Course: Anatomy and Physiology 12

Teacher Name: Steven Pace

Contact information: space@sd44.ca

Website information: www.stevenpace.weebly.com

Course Description:

Anatomy and Physiology 12 (Biology 12) investigates the processes and structures which make up the human body. The course will examine structures at the cellular level (biochemistry, cell biology) and organ systems (including digestive, respiratory, cardiovascular, urinary, immune, and nervous systems). Students will need to demonstrate how small-scale changes at the chemical and cellular level can impact a human being. At the conclusion of the course, students will understand through inquiry, labs, and projects how the human body maintains homeostasis.

Summer Learning Beliefs:

Summer Learning provides an engaging learning environment where all students can challenge themselves academically and fulfill their learning goals. To ensure this, students will:

- abide by the student Code of Conduct
- adhere to the Academic Honesty Policy
- adhere to the *Summer Learning* Student Engagement policy
- respect themselves and others
- attend every class and be punctual
- inquire, think, and participate to the best of their ability
- access technology in class when instructed to do so and for learning purposes only
- challenge themselves and have fun learning

All Summer Learning policies can be accessed at:
https://www.sd44.ca/school/summer/policies/Pages/default.

Course Syllabus:

Curricular Competencies	What the students will do: Questioning and Predicting • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest • Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world • Formulate multiple hypotheses and predict multiple outcomes Planning and Conducting • Collaboratively and individually plan, select, and use appropriate investigation methods, including lab experiments, to collect reliable data (qualitative and quantitative) • Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods Processing and Analyzing Data and Information • Seek and analyze patterns and trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Construct, analyze, and interpret graphs, models, and/or diagrams Applying and Innovating • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations • Consider the role of scientists in innovation Communicating • Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations • Express and reflect on a variety of experiences, perspectives, and worldviews through place
Summative Assessments	What the students will understand: • Homeostasis is maintained through physiological processes • Gene expression, through protein synthesis, is an interaction between genes and the environment • Organ systems have complex interrelationships to maintain homeostasis

Content	What the students will know: Cell Biology: • Cellular compounds and biological molecules incl. water, organic molecules (carbohydrates, lipids, proteins, nucleic acid, ATP) • Protein structure and function • Enzymes and metabolic pathways • Feedback loops • Metabolism • DNA and cells (replication, protein synthesis, transcription/translation, mutations, biotechnology, cloning) • Cell biology (focusing on organelles) • Cell membranes and transport across the cell membrane Human Physiology: • Levels of organization • Tissues are organized into four groups • Organ systems and how they are interconnected to maintain homeostasis; digestive, cardiovascular and lymphatic, respiratory, urinary, immune, reproductive, and nervous system • Functional interrelationships between body systems • Nutrition and lifestyle differences affect human health • Medical connections to body systems

<u>Grade Boundaries:</u>

An "A" student will/can….
Produce high-quality, frequently innovative work. Communicate scientific ideas to connect and synthesize concepts and skills learned over time. Consistently demonstrate sophisticated critical and creative thinking. Collect, present, and (correctly) transform experimental data. Interpret, analyze and critique scientific findings and experimental data. Frequently transfers knowledge and skills and use concepts to solve non-routine problems.

A "B" student will /can …
Sometimes produces high-quality, innovative work. Communicate scientific ideas to compare and critique concepts and skills learned over time. Consistently demonstrate a degree of critical and creative thinking. Collect and present scientific data in an appropriate manner. Assess, interpret, and revise scientific findings and experimental data. Transfer knowledge and skills and use concepts to consistently solve routine problems correctly with few mistakes.

A “C” student will /can …
Produce work of an acceptable quality. Communicate a basic understanding of scientific concepts and operate superficially within a scientific contextual framework. Display an emergent level of application when it comes to critical thinking skills. Collect scientific data in an appropriate manner. Be inflexible in the use of knowledge and skills, requiring support even in familiar classroom situations. Make attempts to use knowledge, skills and scientific concepts to solve routine problems, with occasional mistakes.

Celebration of Learning:

The 2019 Celebration of Learning is shaped around “Connections”. Building connections, whether it be with the material, our body, the surrounding environment, or city of North Vancouver, are critical in reinforcing knowledge in Anatomy and Physiology 12. This course is quite personal as it explores the range of functions which allow our bodies to thrive. It also will focus on pathways which, when disrupted, can cause devastating effects. Enhancing our knowledge of our body, while stressing the importance of the “Connections” taking place inside and out, is important for our long-term health and well-being.

Resources:

BC Biology 12 Textbook
www.stevenpace.weebly.com
IG: space_teacher