

Master of Arts with an Emphasis in Mathematics Teaching

14-Month Program



University of Nebraska-Lincoln

Department of Teaching, Learning and Teacher Education

College of Education and Human Sciences





NebraskaMATH
Robert Noyce NSF Teaching Fellowships



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College of Education and Human Sciences

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COVER PHOTO: (FROM LEFT) NOYCE MASTER TEACHING FELLOW
KATIE GARCIA AND TEACHING FELLOW LAUREN BEITEL HELP
STUDENTS AT OMAHA BRYAN HIGH SCHOOL WITH BUNGEE-
JUMPING M&MS (LINDSAY AUGUSTYN/UNL CSMCE)

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YEAR-AT-A-GLANCE | MAMt CURRICULUM

SUMMER 1 | 12 credit hours

TEAC 800: Inquiry into Teaching and Learning

TEAC 851P: Learning and Teaching Principles: Practices in Secondary Mathematics

MATH 810T: Algebra for Algebra Teachers

MATH 811T: Functions for High School Teachers

FALL | 13 credit hours

TEAC 894P: Professional Practicum Experiences

TEAC 852P: Curriculum Principles and Practices: Secondary Mathematics

TEAC 840D: Culture and Schooling: Mathematics Teaching

EDPS 991: Human Development and Learning for STEM Educators

SPED 801B: Accommodating Exceptional Learners in the Secondary School Classroom

SPRING | 10 credit hours

TEAC 897P: Student Teaching: Secondary Math

TEAC 801: Curriculum Inquiry

MATH 812T: Geometry for Geometry Teachers

Classroom-Based Curriculum Inquiry Project

SUMMER 2 | 6 credit hours

TEAC 889: Master's Seminar

MATH Elective

Oral Exam

Integrated Public School Internship

August Graduation

Earn MAmt degree in 14 months

Aspiring mathematics teachers begin careers after valuable mentoring

Love math? Learn how to teach it. Recent graduates and professionals in the STEM fields (science, technology, engineering and mathematics) exemplify an undervalued resource for teaching, holding the potential to become outstanding mathematics teachers in 21st century schools.

To bring prospective practitioners into the teaching profession, the University of Nebraska-Lincoln's Department of Teaching, Learning and Teacher Education (TLTE) created a full-time, 14-month Master of Arts program that leads to certification to teach mathematics in grades 7-12 in the State



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(From left) Noyce Master Teaching Fellow Brent Larson looks over graded homework with Noyce Teaching Fellow Patrick Spieler at Omaha Central High School in the spring of 2013.

of Nebraska. The results are impressive. This publication tells the story of this degree program and the well-prepared teachers who comprise the first two cohorts of graduates.

The Master of Arts with an emphasis in Mathematics Teaching (MAmt) is a 41-credit-hour program designed

The 2012-2013 Noyce NSF Teaching Fellows took MATH 810T: Algebra for Algebra Teachers in the summer of 2012 with noted UNL Department of Mathematics Professor Tom Marley (standing center). While the Noyce grant finished awarding fellowships to pre-service teachers in 2012, the 14-month MAmt degree program continues on through the Department of Teaching, Learning and Teacher Education.



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for qualified graduate students who have earned a bachelor's degree and 24 earned credit hours of mathematics but do not have a teaching credential. Cohorts begin in the UNL Summer Session of each year and graduate in August the following year (see year-at-a-glance on Page 2).

The program is ideal for recent college graduates and mid-career changers who have strong knowledge of mathematics, a desire to learn to teach and to be a leader in the profession, and a commitment to public schooling. In addition to taking mathematics courses specifically designed for teachers and learning to teach mathematics, graduate students in the program study theories of learning, assessment practices, teaching diverse learners, and how to form meaningful and trusting intellectual relationships with students.

In 2010, faculty in TLTE began discussing the concept of specialized master's degree programs because of the success of an M.A. certification program in elementary teaching that Steve Swidler, TLTE associate professor, designed and implemented in 2009. That program was created to reach career-changers who did not have the means or opportunity to return to

university study for two to three years in a conventional certification program.

