Workshop Description, Faculty Bios, and Facilities

This one-week, intensive workshop is designed to assist talented teachers and mathematics coaches in preparing their students for the more competitive and challenging AIME exams. Our team of outstanding problem solvers will work intensively with teacher-coaches whose students regularly do well on AMC but struggle with the questions on the AIME. We intend to increase the pool of high school math team coaches who have the expertise to develop their students at the AIME level and, further, to create a small network of knowledgeable teachers who can assist their colleagues in neighboring schools in the years that follow the workshop. We intend for the participants of this PREP workshop to serve as local leaders when they return home and will form part of the foundation upon which a systematic improvement in the preparation of high school faculty to work with highly talented students on mathematical challenges can be built.

Teachers interested in participating in this PREP workshop should recognize that this is an active workshop, with participants spending 4-5 hours each day actively working together and with the faculty on the problem sets. This workshop is not intended for beginners or teachers interested in starting a math team. The goal is to have strong problem solvers with an established program become better able to support their strong students on the AIME and other similar exams, by becoming better problems solvers themselves.

Daily Schedule for Monday-Thursday

David and Josh will consider problems in Geometry, Combinatorics, Algebra, and Number Theory
8:30-9:30 - discussion of the day's topic and various important facts and tactics
9:30-10:00 – break
10:00-12:00 - easier problem solving (e.g. 1-5 range)
12:00-1:30 - lunch
1:30-2:30 - discussion: building a math culture, test-taking strategies, resources, games, question-writing, etc.
2:30-3:00 – break
3:00-5:00 - harder problem solving (e.g. 4-10 range)
5:00-7:00 – dinner
Marta and Chuck will facilitate the evening problem sessions
7:00-9:30 - evening problem solving (problems that weren't finished from the day, some new harder problems, etc.)

Friday Discussion of the really hard problems and USAMO-level transition.
**Workshop Faculty**

**David Patrick** is a teacher and curriculum developer for Art of Problem Solving (AoPS). As a high school student, he attended the Gifted Math Program at the State University of New York at Buffalo and the summer Research Science Institute at George Mason University. In 1988, David had the only perfect score on the American High School Mathematics Examination (now called the AMC 12), was a winner of the USA Mathematical Olympiad, and attended the Mathematical Olympiad Summer Program.

David has a B.S. in Mathematics/Computer Science and an M.S. in Mathematics from Carnegie Mellon and a Ph.D. in Mathematics from MIT, studying under Michael Artin. After a postdoc at the University of Washington and a 6-month residency at the Mathematical Sciences Research Institute in Berkeley, California, David worked as a mathematician at Applied Mathematics, Inc. doing mathematical modeling. He then spent some time playing poker semi-professionally before joining the team at the Art of Problem Solving (AoPS).

At AoPS, David is the author of the *Introduction to Counting & Probability*, *Intermediate Counting and Probability*, and *Calculus* textbooks, and coauthor of *Prealgebra*. He also teaches many courses at AoPS, including their annual AMC 10/12 and AIME contest preparation seminars.

