

November 29, 2022

To whom it may concern,

My name is Víctor Ballester and I am currently studying my last course in the Mathematics degree at the Autonomous University of Barcelona. For years I have been highly attracted to Applied Mathematics, and in particular, to dynamical systems and numerical analysis. This is one of the main reasons why I am applying for the E3 Program Excellence in Engineering at the EPFL.

There are two main reasons to apply for this summer internship. Firstly, my current universities studies have given me the insights to become familiar with concepts of analysis and theory of differential equations. Subjects such as Differential Equations And Modelling (I and II), Numerical Methods and all courses of Analysis have given me the tools to properly understand how to deal with applied complex problems in many branches of science. Because of this, I find the relation that Math has with Physics and Engineering really interesting but without losing the preciseness that makes Math so gorgeous. And as far as I am concerned, your internship programme do have a vast number of applied labs. And this is something that really appeals to me.

Secondly, applying for such an outstanding college with so prestigious professors is really challenging for me. But the fact that I have always dreamed of studying at this high level in a foreign country makes me feel motivated and enthusiastic for it. In addition to that, the experience that someone gets by living abroad for a few months is very culture-enriching. Thus, I am very looking forward to moving to Lausanne for a while.

Regarding my performance in science, I would like to mention that I have been improving not only my marks but also my deep knowledge in the subjects during my time at university. This is due to several reasons. First of all, I consider myself a very hard-working person as well as highly competitive in all aspects. These competences have given me the power to become better in many aspects of my life, specially in Math in which the fact of having competent classmates has encouraged me to do better in many subjects. On the other hand, the annual participation in many well-known Math and Physics competitions proves my absolute love for these subjects as well as the passion they transmit to myself.

All things considered, I would like to pursue either one of the following three laboratories: **Laboratory of Computational Science and Modelling**, **Computational Solid Mechanics Laboratory** or **Emergent Complexity in Physical System**. The main characteristics that these labs share are domains such as **Optimization, Simulation and computation** and **Computational engineering** which really appeal to me due to my background in Mathematics. In addition to that, as mentioned before, the fact of applying Maths to important everyday needs makes me feel highly motivated to join your labs. Last but not least, my good performance in numerical methods subjects at university stands me in good stead to pursue any of those laboratories.

On balance, the acceptance in this internship would allow me to continue expanding my knowledge in science more deeply in the so prestigious EPFL.

Thank you very much for considering my application.

Yours faithfully,

Víctor Ballester