At the same time, an interdisciplinary faculty team (Jim Lewis and Ira Papick, Mathematics; Steve Swidler and Dave Fowler, TLTE; Wendy Smith, CSMCE; and Doug Kauffman, EDPS) were developing a proposal to the Robert Noyce Teacher Scholarship Program at the National Science Foundation (NSF) to strengthen mathematics teaching in high-need Nebraska school districts. NebraskaNOYCE, the NSF grant that resulted from their effort, has played a key role in supporting the development of the MAMt as a “master’s plus teaching certification” program that is setting the standard in Nebraska for a program that educates well-prepared secondary mathematics teachers.

An important goal of both the NebraskaNOYCE grant and the MAMt program is to increase the number of high-quality mathematics teachers in Nebraska’s high-need schools. These schools tend to have the most challenging students and are where effective teachers can make the greatest impact on student learning. Nebraska’s two largest school districts, Lincoln Public Schools (LPS) and Omaha

14 Dimensions of Teaching

The MAMt program supports and advances the goals of all teacher education programs in TLTE to develop students’ competencies in the 14 Dimensions of Teaching:

1. Subject Matter Knowledge for Teaching
2. Planning for Learning
3. Instructional Enactment
4. Assessment of and for Learning
5. Classroom Interactions with Students
6. Safe and Supportive Learning Environments
7. Classroom Management
8. Instructional Technology
9. Learner Development
10. Diversity
11. Special Needs Learners
12. Collaborative Relations and Professional Conduct
13. Professional Communication
14. Reflection and Professional Growth

Public Schools (OPS), both of which are classified as high-need districts because of the number of low-income students they serve, are key partners in the grant. Master teachers in these districts play a crucial

role as mentors and cooperating teachers for the MAMt students.

Instead of the traditional concept of discrete practicum experiences and one semester of student teaching (15 weeks, usually beginning in January), MAMt students gain professional growth through a yearlong internship experience. The MAMt program pairs each pre-service teacher with a master teacher, many of whom are Noyce Master Teaching Fellows, for the entire nine-month school year. The first cohort of graduates and the students currently in the program say the internship experience allowed them to learn how to implement classroom practices to manage routines, interventions, and strategies while developing relationships with diverse students. By being in a school for an entire academic year, they also get to know school policy, culture and staff and have the opportunity to collaborate with other teachers to gain confidence in their ability to teach in a high-need school.

Six MAMt students graduated in August 2012, and seven more graduate in August 2013. As part of NebraskaNOYCE’s support for the MAMt, graduate students in the first two cohorts were awarded

Noyce Teaching Fellowships in return for a commitment to teach in a high-need school district for four years after graduation. Stories or personal statements about each of them can be read on the following pages. All six 2012 graduates have been hired to teach in high-need Nebraska school districts: three with LPS, two with OPS and one with a high-need rural school district in eastern Nebraska.

“The Lincoln Public Schools has benefited from the program in two ways,” said Dr. Matt Larson, supervisor of mathematics for LPS. “First, we have been able to hire three graduates of the Noyce Teaching Fellows/MAMt program as secondary math teachers, as the MAMt program does an excellent job preparing mathematics teachers. The graduates’ mathematics background and pedagogical skills are outstanding for beginning teachers, and we are already engaging them in leadership activities. This is in no small part due to the program’s design that places prospective teachers with cooperating Noyce Master Teaching Fellows.”

Dr. Keith Bigsby, principal at Omaha Central High School, now has four Noyce teachers in his building. Bigsby hired two



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(From left) Noyce NSF Teaching Fellows Pat Spieler, Joseph Steele, Jamisen Goodell and UNL mathematics Professor Allan Donsig discuss a problem in MATH 811T: Functions for High School Teachers in 2012.

Noyce Teaching Fellows from the first cohort of MAMt graduates who student-taught with Central High’s Noyce Master Teaching Fellows Brent Larson and Greg Sand.

