Math for the People: Teaching Mathematics with Social Justice
Mark A. Branson, Stevenson University

Abstract: The myth that mathematics is somehow apolitical or impartial has been largely exploded in the current era - debates over independent & ethical redistricting; questioning of the positive slope of global mean temperatures; and discussion of the long term viability of social security & medicare programs have thrust mathematicians and mathematical arguments into the political arena. How can we bring political and social justice topics into our classrooms in a way that enhances our pedagogy, encourages students to engage with the material, does not alienate students whose political opinions may be in the minority, and doesn't get us fired? I'll discuss some materials and strategies which my colleagues and I have used successfully in the classroom and how we have navigated these challenges.

Bio: Mark Branson (any pronouns) is from Baltimore, Maryland, where he serves as professor & chair in the Department of Mathematics and Physics at Stevenson University. After studying pure mathematics and computer science as an undergraduate at the University of Oklahoma and a short stint at NASA Ames Research Center, they completed their Ph.D. at Columbia University in symplectic geometry and a postdoctoral fellowship at the Technion in Haifa Israel. These diverse experiences led to his current interest in teaching mathematics with social justice concepts and co-editing/co-authoring the Math for the People textbook project. Outside of the classroom, they are an avid amateur chef, gardener, and community organizer in the LGBTQ+ community of Baltimore.

The History of the KYMAA in Light of the Larger Social History of American Mathematics
Daniel Curtin, Northern Kentucky University (Retired)

Abstract: The History of Mathematics was first studied largely by mathematicians. As a result the emphasis was on the technical details of the results, and to a lesser extent on the lives of the mathematicians studied. In recent decades the subject has expanded to include larger historical issues. A major study is the rise of mathematical organizations and other social structures that support the creation and dissemination of mathematics. Here the MAA has played a major role in the USA. It is founded upon its sections, of which ours was one of the first. We will consider this history of the history of mathematics, and several interesting aspects of the past of the KYMAA.

Bio: Daniel Curtin (curtin@nku.edu) earned his A.B. from the University of Notre Dame in 1973, and his Ph.D. from the University of North Carolina at Chapel Hill in 1979. He was on the faculty of NKU, with occasional sojourns into administration, until his retirement in 2017, with the rank of Professor Emeritus. Trained in algebraic geometry, his studies moved over the years to the history of mathematics, especially the period just before Newton and Leibniz. This allows him to make use of the Latin taught him in high school by the Jesuits. He also has a love of electronics, and is active in amateur radio. He and his wife live in Fort Thomas, Kentucky, where they remain active in church and volunteer activities. All four of his children share his love of music. He can often be found in various pubs, his fiddle under his chin, playing Irish traditional music (with perhaps more enthusiasm than skill).

Clocks, Parking Garages, and the Solvability of the Quintic: A Friendly Introduction to Monodromy

Edray Herber Goins, Pomona College

Abstract: Imagine the hands on a clock. For every complete the minute hand makes, the seconds hand makes 60, while the hour hand only goes one twelfth of the way.   We may think of the hour hand as generating a group such that when we ``move'' twelve times then we get back to where we started. This is the elementary concept of a monodromy group. In this talk, we give a gentle introduction to a historical mathematical concept which relates calculus, linear algebra, differential equations, and group theory into one neat theory called ``monodromy''. We explore lots of real world applications, including why it's so easy to get lost in parking garages, and present some open problems in the field. We end the talk with a discussion of how this is all related to solving polynomial equations, such as Abel's famous theorem on the insolubility of the quintic by radicals.

Bio: Edray Herber Goins grew up in South Los Angeles, California. The product of the Los Angeles Unified (LAUSD) public school system, Goins attended the California Institute of Technology, where he majored in mathematics and physics, and earned his doctorate in mathematics from Stanford University. He has worked as a researcher at both Harvard and the National Security Agency; and has taught at both Caltech and Purdue. Goins is currently a Professor of Mathematics at Pomona College in Claremont, California. He has published over 25 journal articles in areas such as applied mathematics, graph theory, number theory, and representation theory; and on topics such as Diophantine equations, elliptic curves, and African Americans in mathematics. He runs a federally-funded Research Experience for Undergraduates (REU) titled Pomona Research in Mathematics Experience (PRiME).