Statement of Purpose

Dear Sir or Madam,

I would like to apply to the PhD program in Mathematics at Koç University for the following reasons.

The discipline of mathematics fascinates me for its variety of aspects and relevance in a plurality of fields. First of all, it captivates me because of the strong theoretical foundations, which allow the development and study of mathematical methods, while never loosing its precision. Moreover, mathematics can provide a basis for getting into new and exciting areas, be it physics, biology, finances, psychology or philosophy. As I am very keen to explore the relevance mathematics can have for them. When mathematics is applied to other fields, I am very interested in exploring it in order to make me become more curious about it, which is only possible with a strong theoretical foundation.

This diversity of interests is already reflected in the subjects of my bachelor theses: One of them is about an application of mathematical concepts on the phenomenon of the second semester. The application of a course entitled ‘’ was very new to me and captivated me immediately. First of all, by studying the application of to , it becomes possible to myriad fields. Moreover joining these two disciplines makes it possible to use concepts and results from both of them in the proofs. Thus I was confronted with new surprising methods to analyze and use.

I think that unites the above mentioned diversity of mathematics on its own. On the one hand, the other hand, Moreover results of many other mathematical disciplines are used in these courses. It was in this course that I became aware of this variety of known mathematical concepts and how fascinating well-known mathematical concepts can become when they are added to each other.

After starting to work on my master thesis with Dr. I learned even more about fascinating aspects of mathematics. Many methods like , , and as well as applications like , , and were all new to me. Moreover, I realized the importance of of and through some exemplary applications, that show that there are many aspects of which can be studied through the first aspect of my master thesis are .
, thus affecting the . The second p is . In particular, I am examining the . For both of these models, the aim is to like the , and the , and to determine if and when they are .

The fact that these generalizations are based on - implies that need to be used in the analysis of . While and are useful methods in the first case, in the second case the different of provide useful approaches. The topic of my master thesis thus also allows the application of a variety of results from along with various other domains of mathematics. I believe that Ko\c{c} University would be the perfect place to pursue my studies in since besides the mathematics department being very good, there also seem to be collaborations between different fields of mathematics and with other departments.

Moreover I am very excited to get the opportunity to teach at Ko\c{c} University. During my studies in , I got the chance to be a teaching assistant for the introductory course in . On the one hand this allowed me to recognize how rewarding it is to be able to share ones knowledge and to help students in grasping new concepts. I think that it is especially important at the beginning of the studies, while getting used to a new way of thinking, to encourage students to ask any questions they want and to try to understand their way of looking at things in order to be able to see where the difficulty lies for them. Moreover I think that it is very important to present students different approaches to and , so that they can later see the connections between different areas of more easily.

On the other hand teaching also allowed me to realize how much my own understanding was deepened by presenting the material and through the questions I was asked. The students often question things that seem obvious to us after having spent many years with the subject. Further, in the learning process students make connections and use metaphors that might not always be right, but at the same time that may lead to interesting new ways of looking at concepts, or of how one should not look at them.

In my PhD thesis, I would like to continue a study on and related fields. At Ko\c{c} University I would very much like to work with Prof. . There are also several other professors in the mathematics department whose research is of great interest to me, including Prof. , and Prof. , whose talk on at was really interesting to me. In conclusion, I would be very happy to be accepted for a PhD study at Ko\c{c} University.

Yours sincerely,

April 20