“The Noyce Teaching Fellows’ skill set is stronger than the typical first-year teacher’s,” Bigsby said. “What I love about the nine-month internship is that they learn master educators have a toolbox built on experience. They also learn more behavioral strategies. They know more than the

average beginning teacher. That’s the beauty of the extended time and ongoing mentoring.”

The mathematics courses taken by students in the MAMt program are specially designed to support the development of Mathematical Knowledge for Teaching, a key recommendation of the 2012 publication of the Conference Board of the Mathematical Sciences, “The Mathematical Education of Teachers II.” Professors in the UNL Department of Mathematics teach these courses. Three of NebraskaNOYCE’s co-Principal Investigators, Dr. Steve Swidler of TLTE, Dr. Doug Kauffman in

Educational Psychology, and Dr. Wendy Smith in the CSMCE, have taken lead roles in developing and teaching key program courses in diversity, human development and motivation, and curriculum inquiry. Dr. Swidler serves as coordinator for the MAMt program.

To apply, see application information on page 31 and visit the website for details: <http://go.unl.edu/mamt>. |

MASTER OF ARTS IN MATHEMATICS TEACHING | PROGRAM FEATURES

- **14 months long.** This full-time, residential program begins during the UNL Summer Sessions and students graduate in the summer the following year upon completion of the program.
- **Graduate degree and teaching certification.** Graduates will earn a Master of Arts degree from the Department of Teaching, Learning and Teacher Education and participate in UNL's summer graduation commencement in August. Upon completion, graduates also will earn certification to teach mathematics grades 7-12 in the State of Nebraska (and be eligible for certification in other states).
- **Emphasis on Mathematical Knowledge for Teaching and a minor in mathematics.** Participants earn a minor in mathematics, taking courses designed for secondary mathematics teachers that emphasize Mathematical Knowledge for Teaching.
- **Nine-month internship in a public school.** Collaborative relations with the Lincoln Public Schools and Omaha Public Schools offer students field experiences in mathematics classrooms, purposefully designed to help connect coursework theory and methods to classroom practice. Students steadily will build proficiency in teaching, adding responsibilities and skills throughout a nine-month period and be prepared to assume 14 weeks of full-time student teaching in the spring.
- **Cohort-based.** Graduate students begin the program in the UNL Summer Sessions and proceed together in a collegial community of math teacher-learners.



BRIANNA PINQUOCH | OMAHA CENTRAL

It all comes down to being “flexible,” says Brianna Pinguoch. After exploring several possible career paths in mathematics throughout college, Pinguoch landed in the MAmt program. Now, Pinguoch has learned being a mathematics teacher is all about thinking on your feet.

“I wanted to be a mathematician until I was 12, and then thought about being a statistician. As an undergraduate in mathematics, I saw a booth for becoming a math teacher at a career fair at UNL. I knew right away that it would be perfect. I like having my degree in mathematics, and I was excited to have a higher degree before becoming a teacher,” Pinguoch said.

Pinguoch also found it rewarding to work as a tutor in college.

“I really liked helping others learn mathematics,” she said. “I really hoped to have my enthusiasm for mathematics rub off on some of today’s youth.”

The MAmt program caught her attention because of the yearlong internship.

“Combining our practicum with student teaching throughout one full year is wonderful training for the actual career,” Pinguoch said. “Another perk of the program is having a support network. We were a small group so we grew very close over the year and still talk today.”

Pinguoch and colleague Molly Jensen both student-taught at Omaha Central High School and both were hired there as mathematics teachers in 2012.

“Not only were the Noyce Teaching Fellows prepared for the classroom, they were also prepared for the Central classrooms they now teach in,” said Dr. Keith Bigsby, principal at Central High. “Their knowledge is second to none.”

“All students can learn, and teachers must strive to make that happen.”

Pinguoch said the program taught her how to use collaboration, relationship building and variety in teaching – and, most importantly, to focus on the students.