**Joshua Zucker** is the founding director of the Julia Robinson Mathematics Festivals, which bring deep, collaborative problem solving to a wide range of students. He discovered his love for number theory at Dr. Arnold Ross's summer program at Ohio State University. Josh has been invited to the US Math Olympiad Summer Program, was a member of the first US Physics Olympiad team, and has been a top-10 scorer on the Putnam. He holds a BS in physics and an MS in mathematics from Stanford, as well as an MS in astrophysics from UC Berkeley. He has taught at Education Program for Gifted Youth (EPGY), community colleges, and public and private high schools, and served as a problem writer for MATHCOUNTS, before becoming a freelance math teacher. Josh also directed the Bay Area Mathematical Olympiad and co-founded the Math Teachers' Circle project at the American Institute of Mathematics. More recently, he has represented the United States at the World Sudoku Championship and World Puzzle Championship. Besides volunteering as a Teacher2Teacher Associate, Joshua enjoys working as Doctor Schwa for the Ask Dr. Math service where he practices giving as little help as possible so that students have the satisfaction of solving problems for themselves. “Be Less Helpful” is his motto these days!
Marta Eso is co-head of the Mathematics and Computer Department at The Hotchkiss School in Lakeville, Connecticut, where she has taught since 2002. She earned an M.S. in Mathematics at Eotvos Lorand University in Budapest, Hungary, and a Ph.D. in Operations Research from Cornell University. In addition to teaching high school Mathematics ranging from Geometry to post-Calculus courses, she also coaches the Hotchkiss Math Team and serves on the AMC 10/12 subcommittee of the MAA. Mathematics enrichment is of special interest to Marta. She is one of the organizers of SM&SH Day, an annual Mathematics and Science festival for sixth-graders in the Connecticut Region One school district, and she helps run a math circle for upper elementary students. Marta also enjoys puzzles, board games, traveling, reading and hiking.

Chuck Garner is a teacher of mathematics at Rockdale Magnet School for Science and Technology in Conyers, Georgia, where he is the creator and host of the Rockdale Mathematics Competition. He earned B.S. and M.S degrees in mathematics from Georgia State University and a Ph.D. in mathematics the University of Johannesburg in South Africa. Chuck is the author of Calculus: Dynamic Mathematics Vol. I and II, the AP Calculus Problem Book, and is the editor of the Georgia State Mathematics Tournament, Vol. 4-5 (covering the years from 1998-2010).

Chuck was a participant in the 2008 PREP workshop and will work with the participants in their problem solving sessions during the day and evening.

Facilities
The PREP workshop fee of $325 covers all materials, instruction, as well as an individual room at a UNL dorm (we have typically had suite-style rooms) and all meals at one of the school cafeterias close to our meeting room. The University of Nebraska has an experienced summer program staff that has hosted the Mathematical Olympiad training sessions, AP Statistics Reading, a multitude of sports and academic camps as well as the 2008, 2012, and 2013 PREP workshops sponsored by SIGMAA TAHSM.

The dorms are available for participants to have their own room, with a shared bathroom. The dining halls are convenient to the dorms and the mathematics department at UNL has offered classroom space. Particularly important, the dorms have some common meeting areas that allow participants to work together in the evenings as they work on the problems of the day.

The University of Nebraska-Lincoln’s exceptionally clean, air-conditioned residence halls accommodate conference guests. Traditional, suite, apartment-style, and handicapped-accessible rooms are available. All guest rooms feature the following amenities:

- Standard linen package (sheets, pillow, pillowcase, and protective linen)
- Free local & campus phone service, long distance available with credit or phone card
- Basic furniture (twin beds, dressers, closets, desks, chairs, bookcases)
- Social and study lounges
- Laundry facilities
- Vending machines
- 24-hour service and information desk in each residence hall complex
- Conference, custodial, and maintenance staff available at all times

University Dining Services is highly experienced in providing all food service and catering needs, offering an extensive selection of culinary choices. Residence hall dining managers and menu planners are happy to help design specific menus and to assist guests with special dietary needs. Dining halls are located in each of the residence hall complexes. The dining centers are air-conditioned, offer extended dining hours (6:30 AM to 9:00 PM), and are within easy walking distance of both campus facilities and downtown attractions.

**Arrival and Check-in:**

Plan to arrive during the late afternoon or evening of Sunday, June 15th.

**Travel:**

Lincoln Municipal Airport is located about eight minutes from campus and downtown, and is serviced by national carriers connecting to over 400 US locations. Amtrak provides daily rail service to Lincoln from Denver and Chicago. The historic train station, located in the Haymarket district, is on the edge of campus.

Conveniently located along Interstate 80, the nation's main coast to coast artery, travel from the east or west is simple. Travelers from the north and south can use Interstate 29 via US Highway 2 along with US Highway 77.