

Report on the Eighteenth Annual UNB-CMS Math Camp

Grades 10-11

July 2017

The eightteenth edition of the UNB-CMS Math Camp at the University of New Brunswick, Fredericton, took place May 12-14 2017.

The residential camp is an exercise in enrichment and an **opportunity to recruit** young people into mathematics and related fields. The Camp seems not to be a significant recruitment tool for UNB; however campers consistently state on exit surveys that the Camp increases their interest in mathematics and that they intend to study math, science, or engineering after high school.

This year we had **UPDATE** **9 female students and 19 male** students from across the province. Students from grades 10 and 11 are selected for the most part based on past success in the NB Mathematics Competition (grades 7-9) or in the Canadian Open Mathematics Competition (COMC). The female-to-male ratio seems to be stubbornly resistant to change in spite of our efforts, although this year represents a very slight improvement over last year (there were 8 females, 20 males in 2015).

Accommodation and meals are our greatest expenses. We cover all weekend expenses, although students' families are responsible for transportation to and from Fredericton. A table of revenues and expenses is provided in Table 1.

Revenue	
CMS	3200.00
NB Dept. of Ed.	2500.00
Total	5700.00
Expenses	
Chaperones	669.24
Student accommodation	1305.00
Student meals	2626.01
Snacks	231.80
Pizza party	72.90
Postage	9.75
Taxis for students	8.05
Instructional supplies	53.46
Currie Centre Rental	55.00
Total	5031.21

Table 1: Revenue and Expenses

During the 52 or so hours that students were on site we had several engaging problem-solving sessions which saw students working in small groups (and meeting peers from other schools in other parts of the province) and presenting their solutions to the group. We had several

guest speakers visit the camp, giving mostly interactive talks on topics such as prosthetic limbs (by a guest speaker from UNB's Institute of Biomedical Engineering), precision in engineering (by a statistician in the Department) to gravitational waves (by a cosmologist in the Department). On Friday evening we played an energetic round of "Basketball math" at the gym, which was an excellent ice-breaker and encourages group participation in solving problems that get progressively more challenging. We also had the UNB Math society come and lead the students in a game of Nim, leading to discussions of binary arithmetic and game theory.

At the end of the Camp we ask students to fill out surveys; these provide us with helpful suggestions for improvements to the camp, but also are very rewarding to read, as students consistently state that they are more interested in mathematics as a result of attending the Camp. Here are some particularly encouraging quotes:

"This camp is a unique opportunity for high school students. It was an excellent experience and I would gladly do it again. I also think that it is very helpful in terms of helping us explore the possibilities of what we might do in post-secondary. Last year, it was what inspired me to choose the career that I now think will become my future. (In the 2016 camp we had a guest speaker who was a theoretical physicist. Please thank him for me!)"

"[The camp] gives the top NB math students a chance to meet together and collaborate on math problems. Also, the camp introduces math related games that I have never seen before!"

"The camp is so fun, it helps students to develop interest in math and gives students who are interested in math an opportunity to communicate with each other and to improve together. I love this camping experience, I'm sure others like it too. Please keep it going!"

We will be continuing this valuable outreach project in 2018, and beyond. A little more information is available at <http://www.math.unb.ca/camp/>.

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