“The students are the reason for teachers, so we have to try our best to meet their needs,” she said. “All students can learn, and teachers must strive to make that happen. Effective learning requires respect between the teacher and students. Building positive relationships with students is the best way to earn this respect. Learning happens best when students feel safe and accepted.”

A native of Blair, Neb., Pinguoch graduated from high school in Murray, Neb. She fell in love with math at 5 years old and never looked back. She even had contests with her older brother in which they would write long division problems for each other and race to solve them.

“If you want to teach, or are thinking about teaching, the MAmt is the best way to get there,” she said. “I love my students, and I love talking about numbers each day. I couldn’t imagine ever having a more rewarding job.” |

MOLLY JENSEN | OMAHA CENTRAL

For four years, Molly Jensen worked as a structural engineer after graduating from UNL. But, she always had a gut feeling she was meant to be a teacher.

She had the courage to make a career change after watching both of her parents change careers successfully while she was growing up.

“I loved working with students during college and continued to tutor while working as an engineer,” Jensen said. “I liked my engineering job, but I had a gut feeling that teaching was what I was meant to do. I spoke to a group of students at a career day about what it was like to be an engineer. Standing in front of students in a classroom that day helped to confirm that I should become a teacher.”

While working at an engineering consulting firm in Omaha as a bridge designer, Jensen heard about the MAmt program from family friend Dr. Steve Swidler, co-PI for the NebraskaNOYCE grant.

“I found the program attractive

because I could obtain a master’s degree in just 14 months,” Jensen said. “I did not want to quit my engineering job if it was going to take me longer than a year to complete teaching certification. To me, the accelerated program was more important than even the Noyce stipend and tuition.”

The Lincoln native said she decided to major in civil engineering at UNL because she liked mathematics. The MAmt program helped her to brush up on her mathematical content knowledge and then taught her how to apply it to a mathematics classroom.

“I gained valuable ideas in how to put lessons together and philosophies of grading in methods courses,” Jensen said. “It helps to know the processes that the brain goes through when students learn, which I learned about in the educational psychol-

“Each course that I took contained relevant knowledge to teaching.”

ogy course. I also use language and strategies that I learned in the special education course. Overall, each course that I took contained relevant knowledge to teaching.”

Jensen student-taught at Omaha Central High School and was hired there along with Brianna Pinguoch, another of the Noyce Teaching Fellows.

“It was very helpful to be at Omaha Central for an entire school year during the 14-month program. Even though it is my first year of teaching, it feels like I have more experience,” Jensen said.

Even though Jensen lived in Omaha and had to commute to class, the program was “well worth it,” she said.

Jensen said she learned to work hard to build relationships with her students.

“I try to make math relevant to my students. I want them to know why they need to know what I am teaching them,” she said. “I also focus on building relationships with my students. When I have good rapport with students, I can get them to work harder and do more homework because they don’t want to let me down.” |





CHARLES JAMES | SCHUYLER CENTRAL HIGH

Math does not come easy for everyone. For Charles James, the thrill comes when he can help someone find mathematics to be just a bit easier.

“Ever since my elementary-school days, I was one of the few kids who actually enjoyed math,” James said. “I enjoyed working with numbers and even played mathematical games on long car rides. Math was my best subject, so when it came time to decide a major for college, math seemed to be my only logical choice.”

Originally from Pleasant Plains, Ill., James attended Blackburn College in Carlinville, Ill., and majored in mathematics. He worked as a mathematics tutor for students ranging in age from 18 to 50.

“I enjoyed helping them learn, and it made me realize that teaching could be the career for me,” he said. “Thanks to the tutor position that my college professor gave me, I obtained a joy in teaching mathematics.”

He also found himself thinking like

a teacher when he was still just a student. “I often wondered how I would teach this subject if I were the professor,” James added.

James applied for the MAMt program at the encouragement of his fiancée, Elizabeth, who was an elementary education major at UNL.

“I was intrigued by the MAMt opportunity because I really liked we would be in a school all year for the internship,” James said. “This would give me the experience I needed to decide for certain if teaching was right for me.”

