## Alfred University students enter Putnam Math Competition 11/04/08



A four-man team of mathematicians from Alfred University will pit their skills against other top math students from colleges and universities across the country in the William Lowell Putnam Mathematical Competition scheduled for the first weekend in December. Entering on behalf of Alfred University are: Jack (Team name: Attack) Chan (also known as Attack), a freshman who plans to major in mathematics in the College of Liberal Arts & Sciences. Jack, whose formal name is Hei K. Chan, is a graduate of Queen's College in Hong Kong, and is the son of Wan Shuen Chan of Hong Kong. Benjamin (Team name; Jammin') Esham, a junior majoring in physics and mathematics in Alfred University's College of Liberal Arts & Sciences. A graduate of Geneseo Central School, Esham is a son of Benjamin and Kathryn Esham of Geneseo, NY.Phan (Team name: The Man) Le, a junior economics major, who is a graduate of Harvest Preparatory School and who is a son of Duc Le and Chi Thai Phan of Vietnam.Brett (Team name: I Have a Question) Williams, a senior electrical engineering major. He is a son of James and Carol Williams of Shermans Dale, PA, and is a graduate of West Perry High School. During each of the two three-hour sessions, students attempt to solve six 10-point problems, explained Dr. Joseph Petrillo, assistant professor of mathematics in AU's College of Liberal Arts & Sciences. He and Dr. Eric Gaze, associate professor of mathematics, are co-coaches for the Putnam Team. The top score is usually around 100 of a possible 120 points, but the median score for the more than 3,000 participants is typically close to zero, said Petrillo.As AU enters its fifth year of the competition, Petrillo noted, "We have a proud tradition of excellence." In 2003, the first year, the AU team ranked within the top 19 percent of teams entered. In 2005, the team was among the top 18 percent, and in 2006, was in the top 22 percent. In 2007, Phan Le scored "an impressive" 20 points on the exam, which placed him in the top 500 among the 3,753 students who competed. Phan's score is the highest, to date, of any earned by an AU student. Esham, who competed last year as a sophomore, says it is "impossible to know ahead of time what kind of questions will be asked, so it is imperative to become familiar with a wide range of mathematical problems and problem-solving techniques."But it's really not as daunting as it would seem, Esham says. "Surprisingly, most students would be familiar with all the necessary math (skills) after only a couple of years of college (math); in some sense, the test's difficulty lies not in challenging mathematics, but rather in the application of mathematics to solving problems."Sometimes, he says, the real challenge is simply in figuring out what the question is asking. "An answer often comes in a flash of insight," he says. "The difficulty then becomes putting this answer into words that convey to the test's grader why this is the answer."But there's more to it than just finding the answer, he says. "The essence of higher mathematics is the proof, and this is reflected in the Putnam exam: simply finding an answer is worth nothing, even if the answer is correct. The test-taker must provide a solid, logically sound argument for why his or her answer is correct. This is done through standard mathematical proof techniques, which at Alfred are first introduced in the Foundations of Higher Math course and then used extensively afterward."Esham says the only way to prepare is to practice a variety of problems as "the best way to develop the improvisational skills required." Although he received the median score of zero on last year's exam, Esham isn't daunted going into this year's competition. "I definitely enjoyed the challenges of trying to find the answers to some extremely difficult problems and of communicating those answers effectively."