Westside Secondary School

Orangeville, Ontario, Canada

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Course: SBI4U	Teacher	Phone Extension	Email
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Course Description: This course provides students with the opportunity for in-depth study of the concepts and processes that occur in biological systems. Additionally, this course enables students to further develop their practical skills in scientific investigations and to apply their understanding of science in real-world situations.
Prerequisite: Grade 11 University Biology (SBI3U)

Big Ideas: The curriculum in each unit targets "Big Ideas" that are laid out by Ontario's Ministry of Education and adapted by Westside teachers. The following chart outlines the Big Ideas being explored and evaluated in each unit of this course. For more information on the overall course expectations, visit the following website:
http://www.edu.gov.on.ca/eng/curriculum/secondary/science910_2008.pdf

Unit of Study	Big Ideas
Biochemistry	• Structure facilitates function. • Subunits can be used to predict the properties of macromolecules. • Biochemical compounds play important structural and functional roles in cells of all living organisms. • Biological molecules and their chemical properties affect cellular processes and biochemical reactions. • Technological applications that affect biological processes and cellular functions are used in the food, pharmaceutical, and medical industries.
Metabolic Processes	• Structure facilitates function. • Life is dependent on a functional relationship between cellular processes. • Complex systems are dependent on a functional relationship between subunits. • All metabolic processes involve chemical changes and energy conversions. • An understanding of metabolic processes enables people to make informed choices with respect to a range of personal, societal, and environmental issues.
Molecular Genetics	• Structure facilitates function. • Complex systems are dependent on a functional relationship between subunits. • DNA contains all the genetic information for any living organism. • Proteins control a wide variety of cellular processes. • Genetic research and biotechnology have social, legal, and ethical implications.
Homeostasis	• Structure facilitates function. • Complex systems are dependent on a functional relationship between subunits. • Organisms have strict limits on the internal conditions that they can tolerate. • Systems that maintain homeostasis rely on feedback mechanisms. • Environmental factors can affect homeostasis.
Population Dynamics	• Technology as allowed human to demonstrate an exponential growth pattern for an extended period of time; however, logistic growth is inevitable. • Population dynamics is influenced by many different components and factors. • Population growth follows predictable patterns. • The increased consumption of resources and production of waste associated with population growth result in specific stresses that affect Earth's sustainability. • Technological developments can contribute to or help offset the ecological footprint associated with population growth and the consumption of natural resources.

Instructional Strategies: Westside teachers use a variety of instructional strategies to help students develop and improve skills in the following areas: character, citizenship, communication, critical thinking and problem solving, collaboration and teamwork, and creativity and imagination.

Achievement Categories: Student learning is assessed and evaluated in a balanced manner with respect to the following four interrelated categories of knowledge and skills:	**Knowledge and Understanding** **Thinking and Inquiry** **Communication** **Application**

Assessment and Evaluation: Assessments for and as learning are used to improve student success by providing opportunities to demonstrate understanding of course expectations prior to the evaluation of learning. Evaluations of learning are where students demonstrate their understanding of Big Ideas and key expectations. Failure to complete an evaluation of learning may result in the credit not being granted because the expectations of the course have not been met.	
Term Work Evaluations: 70% Biochemistry Unit: Test and Lab Activity Metabolic Processes Unit: Test and Lab Activity Molecular Genetics Unit: Test and Inquiry Activity Homeostasis Unit: Test and Inquiry Activity Population Dynamics Unit: Test and Inquiry Activity	**Final Evaluation(s): 30%** Culminating (10%) Exam (20%)

Late Work

- Students are expected to complete all assigned work and submit it by the teacher's established due date. Every attempt will be made to encourage students to complete all assigned work on time so their grade represents their actual achievement. For late and missed summative assessments, please see the **Westside Students' Contract For Missed Evidence of Learning**.

Safety Agreement

- All students will receive a safety agreement and will sign and return the UGDSB Student Safety Agreement.

Textbook

- **Nelson Biology 12** - replacement fee for a lost or damaged textbook is $90.00

Enhancement Fee

- Voluntary enrichment fees may apply to this course. If a student does not pay, they will not be able to complete the activity but they will still be able to meet the course expectations.
- $15.00 for homeostasis dissections ($30.00/set working with a partner).

Electronic Devices

- The science department at Westside S.S. has a policy that no electronic devices (e.g. cell phones, tablets, iPods, mp3 players, etc.) are allowed during evaluations. For this reason, students are reminded to bring a scientific calculator when needed.

Classroom Rules

- Students are expected to follow the rules of conduct, as referenced on the school's web site: http://www.ugdsb.on.ca/westside/.
- In addition to these general rules of Westside Secondary School, the rules for the science classroom are as follows:
  - no food or drink of any kind is allowed in a science classroom
  - respect the people, equipment, and furnishings of the science classroom
  - immediately stop any activity and give your attention to the teacher when asked to do so
  - summative evaluations of learning will not leave the classroom, but are available for students to discuss with the teacher