

10TH GRADE BIOLOGY SYLLABUS

Fall, 2013

Instructor: Eva Pillossof

Office: OHL 307

Office hours: 3:30 pm – 6:00 pm Mondays, Wednesdays, and Fridays

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Class hours:

10/1: Tuesdays and Thursdays, 10:00 am – 11:30 am

10/2: Tuesdays and Thursdays, 12:10 pm – 1:40 pm

10/3: Mondays 8:10 am – 9:40 am, Thursdays 2:00 pm – 3:30 pm

10/4: Mondays and Wednesdays 10:00 am – 11:30 am

10/5: Mondays 12:10 pm – 1:40 pm, Wednesdays 8:10 am – 9:40 am

10/6: Wednesdays 12:10 pm – 1:40 pm, Fridays 8:10 am – 9:40 am

DESCRIPTION: Biology is a course required for all high school students. The word “biology” means the study of life. Throughout the course you will study various aspects of plant, animal, and human life through inquiry. The curriculum revolves around units in biochemistry, cells, genetics, ecosystems, plants, animals, evolution and the human body. These units are designed to cultivate your ability to problem solve, reason, and think scientifically. The aim of the course is to provide you with the tools to develop interest and appreciation for science, and realize that these concepts can be applied in the modern day traditions and realities to find solutions to current and future problems. Extensive use of laboratory investigation is used to emphasize the conceptual and theoretical aspects of contemporary biology.

ORGANIZATION: This is a lecture-lab course in which topics are presented by the instructor, concepts are explained, and assignments of various types are completed by you both during lab periods and outside of class. Objective and drawing-type quizzes are given each class, and there is a comprehensive final exam. Each of you will also have to submit a research paper, the completion of which will be divided into stages throughout the whole semester. Upon turning in the research paper each student will present it at the school Science Fair and in class. The most prominent research papers from each class will be published in the school’s Science magazine at the end of the school year.

COURSE TOPICS: The topics covered in the course are

1. Cell structure and function
 - a. Organelles
 - b. Types of cells

- c. Mitosis
 - d. Meiosis
 - e. Unicellular organism
 - f. Multicellular organisms
2. Genetics and Molecular Biology
 - a. Sexual and asexual reproduction
 - b. Patterns of inheritance
 - c. DNA: gene function
 - d. DNA replication
 - e. RNA transcription
 - f. RNA translation
 3. Metabolism
 - a. Photosynthesis
 - b. Krebs cycle
 - c. Glycolysis
 - d. Metabolic dysfunctions

MATERIALS AND SUPPLIES: All of you are required to have the following materials for each class. Failure to provide them will result in class dismissal and a grade of zero for all assignments completed in class or due that day.

- Spiral notebook of at least 160 sheets of lined paper (you may use a binder);
- Automatic pencil with 2B lead (0.5 or 0.7, whichever is more comfortable for you);
- Eraser;
- A click blue-ink pen (caps of pens have ended up inside lab experiments previous years, so no pens with caps are allowed in class);
- At least two more click pens of different color (red, green, orange, etc., NO BLACK)
- A lab notebook (you can purchase one at the school store).

EXPECTATIONS:

1. You are expected to be prepared for class each day. This includes having notebook, writing utensils, completed homework, and preparing for quizzes and tests.
2. You are expected to follow directions the first time they are given.
3. You are expected to treat everyone and everything, including yourself and classroom supplies, with respect.
4. You are expected to be in class on time every day.
5. You are expected to take care of personal needs before entering the classroom.
6. You are expected to follow all safety precautions during labs. This includes wearing gloves, aprons and goggles as appropriate. Horseplay and eating/drinking during labs will not be tolerated. Your safety and the safety of your classmates are of utmost importance.
7. You are expected not to use any electronics during class. All cell phones will be left with me at the beginning of class and will be returned to you as you exit the classroom. In the cases when any electronic device rings, vibrates or interrupts class in another way, it will be returned to you at the end of the school day instead of at the end of class.

8. You are expected to study regularly. All quizzes and exams are closed book. Cheating will be dealt with according to school policies.
9. You are expected to bear the responsibility for your own work, be it brilliant or horrible. Plagiarism is extremely unethical and will not be tolerated in any part of your work. We will discuss in detail the proper way to cite sources in your research papers.
10. You are expected to submit all assignments, lead all class discussions, and present in English. Although this is not an English literature class, points will be deducted off every assignment with excessive grammar and usage problems.

If you meet all of the above expectations, you will receive an “S” (Satisfactory) in the behavioral aspect of your grade. If you do not, you may receive a “U” (Unsatisfactory). In order to receive an “A” (Outstanding), you must exhibit behavior above and beyond the expectations such as: willingness to help other classmates, demonstrating a positive attitude, and working well with other classmates.

BEHAVIOR CONSEQUENCES: Should the student choose to break any of the class expectations or school rules, during the class period the following will occur:

1. Verbal Warning
2. Conference with teacher and detention
3. Parent contact and detention
4. Referral to Dean
5. Parent Conference
6. Class closure with loss of credit

9TH & 10TH HOUR:

Staying for an extra period during the week will be assigned in the following cases:

- You have missed a quiz, a test or a lab and have a valid, reasonable excuse for doing so;
- You have a low grade and/or are failing the class;
- I feel you need extra tutoring.

Detention is assigned if you do not attend the assigned 9th or 10th hour.

