Undergraduate Research Newsletter

Summer Edition (Issue 6), June 29, 2009

July 1, 12:00 pm
Lower Herrick

Jim Whitney, Professor of Economics

"Baseball made Boring": Researching the Economics of Professional Team Sports

Lower Herrick (last time), includes lunch!

In 1922, the U.S. Supreme Court excluded Major League Baseball from coverage by U.S. antitrust laws, the only industry exemption the Supreme Court has ever awarded. On the flipside, since its founding in 1953, the MLB Players Association has developed into what is arguably the strongest labor union in the country. But the traditional labor-management roles are reversed in professional sports: owners advocate negotiated salaries while workers defend free markets (free agency). Repeated disputes and work stoppages in baseball have culminated in a labor market with an uncommonly complicated mix of player drafts, arbitration, revenue sharing, luxury taxes, and limited free agency. What does it all mean from an economics perspective? Jim Whitney will describe some of what he has experienced and learned from studying the economics of professional team sports ever since he was fortunate enough to have a renegade student hijack his research agenda twenty-five years ago.

Math Research

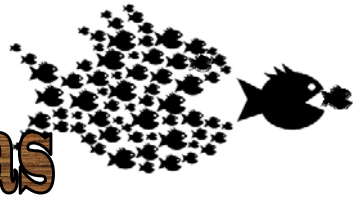
Noam Goldberg ('12 Math/CS) is one of two students researching mathematics this summer. Using a program that Professor Ramin Naimi developed, he is searching for knots in graphs. Unlike graphs of parabolas, say, these graphs do not use any equations or coordinates. They are made up of vertices (points) and edges (lines between two vertices). A typical graph might have 12 vertices and 22 edges, resulting in each vertex having several edges connected to it. A graph has a knot if there is a random loop you can walk along the edges that would form a knot if you could pull it out of the graph.

Goldberg is working with predefined graphs, interesting since "they all have a knot no matter how you arrange the lines." In other words, the knot is there regardless of the order the edges stack on top of each other where they cross. A graph like this is intrinsically knotted. He is searching for places in the graphs where there is no knot, so that if one edge is deleted the graph is no longer intrinsically knotted.

Of his future, Goldberg says "I definitely want to teach at some point in my life," although he's open to college or high school. He's also interested in programming (he wants to participate in the 3/2 program with Columbia in Computer Science) because "it's like a puzzle" and he enjoys coming up with ideas for something "people could use or something to improve".

Last fall, Ariel Krasik-Geiger ('09 Fall) began to study modeling predator-prey relations when he learned about the Lotka-Volterra equations in his differential equations class. Specifically, he's studying cases when there are more than two species competing in a circular pattern, like in Rock, Paper, Scissors, where each species has a unique prey (the species following it in the circle) and a unique predator (the species preceding it). Originally, he was looking at the outcomes for the species when different parameters were used (number of species, natural death rate, benefit of eating, detriment of being eaten) and trying to determine any patterns he could find from the results. He found that the graphs of the species populations fell into certain categories. In some conditions, all the species died, while in others there was absolutely no change in population (a straight-line graph). Otherwise, the graphs tend to form oscillations where as a species increases its prey's population decreases, resulting in its decrease, and so on forever.

Currently, he is working on simplifying the problem to only three parameters so that he will be able to graph the space where different types of behavior is found.



Weekend Ideas

More events at departments.oxy.edu/urc/about/calendar.htm

July 3, 2009 **12:00 noon-5:00 pm**	Free Admission to the Pasadena Museum of California Art 490 E Union St Pasadena, CA 91101 http://pmcaonline.org
July 4, 2009	Fourth of July BBQ Contact ResLife for details
July 4, 2009 **9:00 am-5:00 pm**	Mr. and Ms. Muscle Beach Beauty Pageant 1800 Ocean Front Walk, Venice Beach Free to watch! www.musclebeachvenice.com
July 4, 2009 **4:00-10:00 pm**	Fireworks and Parade at Lacey Park 1485 Virginia Rd, San Marino, CA $15 in advance, $20 day of www.ci.san-marino.ca.us/pdf_forms/rec_dept/july4_info.pdf
July 4, 2009 **6:00-9:30 pm**	Fireworks Show at the Rose Bowl In Pasadena, just off the 134 Tickets are $13 www.rosebowlstadium.com/RoseBowl_Americafest.htm
July 5, 2009 **8:00 pm**	Cirque Berzerk Los Angeles State Historical Park Tickets available at: www.cirqueberzerk.com

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