

Teaching Philosophy

My teaching philosophy is based primarily on the belief that, at any level, a teacher's primary duty is to provide the means and support for students to achieve their educational goals, while meeting the educational institution's standards of excellence. A teacher should prepare students for employment opportunities or further educational objectives by helping students to become critical, creative, and continuous thinkers and learners.

A teacher's enthusiasm is of paramount importance for the students' enjoyment and interest in the subject. I believe that enjoyment leads to better learning and I endeavour to provide a dynamic, interesting, supportive, and challenging learning environment in which to share my enthusiasm and knowledge of chemistry with students. Over the years, I have certainly developed my own teaching style and clearly defined methods, but I have also found that my style and methodologies are, to a certain extent, fluid and constantly evolving. The common thread, throughout the years, is that I undeniably place a great emphasis on approachability, student participation, peer-led learning, relevance, as well as critical-thinking and problem-solving skills.

With the advent of the internet, I think that the role of a science instructor has substantially changed from when I was a student. In this 21st century, where so much information is available at one's fingertips, I feel that some of the most important graduate attributes that I can help students develop is the ability to learn autonomously from reliable sources, to constructively exchange ideas with peers, and to seek innovative answers to scientific problems while respecting sustainable development. For the purpose of this document, I will focus on the latter attribute.

The integration of relevant, 'real-world', examples and problems into course material is of great importance. As we move further forward into the 21st century, it becomes more and more apparent that we need to do more for sustainable development and we need to move more quickly in the right direction. I strongly believe that it is the responsibility of educational institutions to play a leading role by seamlessly integrating sustainability issues into our classroom topics. Globally, sustainability awareness is being incorporated into school curricula. Students often learn about topics such as global warming, acid rain, recycling, and energy conservation. Students learn that it is better to walk to school than to drive, that empty bottles should be recycled, and that they should turn off the lights in a room when they leave it. While it is absolutely essential that all students continue to learn about these matters, it is also imperative that post-secondary students learn about the many other, and more detailed, aspects of sustainable development. Unfortunately, however, although many post-secondary institutions offer individual courses on sustainability topics, most institutions are lacking in the breadth of the type of courses that *incorporate* sustainability issues, which include environmental protection, social equity, and economic development.

Since 2011, I have been dedicated to incorporating environmental protection and human health issues into all the chemistry courses that I teach, with the aim of increasing student engagement towards sustainable development. Advances in chemistry have been closely associated with phenomenal developments in medicine, agriculture, technology, etc. And yet, chemicals have also had an enormous negative impact on the environment and human health. Chemistry courses have historically been taught with little, if any, regard to the consequences of traditional chemical process and products on the environment and human health. In the past, students in chemistry courses have been required to learn about the structure, properties, and reactivity of chemicals, but they have not had to learn about their toxicity and environmental fate. The field of chemistry is essential to all our lives, so it is imperative that future generations of chemists are able to understand and analyze the impact, both positive and negative, of the chemicals they may be working with.

It is my hope that VIU students will graduate with a strong understanding of the theories and practices of fundamental chemistry and will always aspire, and have the tools, to seek out more benign options. To this end, I ensure that I integrate green chemistry principles and a basic understanding of chemical hazards into my chemistry courses. I also try to give the students problems and exercises that not only test their ability to think critically about the chemistry theory and practice, but also the hazards and environmental impact associated with the chemicals and processes.

Additionally, the laboratory periods of chemistry courses are ideal for emphasizing applied and experiential learning. They are filled with hands-on learning experiences in which students can be responsible for choosing more benign chemicals and methods, thereby taking an active role in sustainable development.

Lastly, I also believe that even if the students who take chemistry courses do not go on to become chemists, or even scientists, they should have a better understanding of how *some* seemingly innocuous chemical products in their daily lives can potentially, over the long term, have devastating effects. They will know how to find and understand reliable scientific information on which to base their day-to-day consumer decisions. They will have learned the importance of inquiry and the crucial need to consider the environmental and human impact of chemicals and chemical products. I truly believe that this will translate into better informed and inquiry-led citizens, whether they become policy makers, scientists, politicians, business leaders, healthcare workers, skilled labourers, etc., or simply everyday consumers.