TARDIES: You must be in your seat with all materials on your desk before the bell rings or you may be marked tardy. Any significant tardy will be marked as an absence.

ATTENDANCE: Attendance will be graded as follows:

- No absences: A;
- One absence: B;
- Two absences: C;
- Three absences: D;

- Four or more absences: F.

Absences for which a medical or other appropriate excuse is provided (professional letterhead required) will be recorded but not figured in the attendance grade.

Likewise, one absence for which advance notice is given by email or in person will not be figured in the attendance grade. Any significant tardy or early departure from class will be figured as an absence. Also, anyone who has more than four class-long, unexcused absences will receive an "F" grade for the class.

GRADING SYSTEM: As per the school rules, grades are formed in the following manner:

- 92.5% -- 100% - A (6);
- 81.5% -- 92.4% - B (5);
- 71.5% -- 81.4% - C (4);
- 61.5% -- 71.4% - D (3);
- 0.00% -- 61.4 - F (2).

GRADING PLAN: Coursework will be weighed as follows:

- In-class quizzes: 10%;
- HW assignments: 10%;
- Tests: 20%;
- Research paper: 20%;
- Laboratory exercises: 10%
- Final exam: 25%;
- Attendance and participation: 5%.

In-class quizzes will be held at the beginning of every regularly scheduled class and will last for approximately 10-15 minutes each time. Homework assignments will be given on a weekly basis and you will have a week to complete them. The majority of the homework assignments will be related to the research paper. There will be three cumulative tests during the course and a comprehensive final exam scheduled during Finals' Week. Although grades on quizzes and homework assignments will not be curved, test grades will be. The final exam grade will not be curved either. There will be regular make-up sessions for quizzes and tests, but you will only be allowed to attend them if you have provided a valid excuse for missing class in the first place. No quizzes or tests may be made-up for later than two weeks after they were originally administered. There will be a total of ten laboratory exercises this semester and any of them can be made up in case a valid excuse is provided for missing it in the first place.

ACADEMIC INTEGRITY AND HONESTY: All academic integrity/honesty expectations and policies will be strictly enforced. Any plagiarizing, copying, or cheating on any assignment will automatically earn you zero points. In the cases when the cheating was done voluntarily, the person who allowed their materials to be cheated off of will be equally penalized. This

policy includes all homework assignments, lab reports, quizzes, tests, etc. On the 2nd and each additional offense of plagiarism, copying, or cheating by any of you throughout the semester will result in your course grade being dropped by 15 or more points.

LATE POLICY AND ABSENCES: Late homework assignments will not be accepted unless you have an excused absence the day it was assigned or due. Students with excused absences must still submit all assignments that were due on the day of their absence by the next class meeting, as well as any missed assignments within a reasonable period of time based on the duration of the absence. It is your responsibility to submit all prior and missed assignments and to gather and learn all material(s) missed due to absence. If you are absent the day of a lab, it can be made up within one week of returning to school (during 9th and 10th hour). Quizzes and tests missed due to an excused absence must be made up on or before the next class meeting upon returning to school. If not, a grade of zero may be given. Any quiz or test missed due to an unexcused absence will automatically receive a grade of zero. Late lab reports, essays, projects, and presentations will be accepted, but will be penalized 20% for the first day late and 10% for each school day thereafter. Such assignments more than two weeks late will be given a zero for a grade.

CLASS SCHEDULE: The suggested schedule is tentative and is subject to change.

Week 1A: Organisms and environment

Week 1B: Ecologic factors in the environment

Week 2A: Population and biogenesis

Week 2B: Ecosystems, species and their development

Week 3A: Behavior and adaptation (class and laboratory exercise)

Week 3B: Biomes

Week 4A: Chemical composition of the cell

Week 4B: Carbohydrates and lipids (class and laboratory exercise)

Week 5A: Proteins

Week 5B: Test 1

Week 6A: Enzymes (class and laboratory exercise)

Week 6B: Nucleic acids (DNA and RNA)

Week 7A: Cell structure

Week 7B: Plasma membrane and cytoplasm (class and laboratory exercise)

Week 8A: Membrane and non-membrane bound organelles – endoplasmic reticulum (ER), ribosomes, liposomes, Golgi apparatus

Week 8B: Nucleus and chromosomes

Week 9A: Cell mobility and specific cell organelles (class and laboratory exercise)

Week 9B: Test 2

Week 10A: Cell division

Week 10B: Cell differentiation

Week 11A: Mitosis vs. meiosis (class and laboratory exercise)

Week 11B: Genetic processes

Week 12A: DNA replication

Week 12B: Cell reconstruction and DNA conservation

Week 13A: Genetic mutations (class and laboratory exercise)

Week 13B: Transcription

Week 14A: DNA and RNA biosynthesis regulation

Week 14B: Translation

Week 15A: Test 3

Week 15B: Metabolism (class and laboratory exercise)

Week 16A: Anabolic processes. Light and dark phases of photosynthesis (class and laboratory exercise)

Week 16B: Catabolic processes

Week 17A: Glycolysis. Krebs cycle. Biologic oxidation. Oxidized phosphorylation (class and laboratory exercise)

Week 17B: Carbohydrate metabolism

Week 18A: Metabolic syndrome

Week 18B: External factors affecting metabolism

Week 19: Preparation for finals!

Week 20: Finals week!