After student teaching with Pat Janick at Lincoln High School, James was hired as a secondary mathematics teacher at Schuyler Community Schools in eastern Nebraska. His wife also was hired by Schuyler as an elementary teacher.

“The most important thing I learned from the program was patience.”

“When I met with Schuyler’s administration, I was impressed with the commitment to the students and to technology,” James said.

Greg Pavlik, Schuyler Central High School’s principal, said James has made a seamless transition from student to professional educator.

“His understanding of the planning and preparation process puts him way ahead of other first-year teachers,” Pavlik said. “Support was in place for him all year as a student-teacher.”

James said the most important thing he learned from the program was patience.

“The MAMt program is a great way to use your existing mathematical knowledge and learn how to provide instruction to middle and high school students. The internship shows you how the courses relate to the classroom,” James said. “When teachers find ways for students to engage in class it improves motivation and gives students belief they can succeed in mathematics.” |

LAURA JANSSEN | PARK MIDDLE, LINCOLN

“Giving my students a mathematical experience is much more worthwhile than practicing the same procedure over and over.”

Laura Janssen was on track to earn a Ph.D. in mathematics.

While she loved learning higher-level mathematics, she found herself feeling “unfulfilled,” she said.

While she knew she wanted to be a teacher, Janssen did not want to give up on her Ph.D. program to earn another bachelor’s degree. However, the MAmt program solved that problem for her.

“Because of the MAmt program I was able to earn a dual master’s degree in just two years. Plus, the courses were tailored for secondary math teachers and taught by experts in the field,” Janssen said. “Although I plan to be a life-long learner of mathematics, I have found my true passion in fostering an enthusiasm for math in my students.”

Janssen, who graduated from UNL with a degree in mathematics, currently teaches at Park Middle School in Lincoln.

“I love working with middle school students because they haven’t decided

whether they’re good at math, and I get to be a part of helping them see their potential,” she said.

Janssen said she tries to do as many hands-on activities as she can with the middle school students.

“One day I brought all of my pots and pans in so we could find the ratios of their circumference and diameter – spoiler alert: it’s pi!” Janssen said. “I’ve found that giving my students a mathematical experience is much more worthwhile than practicing the same procedure over and over.”

Originally from Redwood Falls, Minn., Janssen always loved math while growing up.

“I remember asking my parents to give me math problems to solve and

staying after school to get challenge problems from my teachers,” she said.

The MAmt program helped Janssen learn to take her love of mathematics and apply it to the classroom.

“I came away from the program with a solid understanding of current mathematics education research, and I knew how to implement research-based teaching strategies in the classroom,” Janssen said.

“The MAmt program prepared me to walk into the classroom feeling confident about my instructional and content knowledge so I was able to focus my energy on building relationships with students.”

For Janssen, the combination of the courses and yearlong internship was invaluable.

“I believe the MAmt program has set me on a path toward becoming a teacher-leader in my school,” she said. |



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SARAH FISCHBEIN | GOODRICH MIDDLE, LINCOLN

“Teaching needs to be a passion.”

Sarah Fischbein wants to give back to her students what great teachers have given her.

Fischbein’s biggest influence on the way to becoming a mathematics teacher was Jerel Welker, her Differentiated Pre-Calculus teacher at Lincoln Southwest, who is now a district math coach.

“I was in his room every morning at 7:15 a.m., and then harassing all the teachers for help after school. Jerel never gave up on me. I remember him explaining a problem to me five times in five different ways because I didn’t get it,” Fischbein said.

“That moment really changed my life. He never got mad, made me feel stupid, or told me I just wasn’t going to get it. He kept changing the way he explained it until he found a way that worked for me. That’s what I want to give back to my students. I aspire to be as amazing a teacher as he is.”

Fischbein majored in mathematics at

UNL, and was planning to get a master’s in education. One of her professors recommended the MAmt program to her.

“I liked that the program provided me with a yearlong experience with one teacher,” she said. “It can be hard to bounce from classroom to classroom doing practicums and student teaching when you don’t really have a working relationship with the teacher. That was the most appealing part – that, and the fact that I was done in 14 months!”

