



Yeretian launched the first post-graduate degree in the science of coffee, spearheading important research on the world's most popular beverage.

# A Refined Brew

The Insider talks with professor of analytical and physical chemistry and world-renowned coffee scientist Chahan Yeretzian

*BORN IN ALEPPO, Syria, Chahan Yeretzian is professor of analytical chemistry, bioanalytical chemistry and diagnostics at the Zurich University of Applied Sciences in Wädenswil, Zurich and heads the Center of Analytical and Physical Chemistry at the Institute of Chemistry and Biotechnology. Widely published in numerous prestigious academic journals including Science and Nature, professor Yeretzian is considered a global authority on the science of coffee. Working in the Research and Development Department for Nestlé, he contributed to the development of the Nespresso coffee system, which has taken the world by storm. His current research focus is on the science and technology of coffee and the development of state-of-the-art analytical technologies.*

## Q How can science help make a better cup of coffee?

A Our major focus involves developing objective and quantitative methods to measure “quality” in the final cup as well as to predict the sensory profile of the coffee based on instrumental measurements. For this we are constantly developing new analytical technologies. With such tools in hand, we can explore the implications of each transformation step of coffee, from the seed to the cup, on the final cup quality. One of the methods we developed when I was working at Nestlé was to ensure consistency in the quality of coffee. To this end we developed a novel mass spectrometry-based technology to analyze the makeup of the coffee-flavoring compounds. In another line of research we explored the aroma of coffee once it is in the mouth, to understand how aroma compounds in the mouth and actually reaches the nose of the drinker. We are also investigating compounds that are believed to contribute to the health benefits of coffee in order to produce a coffee that combines a high proportion of antioxidant polyphenols with an excellent taste.

## Q What led you to study coffee as a chemist?

A Coffee is as much science as it is art. The value chain starts at the origin country where the coffee is grown, harvested, and transported to the consuming countries. Genetics, biology, and agronomy are central to understanding this first part. Social aspects about the communities working and living from the coffee and the sustainability of all the processes involved are equally important. The trade and price formation are other facets of this commodity. The second half of the value chain is comprised of the roasting, grinding, extraction and consumption of the product. A holistic understanding of coffee includes an overview and insight into all these aspects. Indeed, I believe that coffee, along the value chain, reflects many facets of our life. This richness of the subject has always fascinated me. Ultimately, what attracts me most to coffee is both my professional interest in being able to measure and replicate unique sensory qualities and my personal ritual in drinking coffee, which, when drinking a good cup, can be a moment of pure bliss!

## Q How has your Armenian heritage influenced your career?

A Like many Armenian families, my parents taught me to focus on education, performance and self-reliance. As a child they instilled in me values of honesty, trust, community, hard work and generosity, which are the drivers of my life. In addition to personal ambition and individual success, it is also important to build successful groups and support others. Armenians understand and appreciate the value of our collaborators, friends and family and the broader social system that is a necessary component of success.

## Q How has AGBU helped you achieve your goals?

A AGBU has always been an important part of my life. My father was for many years until 1968 the head of AGBU in Aleppo, which was at the time a vibrant epicenter of the Armenian community and our identity in the Orient. The AGBU chapter regularly held large evening gatherings in the garden of the AGBU community center of Aleppo. After moving to Switzerland, I was quick to join the national board of directors of AGBU Switzerland and I later founded the Young Professionals in Switzerland as a way to provide young people with their own activities. Thanks to my lifelong association with AGBU I also met my wife, Carla Kapikian who regularly supported and mentored summer interns from the New York Summer Internship Program (NYSIP). For me, AGBU is important because it is truly a global organization—and the Armenian diaspora is international. After the Genocide of 1915, Armenians identify both our homeland and our planet as home.

## Q What is the recent accomplishment of which you are most proud?

A To realize my dream of building a center for the research of coffee that is world-renowned, collaborates with farmers and companies across all five continents, and has had a major impact on the entire coffee industry. I also take satisfaction in the postgraduate degree program in the Science and Art of Coffee, the first program of its kind as far as I know that I launched in 2010, where we train future coffee experts.

## Q What is your next project?

A Professionally, I am currently working on the concept of freshness in high quality specialty coffee. What is it? Is it important? Can it be measured? Together with my collaborators, I am also researching how water affects the quality of coffee and modulates the flavor, in order to yield a strategy to determine how to get the most out of the coffee and with what type of water, helping to better understand the extraction process. On a personal note, my continuing project is to spend time with my wife and our two adorable kids, Liana and Michael, and explore the world through their eyes. ☺