Article 22 Report for Academic Year 2008-2009

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Note: The sections below refer to supporting materials which are accessible at my faculty website:

http://mavdisk.mnsu.edu/singed/

Once there, follow the link to

Article 22 Materials Academic Year 2008-2009

Section 1. Teaching
I taught the following courses in Spring 2009:

- Math 316-01 Intermediate Analysis
- Math 316-60 Intermediate Analysis
- Math 345-60 Abstract Algebra I

The section 60 courses were taught at Normandale Community College as part of their 2 + 2 Program in coordination with our department. I have posted the following materials to my website:

- Course Syllabi
- Lectures
- Homework Assignments and Hints
- Exams and Exam Solutions
- Summary of Student Evaluations for Math 316-01

Please see Section 4 for a discussion of how my instructional materials contributed to student growth and development.

Section 2. Research
During my Fall 2008 sabbatical I conducted research into the Jacobian conjecture. I summarized my results in a paper titled “A Graph-Theoretic Method
for Choosing a Spanning Set for a Finite-Dimensional Vector Space, with Applications to the Grossman-Larson-Wright Module and the Jacobian Conjecture.” I submitted this paper to The Electronic Journal of Combinatorics in December 2008, and the paper was published in Volume 16, Number 1, in March 2009.

In Spring 2009 I gave a colloquium talk based on my sabbatical research to the Department of Mathematics and Statistics.

I have posted both the paper and the colloquium talk slides to my website.

Section 3. Continuing Preparation and Study


In preparation for Math 316 (Intermediate Analysis) and Math 345 (Abstract Algebra I) I prepared extensive lecture notes and homework hints. These are posted on my website (materials listed in Section 1 above and discussed in Section 4 below).

Section 4. Contributions to Student Growth and Development

As I’ve indicated above in Section 3, I prepared extensive lecture notes and homework hints for my courses. Both courses emphasize mathematical writing and proof, and to prepare students for these tasks I designed questions for students to think about as they read the textbook and listened to the lectures. Often during a lecture I made my way through the list of questions and called on students to answer. This kept them on their toes and ensured that they participated actively in class and internalized mathematical definitions and proof techniques. I provided sketches for many of the homework solutions in my assignments, guiding students through long chains of argument they may not have been able to navigate on their own. I also provided them with written solutions to each exam (after the fact, of course) for them to compare with their own solutions.

Students appreciated the instructional materials – lectures, homework hints, test preps, worked out solutions – see the summary of student comments online.

I invite you to take a look at the lecture materials, homework assignments, test preps, and exams – I have posted them all to my website.
In addition to handing out written lectures and homework hints, I met with students in office hours and answered questions by email.

5. Service

I served on the Curriculum Committee. I also resigned as Graduate Coordinator for Mathematics and Statistics, passing the torch to my colleague Dr. Deepak Sanjel.