Born in California, Fischbein moved to Nebraska when she was 11. She struggled with mathematics growing up but was encouraged by her parents not to give up.

“I think I was my worst enemy though. I seemed to let my fear of math get in the way of my learning,” she said. “It wasn’t until my sophomore year of high school that I engaged positively with mathematics.”

Fischbein interviewed and was hired at Goodrich Middle School with LPS in 2012. She felt an immediate connection with the principal, Rachele Connor. “We

shared the same attitude about teaching and the relationship a teacher should have with her students,” Fischbein added.

Fischbein’s teaching philosophy is that a successful teaching environment means having strong relationships with your students.

“They need to know you care about them. I am going to borrow from another teacher, Gary Furse [a Noyce Master Teaching Fellow at Pound Middle School] who always says, ‘Students don’t care what you know, until they know you care.’ I have found this truth to be incredibly successful in guiding my teaching practice.”

Teaching also needs to be a passion if you are thinking about pursuing it as a career, Fischbein said.

“This program is not for someone who only *kind of* wants to be a teacher,” she said. “You learn so much about yourself and about yourself as a teacher through this program. I honestly don’t think there is a program that could have prepared me better for teaching than this one.” |

ALAN HOLDORF | LINCOLN SOUTHEAST

Alan Holdorf was all set to become a software engineer. But then he realized that the thing he liked best about programming was the logical thinking involved in mathematics.

After enjoying his work as an undergraduate tutor, Holdorf decided to pursue the MAmt after earning his degree in computer science from UNL's Jeffrey S. Raikes School.

"I liked the idea of being able to switch my career path quickly without having to spend several more years in school. Also, the idea of the yearlong internship was very appealing as I had done similar things as an undergrad," Holdorf said.

Holdorf was hired at Lincoln Southeast High School in the Lincoln Public Schools District after graduating in 2012.

"I student-taught here last year and was lucky enough to have a position open up at the right time," he said. Holdorf was

mentored by Noyce Master Teaching Fellow Sherry West, the chair of Southeast's math department.

Hearing the perspectives of a variety of different people throughout the 14-month program helped Holdorf to build up his own thoughts on education.

"My teaching philosophy is that students need to learn how to think. I do not spoon-feed them answers or tell them how to solve every specific type of problem. Instead I try to focus on how to go about solving an unknown problem and thinking about the given information in a way to generate a solution. I maintain strong expectations for them to retain the information previously taught, while at the same time working with them to fill in

"My teaching philosophy is that students need to learn how to think. I do not spoon-feed them answers."

the gaps when they have forgotten pieces of information."

After growing up in Denver, Holdorf went to high school in Sioux Falls, S.D. His father was an artist, and his mother was a civil engineer before she switched careers to teach preschool and become a librarian and a facility manager for a church.

Holdorf said he always loved math when he was young – "it just made sense," he added.

While mathematics may have come easily to him, Holdorf appreciated what the MAmt program taught him about how to teach math.

"The most important thing I learned in my coursework was to always be on the lookout for new ways to approach teaching," Holdorf said. "Even if some method works really well one time, it doesn't mean it will work well the next time. It is a good place to start from, but there are always improvements to be made and various approaches to try." |



Extended internship experience pays off

A main objective of the NebraskaNOYCE grant has been to support the creation of a 14-month Master of Arts program that leads to certification for teaching secondary mathematics in Nebraska. One of the most innovative components of the MAMt program is its nine-month internship.

In creating the “MAMt,” the Department of Teaching, Learning and Teacher Education in partnership with the Department of Mathematics sought to create an exemplary program to educate the state’s very best secondary mathematics teachers. The nine-month-long internship provides high-quality mentoring for the MAMt students as they fulfill their clinical teaching requirement. They are exceptionally well prepared for careers as secondary mathematics teachers in high-need schools.

