

This syllabus is a general representation of the course as previously offered and is subject to change.

BIOL 548Q – Advanced Topics in Biology: Metabolic rate and measurement

General Course Syllabus (as of September 2019)

About the Course:

Course Description: This module will focus on understanding and applying techniques for measuring metabolic rate, across both invertebrates and vertebrates. It will give a background to the methods used, the equipment required, and the strengths and limitations afforded by different experimental approaches.

Course Format: Lecture

Credits: 1

Prerequisites: This course is restricted to students in the GRAD faculty.

Course Learning Objectives:

By the end of this course, students should be able to:

- Apply relevant physical concepts (Ideal Gas Law, Fick's Law, Ohm's Law) to the measurement of metabolic rate.
- Calibrate and operate direct and indirect calorimetry equipment.
- Identify and understand the function of common electronic components and their organisation in simple circuits.

Textbooks and Additional Resources:

All lecture slides and papers for reading are provided as PDFs.

Evaluation:

Assessment	Weight
Weekly assignments	80%
Class participation	20%

Schedule of Topics:

Week	Topic
1	Energy, metabolism, temperature, body size Direct Calorimetry, the Peltier effect, Joule heating
2	Respirometry: Gas laws and terms Constant volume and constant pressure respirometry
3	Flow-through respirometry: the fundamentals Oxygen analyzers: Types and principles of operation
4	Carbon dioxide analyzers Basic electronics for monitoring activity

University Policies:

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence.

UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom.

UBC provides appropriate accommodation for students with disabilities and for religious, spiritual and cultural observances.

UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on [the UBC Senate website](#).