

During the summer of 2004, we had the opportunity to go to Campinas, Brazil to do mathematical research. This mathematical research was supported through the NSF (National Science Foundation), Maria Helena Noronha, and part of the mathematical staff at UNICAMP.

When we first arrived to Brazil, we were put in a small group composed of two American students (ourselves) and two other Brazilian students. In this group, we had the opportunity to work in two different mathematical projects. One of the projects had to do with how rotations and translations behave in both Euclidean and Hyperbolic space. For this project Maria Helena Noronha, our advisor, guided us and assisted us through our research. The second project had to do with maximizing the surface area of a sphere cut by four right circular cylinders. The solution to this second problem was derived through the use of different computer software programs.

However, it is important to note that this research experience not only allowed us to do math research, but it also gave us the opportunity to interact with the other two Brazilian students and learn a lot from them. One of the main things that we learned from them was what type of teaching preparation courses are needed in Brazil. The reason we were so interested to find out was because we are all prospective mathematic teachers. As we discussed this topic, we learned that there were many differences and similarities between their curriculum and ours, here at Cal State, Northridge.

One of the main differences was the fact that here at Cal State, Northridge, credential courses are required in order to teach mathematics. Where as, in Brazil no such courses are needed, and if they are, they are incorporated into their undergraduate studies.

Another main difference is their undergraduate studies. Their undergraduate studies contains courses such as number theory, Euclidean geometry, Geometric design, spatial geometry, differential calculus, statistics and probability, axiomatic systems, complex variables, fundamentals of higher math, and various math laboratory courses. As they were informing us on the classes they are required to take, we weren't surprised because during the course of this research program, the Brazilian students were much more prepared than we were.

This is especially true because if we compare their curriculum to ours, we can see that they have to take more math core classes than we do. For example, Brazilian students have to take a course designed specifically on Euclidean geometry, whereas we only cover Euclidean geometry within classes: Math 373 (Modern Geometry) and Math 411 (Foundations of Geometry). Another example would be the class called Foundations of Higher Math. This course is required under the teaching option in Brazil, whereas here at Cal State Northridge, it is only required under the pure math, statistics, and applied mathematics option.

On the other hand, as mentioned earlier, although there are differences between curriculums, there are also some similarities in preparation courses. The classes that we shared in common with the Brazilian students were courses such as programming

Maria Uribe and Racheal Allen

computers, physics, calculus, linear algebra 1, linear algebra 2, history of mathematics, and some math laboratory courses.

However, in general we can see that there are a lot more math classes that are different than they are similar. Unfortunately, for us these classes were so detrimental because they made all the difference in the progress of this research experience. Especially when we worked together as a group and noticed that the Brazilian students were more knowledgeable than us in certain areas.

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