TNE Impact on Course Development at Michigan State University

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TNE at MSU

- Standards Development
- Self Studies
- Course Development

Developed Courses

- Statistics for future elementary teachers
- Mathematics minor for elementary teachers
- Capstone for secondary mathematics teachers
- Complex Instruction workshops for instructors of elementary math methods courses

Statistics for Elementary Teachers - History

- Required Math Content Classes
  - Number and Operations
  - Geometry & Measurement
- Self study comparing content to recommendations
  - Michigan Grade Level Content Expectations
  - AMS/MAA Publication - The Mathematical Education of Teachers

Statistics for Elementary Teachers

- Developers/Instructors - Vince Melfi, Dennis Gilliland Gail Burrill, and Jennifer Kaplan
- Goals - To provide students with the
  - content they will be required to teach
  - knowledge that will be needed to be critical consumer of data

Statistics for Elementary Teachers

- Course Content - Simple probability and descriptive statistics
- Activities, homework, exams, project
- Class as hand on as possible, build off of activities
- Course will continue to be developed

Mathematics Minor For Elementary Teachers

- Previously, minor developed for secondary educators.
- Bill Brown, director of undergraduate studies, initiated development
- Input from faculty in DSME and TE

Elementary Teaching Minor Requirements: Mathematics

Dept	#	Title	Credits
MTH	132	Calculus I	3
MTH	133	Calculus II	4
MTH	301	Foundations of Higher Mathematics	3
MTH	330	Higher Geometry	3
SME	430	History of Mathematics	3
STT	201	Statistical Methods*	4
		TOTAL 20 Credits	

History of Mathematics

- Developed by Mary-Jean Winter and Aaron Brakoniecki
- Goal is to provide future elementary teachers with a better understanding of the historical progression of mathematics

History of Mathematics Lessons

- Lesson focus on different topics
  - Persons
  - Places
  - Things
- Instructional Approach
  - Lecture and activity portions
  - Computer lab - Sketchpad, applets, etc

Capstone for Secondary Mathematics Teachers

- Development part of TNE and the Course, Curriculum, and Laboratory grant from NSF, to involve collaboration across universities.
- Dick Hill, Sharon Senk, Natasha Speer
- What are we learning when a mathematician and math educator collaborate? What content are students learning?

Capstone for Secondary Mathematics Teachers

- Team taught by mathematician and math educator
- Goal - Help future secondary school teachers understand the connections between mathematics taught at secondary school and their college mathematics majors
- “Planning and teaching mathematics capstone courses for preservice secondary school teachers.” Minicourse @ AMS/MAA Conference, 9:00am Monday & Wednesday, January 5 & 7

Collaboration at MSU

- Successful course development at MSU because of
  - Willingness to collaborate across departments and colleges
  - Resources to support this collaboration

Questions

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