

Michigan Project NExT 2005 Tentative Program

Thursday, April 28
3:00-6:30 PM

Room 216, Swanson Academic Center
Alma College

Supported by the Michigan Section-MAA and the Exxon Foundation

- ❖ 3:00-3:15 Arrival, sign-in, and refreshments
- ❖ 3:15-3:25 Welcome and introductions
- ❖ 3:30-4:10 "Using Proof to Compare Geometries - an Example Involving Menelaus' Theorem"
Stephen Blair, Grand Valley State University
- ❖ 4:10-4:50 "Looking Back to Check Your Work: How Hard is it to Check an Answer?"
Dale Winter, University of Michigan
- ❖ 4:50-5:15 Discussion and Break
- ❖ 5:15-5:55 "Incidence Geometry as a 'Research' Topic for Secondary Teachers"
Bryan Mosher, University of Michigan
- ❖ 5:55-6:35 "Community in the Mathematics Department"
Mark Pearson, Hope College
- ❖ 6:40-6:50 Walk to dinner
- ❖ 7:00-9:00 Dinner in the Heather Room

Abstracts of the talks are available on the following pages.

Parking information: Parking is available in the Heritage Center Parking lot. From there, walk up the McIntyre Mall to the Swanson Academic Center. There is also a limited amount of guest parking (and handicapped parking) in the Reid-Knox parking lot, which is closer to the Swanson Academic Center, but spaces are harder to come by in that lot.

Abstracts of Talks

Looking Back to Check Your Work: How Hard is it to Check an Answer? Dale Winter

Abstract: A math professor of mine once told a story about an exam solution that he graded. The question on the exam gave the distance of a car to a very solid wall as a quadratic function of time, and asked whether or not the car would hit the wall. The solution that the professor related to me was: "Yes! In fact it hits twice--once on the way in and then again on the way back."

The substance of this talk will be a description of a teaching experiment motivated by these kinds of teaching and learning issues. In particular I will suggest some of the factors that might be involved in developing the ability to assess the "reasonableness" of answers to mathematical problems and present some of the results of efforts to help students develop this ability.

The overarching goals of the talk will be to familiarize the audience with the emerging area of scholarship known as the "Scholarship of Teaching and Learning," and to suggest one particular model for what it might mean to approach college mathematics teaching as a scholarly endeavor.

Using Proof to Compare Geometries - an example involving Menelaus' Theorem Stephen Blair

Abstract: The role of proof is often presented to students from a single perspective, namely as a means by which the truth of mathematical statements can be verified. In practice, however, proof has several other roles, such as that of explanation and systemization (Bell, 1976). The study of non-Euclidean geometry highlights the multiple roles of proof because it concerns not only the verification of theorems within a particular geometry, but also the formal comparison of geometries. We will discuss Menelaus' Theorem as one example of how this might be done in an undergraduate geometry course.

Incidence geometry as a "research" topic for secondary teachers Bryan Mosher

Abstract: For many students preparing to become secondary teachers, a college geometry course is their introduction to mathematical proof and to the process of doing mathematics. Teaching such a course is challenging in part because the mathematical backgrounds of the students vary widely.

Incidence geometry, the beginning of an axiomatic development of geometry, provides opportunities for students to explore open-ended questions that suit their level of training. This talk is a report on a unit of incidence geometry, and the resulting work by students, presented in a course of geometry for secondary teachers at the University of Michigan.

Community in the mathematics department Mark Pearson

Abstract: One of the goals for the mathematics department at Hope College the past few years has been to build community among our mathematics students and faculty. I will talk about some of the things we are doing at Hope to engage our students in the life of the department and in mathematics outside the classroom.