For the internship, each MAMt graduate student is paired with a carefully chosen cooperating teacher, typically a Noyce Master Teaching Fellow.

Noyce Master Teaching Fellows are among the state’s finest math teachers or math coaches. They all work in a high-need school district, have earned a master’s degree, and want to make major contributions to mathematics teaching and learning in their school and district. In high-need schools, these Master Teaching Fellows model a commitment to working with the most challenging students who stand to benefit the most from high-quality teaching.

Four Master Teaching Fellows and two other outstanding teachers served as cooperating teachers for the six students in the first cohort during the 2011-2012 school year. Seven Master Teaching Fellows

served as cooperating teachers for the seven students in the second cohort during the 2012-2013 school year. Because of the yearlong working relationship, these master teachers become genuine guides and mentors for the MAMt students.

“Lincoln Public Schools benefits from the leadership of the LPS Noyce Master Teachers who also serve as cooperating teachers to Noyce Teaching Fellows. The Noyce program thereby provides prospective teachers an opportunity to learn from some of the very best mathematics teachers in the state. The power of this mentoring along with the program’s unique academic preparation makes the Noyce MAMt program both unique and highly effective,” said Dr. Matt Larson, mathematics supervisor for LPS.

This extended student-teaching assignment also allows students to experience the entire school year, giving them a clear advantage as a first-year teacher. They participate in beginning a school year and in bringing it to a close. They



Jamisen Goodell teaches a mathematics lesson with the help of Master Teaching Fellow Sherry West at Lincoln Southeast High School in the spring of 2013. Goodell will have spent the entire 2012-2013 school year in West's classroom, benefitting from her mentoring and establishing better connections with students.

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Charles James (left) interned in the classroom of Noyce Master Teaching Fellow Pat Janike (right) at Lincoln High School in the fall of 2011. James now teaches at Schuyler Central High School after graduating from the MAmt program in August 2012.

witness master teachers as they form and sustain relationships with math learners.

“I have always thought that there was a great opportunity lost in the usual practicum experience for student teachers,” said Jim Harrington, supervisor of mathematics for Omaha Public Schools. “The pre-service teacher enters the classroom after the sometimes-chaotic but extremely important beginning of the school year, and is gone before the equally important end-of-the-school-year. As a result the pre-service teacher misses out on seeing how the tone is set for the year, as well as all of the work that goes into preparing for and closing out a school year.

“However, the MAmt program changes all of that. There will be no surprises when the student graduates from the program and becomes a teacher on his or her own. The difference is big: I worked with 17 new math teachers this year, two of whom are MAmt program graduates. Those two first-year teachers had a much clearer picture of what to expect, and thus they were faced with far fewer problems to begin the year.”

Harrington is talking about Molly Jensen and Brianna Pinquoch at Central High School in Omaha. Jensen was paired

with Greg Sand and Pinguoch was paired with Brent Larson, two of the Noyce Master Teaching Fellows.

“Both Brianna and Molly have been able to come into their first full year of teaching with knowledge about both the students and the building. This knowledge has allowed them to deal with fewer first-year teacher issues and instead focus more on instruction, management, and professional development,” said Sand. “They were able to see a class being started from nothing, watch curriculum and relationships develop, and see students and teacher struggle with the issues in a modern classroom. All of this has given them an experience equal to the first year of teaching while under the supervision of a classroom teacher.”

The six MAmt graduates in the first cohort were surveyed after the program ended. All responded that they gained professional growth through their year-long internship experience and were able to implement classroom mechanisms to manage routines, interventions, and strategies while developing relationships with diverse students. They also stated they appreciated collaborating with other teachers to gain confidence in their ability to teach



LINDSAY AUGUSTYN/UNL CSMCE

Jamisen Goodell (standing right) helps students at Lincoln Southeast High School with a mathematics lesson in March 2013.

in a high-need school.

Sarah Fischbein at Goodrich Middle School in Lincoln said she appreciated the preparation afforded by the internship.

