Choose Appalachian Teaching Scholarships

Do you know a high school senior with a passion for math or science? Please tell her or him about the CAT scholarship! CAT scholarship recipients can receive up to $16,000 ($4,000 per year).

Who is eligible? Ohio residents who seek licensure to teach math or science in Grades 7–12, and who are willing after graduation and licensure to engage in a 3-year professional induction program in an Appalachian county of Ohio. Special consideration will be given to qualified members of underrepresented groups and qualified applicants from Appalachian counties.

Where are the scholarships available? At Marietta College, Muskingum University, Ohio University, Shawnee State University, the University of Rio Grande, and Ohio University’s regional campuses: Chillicothe, Eastern, Lancaster, Southern, and Zanesville.

How do you apply? Visit www.cehs.ohio.edu/CAT or scan the code below with your smart phone to download a mail-in application. Selection criteria include commitment to math or science teaching in Appalachian Ohio, letters of recommendation, academic record, and an essay.

The early application deadline is March 1, with notification in April.
The final application deadline is June 1, with notification in July.

To apply, visit www.cehs.ohio.edu/CAT.
For questions, contact Mary Harmison at harmison@ohio.edu.

Advanced Teacher Capacity

Professional Development in Mathematics, Statistics, and Modeling

The Advanced Teacher Capacity (ATC) professional development initiative is offering two programs for mathematics teachers in Grades 7–12: Modspar and QUANT. Both are offered during summer with follow-up workshops during the 2012–2013 school year. Participants develop plans to use rich activities in their classrooms and explore concepts using TI-nspire handheld computers, TI-nspire software, and other tools for teaching and learning. ATC scholars receive $400 in stipends, $400 worth of materials, food, plus housing for residential participants. Optional graduate credit through Ohio University is available at a reduced tuition rate.

Modspar: Modeling and Spatial Reasoning explores discrete and continuous modeling, geometric modeling, and spatial reasoning.
When: July 23–August 3, 2012
Where: Metro High School, Columbus, OH

QUANT: Quantifying Uncertainty and Analyzing Numerical Trends focuses on data analysis, probability, and statistics.
When: June 18–29, 2012
Where: Metro High School, Columbus, OH

Modspar and QUANT are supported by the Advanced Teacher Capacity grant. The total estimated costs for the 2012–2013 ATC project are $279,353, which includes a $158,054 grant of federal funds from the Improving Teacher Quality Program administered by the Ohio Board of Regents, covering approximately 56.6% of the total costs.

Here’s what past ATC scholars have said:
“[I] loved hearing ideas from other teachers...about how they teach difficult concepts.”
“I gained a greater depth of understanding of the material and a broader range of...examples from which to build.”
“As a result of this institute, I used more technology in my classroom than I have ever used in the past.”
“Helped me become a better teacher.”
The *Ohio Journal of School Mathematics* is the journal of the Ohio Council of Teachers of Mathematics. It is intended to be a medium for teachers from elementary to college level to present their ideas and beliefs about the teaching and learning of mathematics. Mathematics educators at all levels are encouraged to submit manuscripts for upcoming issues of the Journal.

Although research studies are not emphasized in the *Journal*, practical application of research implications is appropriate.

**GUIDELINES FOR MANUSCRIPTS and ACTIVITIES**

Manuscripts should be double-spaced with one-inch margins, 11 point Times New Roman font, and a maximum of 8 pages. References should be listed at the end of the manuscript in APA style. Please include appropriate information such as author, journal or book title, publisher, date, and pages.

Original figures, tables, and graphs should appear embedded in the document – both in the electronic and hard copy forms. Please do not use text boxes, footnotes, or head-notes.

One hard copy and an electronic copy are required. The electronic copy may be in Word. The electronic copy should be submitted via an email attachment to elaughba@math.ohio-state.edu. Author name, work address, telephone number, fax, and email address must appear on the cover sheet. No author identification should appear on manuscripts after the cover sheet. (The editors of the *Ohio Journal of School Mathematics* use a blind review process for manuscripts. Classroom activities are not peer-reviewed but undergo a rigorous revision process in consultation with the editors).

Submit manuscripts to *Ohio Journal of School Mathematics*, Journal Editors.

The article content of the *Ohio Journal of School Mathematics* does not necessarily represent the views of the Ohio Council, and all opinions expressed therein are those of the authors.

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Errata

In the article “A Mathematical Origami Puzzle” from the 2011 Fall Issue, we used the terminology “origami axioms” to describe what may be more accurately described as minimal origami constructions. While the term “axioms” is used throughout the origami literature, it is misleading. The issue is that axioms 5-7 do not apply to all cases. These “Axioms” are analogous to compass and ruler constructions such as “one can construct the point of intersection between a line and a circle”. These constructions or mislabeled “axioms” only refers to the cases where such point, or, in the case of axioms 5-7 folds, exist.

We would like to thank Mr. Bill Bruml from the Cleveland Metropolitan School District for pointing out this misuse in language. He realized the inconsistency after discovering that the set of all folds which place a point P on a line l is the set of all tangents to a parabola. Thus axiom 5 does not apply for any point Q on the interior of this parabola. - Joseph P. Rusinko, Winthrop University, and Patrick S. Dukes, Clemson University

In “Discovery: A Squaring Pattern for Two-Digit Numbers and Beyond,” Sam’s Perfect Squares Formula should be 

\[(10x + y)^2 = (10x + y)(10x + 10) = (10xy - 100x - 10y) + y^2.\]

The square term was missing on the left side of the initial equation.

In “Mersenne primes,” Euclid’s formula should be stated as: If \(2^k - 1\) is prime for \(k > 1\), then \(n = 2^{k-1}(2^k - 1)\). In the 2011 Fall Issue, the \(k-1\) were not exponentiated on the base 2. For example if \(k = 2\) then \(2^2 - 1 = 3\) (which is prime). Now we can plug 2 into Euclid’s Equation. 

\[n = 2^{2-1}(2^2 - 1) = 2^1(4 - 1) = 2(3) = 6.\]

Finally, when referencing 11, the calculation is incorrect. \(2^{11} - 1 = 2048 - 1 = 2047\) which is divisible by 23 \((23*89=2047)\). (The second 1 in the exponent 11 was not exponentiated.) - Jaime Kautz, Mathematics Specialist, Ohio Resource Center
6  Multiple Representations Help Teachers and Students Understand a Geometry Problem  
   Erol Uzan, Indiana University, and Shelly Sheats Harkness, University of Cincinnati

14  The Interplay Between Theoretical and Experimental Probability: Beyond “Sample Size Matters.”  
    Michael Meagher, Brooklyn College - CUNY

21  Making the Laws of Sines and Cosines a Splash for Students  
    Chris Bolognese, Upper Arlington High School

24  Developing Real-World Mathematics through Literacy  
    Stephanie Hoover, Queen of Apostles School – Toledo, Ohio

30  Learning Measurement with Interactive Stations  
    Hea-Jin Lee, Ohio State University and Rebecca Link, Fort Recovery Middle School

40  Helping Children Understand Measurement Using a Ruler  
    Gary Christie, Baldwin Wallace College

45  Assessment and Grading in a Differentiated Mathematics Classroom  
    Sarah Peshek, Central Middle School, Euclid OH

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