



Center for Advanced Technical Studies

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Human Body Systems Spring 2020

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COURSE DESCRIPTION:

In this challenging hands-on course, students work through interesting real-world cases and often play the role of biomedical professionals to solve medical mysteries. Students engage in the study of the processes, structures, and interactions of the human body systems. Important concepts in the course include communication, transport of substances, locomotion, metabolic processes, defense, and protection. The central theme is how the body systems work together to maintain homeostasis and good health. The systems are studied as “parts of the whole,” working together to keep the amazing human machine functioning at an optimal level. Students will design experiments, investigate the structures and functions of body systems, and use data acquisition software to monitor body functions. Dissection is an integral part of the curriculum. Computers and the Internet are used extensively throughout the course. Techniques of instruction will include lecture, hands-on projects, model building, computer programs, reports, projects, demonstrations, and laboratory experiments.

This course offers the opportunity to earn dual credit. Upon completion of this course, if your grade in the course and your score on the national end-of-course assessment meet the criteria set by Project Lead the Way and partnering institutions for college credit, School District Five will automatically change the weighing on your transcript to reflect dual credit.

It is the responsibility of the student to contact the partnering institution for college credit. Each post-secondary institution charges a fee for awarding of credit. The student is responsible for any costs associated with the awarding of college credit. The student is also responsible for ensuring that credits earned with transfer to the institution the student is planning to attend. The instructor of your class will provide you with specific information regarding the criteria for dual credit weighting as well as information about partnering institutions.

PLANNING FOR THE FUTURE:

Enrollment in Human Body Systems carries the expectation that you plan to continue in the PLTW Biomedical Sciences courses. The sequence is as follows:

Semester 3: Medical Interventions (MI)

Semester 4: Biomedical Innovations (BI)

SCOPE & SEQUENCE:

Unit One- Identity

Lesson 1: Identity: Human

Lesson 2: Identity: Tissues

Lesson 3: Identity: Molecules and Cells

Unit Two – Communication

- Lesson 1: The Brain
- Lesson 2: Electrical Communication
- Lesson 3: Chemical Communication
- Lesson 4: Communication with the Outside World

Unit Three - Power

- Lesson 1: Introduction to Power
- Lesson 2: Food
- Lesson 3: Oxygen
- Lesson 4: Water

Unit Four - Movement

- Lesson 1: Joints and Motion
- Lesson 2: Muscles
- Lesson 3: Blood Flow
- Lesson 4: Energy and Motion: Exercise Physiology

Unit Five – Protection

- Lesson 1: The Skin
- Lesson 2: Bones
- Lesson 3: Lymph and Blood Cells

Unit Six – Homeostasis

- Lesson 1: Health and Wellness

This course was developed by **Project Lead the Way, Inc.** and all materials and information originated from their curriculum development. Only teachers who have received training by **Project Lead the Way** have permission to teach this course and use the materials.

GRADING SYSTEM:

The **grading system** for Lexington Richland District Five:

A	90 – 100
B	80 – 89
C	70 – 79
D	60 – 69
F	0 – 59

Major Assignments (Quizzes, Tests, Projects)

- 30 to 200 points each
- graded based on the number of points earned (determined by provided rubrics for the assignments or by percentage of material correct on a test or quiz)

Daily Assignments (Daily Activities, Career journals, Homework)

- 3 points each
- graded based on the level of mastery demonstrated for the content or the skill being assessed. Points are assigned based on the following descriptors:

- 0 points – Assignment not submitted on time. No resubmit allowed if no work originally submitted.
- 1 point – Basic: Little evidence of understanding of concepts or skills submitted.

2 points – Proficient: Student demonstrates a general understanding of the concepts and/or skills, but still has small gaps in their understanding and performance.

3 points – Distinguished: Student demonstrates mastery of both the content and the skills being assessed. The work contains all required elements and is free from mistakes.

*******Daily Assignments may be resubmitted with the permission of the teacher.** The number of resubmits varies by unit, with a decreasing number of resubmits as the semester progresses. If you would like to resubmit an assignment please speak with Ms. Howell about the availability of this option. The goal is to submit your best work with your FIRST attempt; however, a limited number of exceptions can be made in each grading period.

ATTENDANCE:

The Center follows the School District 5 policy for absences. Each day at the Center counts as the equivalent of 2 instructional days (since we are double blocked). Please be conservative with your absences, especially your unexcused absences. Only the Director can forgive unexcused absences. Though your home high school may offer attendance recapture options for courses taken at the home school, there is **NOT an attendance recapture option for Center classes**. Please monitor your attendance accordingly.

MISSED WORK:

Students who are absent the day homework is assigned have until the day after the assigned due date to turn the work in for full credit (For example: If you are absent on Feb. 16th, and homework is assigned during that class to be due Feb. 18th, you would have until Feb. 19th to turn the work in for full credit.). Students who submit work after the due date may be penalized up to 20% of the possible points and have a maximum of 5 days to turn in late work.

