 8 – Inappropriate and disrespectful language **will not** be tolerated.

Consequences for Inappropriate Behavior:

- 1 – Teacher Warning
 - 2 – Teacher Detention/Time-Out
 - 3 – Referral
 - 4 – Parent Contact or Conference (Phone/E-mail)
- Other Behavioral Interventions could include: alternative assignments, revoking of tools/equipment privileges, removal from the course, etc.

I have read the syllabus for STEM: Biology. I agree to follow the policies and procedures defined therein.

Student Name (Printed): _____

Date: _____

Student Signature: _____

Date: _____

Parent/Guardian Signature: _____

Date: _____