

# Undergraduate Specializations

The Department of Microbiology and Immunology offers six distinct undergraduate specializations. These specializations include the:

- Major in Microbiology and Immunology (MBIM)
- Honours in Microbiology and Immunology (MBIM)
- Combined Major between Computer Science, Microbiology and Immunology
- Combined Honours between Computer Science, Microbiology and Immunology
- Combined Major between Microbiology and Oceanography
- Joint Degree Honours in Biotechnology (BIOT).

The two MBIM specializations include a flexible list of selections that allow students to take a wide range of courses within the field or specialize in areas of biotechnology, molecular microbiology, environmental microbiology, bioinformatics, immunology, virology or pathogenic microbiology. Both MBIM specializations can be combined with other specializations to take advantage of the opportunities for a Double Major or a Minor in Arts, Commerce, Lands and Food Systems, Human Kinetics or Science; as well as the Co-operative Education Option in Microbiology and Immunology.

The two Combined Specializations with Computer Science are a bit more restrictive but require less course work than the Double Specializations and provide more access to core courses than the minor. They are more specifically oriented towards bioinformatics than the other specializations. Both of the Combined Specializations can be combined with the Co-operative Education option.

The Combined Specialization between Oceanography and Microbiology is similar to the MBIM major but it is more constrained in the choice of courses and electives. Half of the credits in the program are assigned to develop a core background in molecular and environmental microbiology. The credits for the other half are intended to provide a core background in oceanography. The combined specialization develops basic knowledge about the chemical and physical ocean environment with emphasis on microbiological processes and chemical processes. This combined background is important for working in emerging fields that include marine biotechnology, the impact of oceanic microbes on climates, the role of microbes in mineralization and the role of viruses in ocean productivity. It provides sufficient background for suitably qualified students for graduate school in either microbiology or oceanography or environmental science. The Combined Specialization can be combined with the Co-operative Education option.

The BIOT program is a separate co-operative education program in the field of biotechnology. It is offered as a Joint Degree Program by co-operating departments at UBC and BCIT. It combines the development of strong technical skills during studies at BCIT campus with advanced analytic development during studies at UBC campus. It develops a broad background in microbiology, immunology, virology, biochemistry, molecular biology, pharmaceutical development, tissue culture, cell biology, genetics, fermentation technology and commerce. It

includes mandatory Co-operative Education.