It is up to the student to arrange times for make-ups if they are absent for tests, labs, or quizzes. Make-up sessions should be scheduled for either before or after school and should be done immediately upon the student's return. Students will be given advanced notice of upcoming Tests and Quizzes, therefore students are expected to be prepared to make up the missed test or quiz immediately upon their return.

A student who knows they will be absent from class on a particular date (due to sports, vacations, academic activities, etc.) is still expected to hand in any work that was assigned to be due for that day. You may hand in work the day before it is due, or the morning of, but any work handed in later than the assigned class time will be counted as late.

PLAGIARISM

The Academic Honesty Policy is being implemented to ensure that students submit credible work that is evident of their content mastery. Students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon its originality. They should avoid academic dishonesty and misconduct in all its forms, including plagiarism, fabrication or falsification, cheating, and other academic misconduct.

COLLEGE CREDIT:

Students enrolled in this course will have the opportunity to earn college credit. There are individual stipulations such as your stanine score on the end of course examination and/or your course average. The requirements vary based on the institution to which you choose to apply for credit. There is an additional cost for the credits.

STANDARDS:

Standards for this course are taken from *National Science Education Standards*, *Principles and Standards for School Mathematics*, *National Health Care Cluster Foundation Standards*, *Standards for the English Language Arts*, and *Standards for Technology* and are available upon request. Students will be presented their Understandings, Knowledge and Skills Objectives digitally through the course's Learning Management System..

CLASSROOM/ LABORATORY RULES:

1. **Be Here!** Do what you know is right!
2. Bring all classroom materials and a **good attitude** to class with you each day.
3. **Be ready** to learn when the bell rings.
4. **Respect** yourself, your classmates, and your school.
5. Wear your **safety equipment** at all required times.
6. Do not speak out of turn - **Raise your hand** if you would like to speak.
7. Remain in seat until the teacher dismisses you.
8. **No food, drink, candy, gum, or cell phones.** You are in a lab!
9. **Display personal integrity at all times** – Be honest and do not plagiarize.
10. **Pull your own weight!** We will be doing a lot of group work – do your part as you would in a professional facility.
11. **Stay on task** when on the computer!

Consequences of Non-compliance

1. Verbal Warning
2. Teacher – Student Conference after Class
3. Parent notification
4. Director/Assistant Director Involvement

An immediate parent phone call or referral to Director/Assistant Director may be needed for extreme disrespect, cheating, fighting, profanity, disruptions and for alcohol/tobacco offenses.

***Due to the rigor required for advanced courses such as PLTW Biomedical Sciences, students participating in such dual credit/enrollment courses may be subject to different guidelines as outlined by the teacher upon enrollment in course.



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LAB SAFETY POLICIES

PREPARE FOR LABORATORY WORK

- Study laboratory procedures prior to class.
- Be aware of safety factors before beginning lab activity.
- Never perform unauthorized experiments.
- Keep your lab bench organized and free of apparel, books, and other clutter.
- Know the locations of, and how to use the safety shower, eyewash, fire blanket, and first aid kit.

DRESS FOR LABORATORY WORK

- Wear closed-toed shoes and lab aprons/coats during all required laboratory sessions.
- Wear safety goggles during all required laboratory sessions.
- Wear gloves when using chemicals that irritate or can be absorbed through the skin.

AVOID CONTACT WITH CHEMICALS

- Never taste or "sniff" chemicals.
- Never draw materials in a pipette with your mouth.
- When heating substances in a test tube, point the mouth away from people.
- Never carry dangerous chemicals or hot equipment near other people.

AVOID HAZARDS

- Never distract another student who is performing an experiment.
No roaming during a lab. Remain at your assigned lab bench.
- Keep combustibles away from open flames.
- Use caution if handling hot glassware.
- When diluting an acid, always add acid slowly to water. Never add water to acid.
- Use glycerin and twist slowly at the base when inserting glass tubing through stoppers.
- Turn off burners when not in use.
- Keep caps on reagent bottles. Never switch caps.
- Always read labels before using reagents.

CLEAN UP

- Leave the laboratory bench clean and neat. Return goggles and aprons (folded) to cabinets.
- Consult the teacher for proper disposal of chemicals.
- Wash hands thoroughly following experiments.

IN CASE OF ACCIDENT

- Report all accidents and spills immediately.
- Place broken glass in designated containers.
- Wash all acids and bases from your skin immediately with plenty of running water.
- If chemicals get in your eyes, wash them for at least 15 minutes with an eyewash.



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Lab Safety Agreement

I, _____, agree to: (a) Follow the teachers instructions, (b) protect my eyes, face, hands and body during laboratory, (c) conduct myself in a responsible manner at all times in the laboratory, and (d) abide by all of the safety regulations specified above. In doing so, I also realize that failure to conduct myself in a safe manner during laboratory activities will result in the forfeiture of my laboratory privileges for that day, and result in a zero for that lab report.

Student Signature _____

Date _____

Parent/Guardian Signature _____

Date _____

Syllabus Acknowledgement

I have reviewed the attached course syllabus, classroom rules, and procedures for Human Body Systems. I understand that I/ my child must comply with the expectations.

Student signature _____

Parent signature _____

Parent email address: _____