“It is easy to talk about methods in class, but if you don’t get to see the students in action when you use those methods it’s not as useful,” Fischbein said. “It

was incredibly useful to be able to come to our classes and discuss situations that had happened in the classroom. We were able to gain valuable insight that way through our peers and professors. I thought the classroom and courses combined were what prepared me the most.”

From the perspective of a Master Teaching Fellow, Brent Larson at Omaha Central High witnessed the same benefits for Jensen and Pinguoch.

“In most programs, student teachers come to us having completed all of their course work and the semester of student teaching is the final step to certification. While Brianna and Molly were spending their year with us, they were working on their course work and research,” said Brent Larson. “They had

material to take back and discuss with their cohort and, in turn, had new ideas to bring back to their classrooms. The material they were working on as a student was very timely and relevant to the situations they found themselves in as teachers.”

Lincoln Southeast Principal Brent Toalson noted the MAMt program is also beneficial because it allows the students to feel like they are members of the department, leading to more of an investment between the teachers and student-teachers.

“Stronger networking with other professionals is also developed, making the first year of teaching easier,” Toalson said.

The mentoring offered by Master Teaching Fellows in the MAMt will be part of a sustainable legacy of NebraskaNOYCE. This program can model how mathematics and teacher education faculty can work in partnership with district mathematics leaders in pursuit of the common mission to improve mathematics teaching and learning in high-need schools. This draws upon the expertise present in public-school mathematics practitioners and brings outstanding teachers into the teacher-education process. |



LINDSAY AUGUSTYN/UNL CSMCE

Lauren Beitel (left) helps her students at Bryan High School in Omaha with the mathematics assignment of bungee-jumping M&Ms in March 2013. Beitel interns with Noyce Master Teaching Fellow Katie Garcia.



Noyce Teaching Fellows Cohort 1

Master teachers' guidance

The Noyce Master Teaching Fellows and other master teachers model professional development and continually invest in their own learning as a way to sharpen their teaching and mentoring skills. They provide workshops for their school or district in which the current and past MAMt students can participate.

For instance, two LPS MTFs, Pat Janike and Sherry West, offered a summer graduate course in 2012 and academic-year implementation effort (modeled after the Lesson Study concept) to improve the way LPS teachers teach high school geometry.

The Master Teaching Fellows also offer and attend Math Teachers' Circle meetings and local district and ESU professional development day sessions.

The MAMt interns in LPS participate immediately and throughout the school year in the school-based and district-wide Professional Learning Communities.

NOYCE TEACHING FELLOWS PROFILES

2012-2013



LINDSAY AUGUSTYN/UNL CSMCE

The seven 2012-2013 Noyce NSF Teaching Fellows, (from left) Lauren Beitel, Jeremy Jank, Sonja Ann Kalkwarf, Collin Holmquist, Jamisen Goodell, Joseph Steele and Patrick Spieler, will graduate with a Master of Arts with an emphasis in mathematics teaching in August 2013 from UNL.

Meet the Teaching Fellows:

<http://scimath.unl.edu/noyce/tf>

Meet the Master Teaching Fellows:

<http://scimath.unl.edu/noyce/mtf>

LAUREN BEITEL



“The Noyce master’s program in mathematics teaching at UNL has shaped me into a teacher that will continually strive to grow as an educator in order to benefit my students.

The courses and the support from the faculty have prepared me to enter the math classroom prepared to apply current research and theory into my instruction to better the

math education for students in high-need schools. The internship has been the most valuable part of my learning experience. Being a part of the school and classroom for an entire year has prepared me to enter the classroom as a first-year teacher with realistic goals and expectations for becoming an excellent teacher in all aspects.”

JAMISEN GOODELL



“I was a semester short of obtaining my engineering degree when I decided that teaching might be the career for me. Luckily, instead of completing an undergraduate degree, the MAmt program was available for me after graduation. Not only is it for career changers, it is for anyone who feels education is the path for them. The program is intensive, but well worth

it. I have learned so much in the year I have been in the program, and the yearlong internship has been instrumental in my learning. The internship allowed me to ease into my teaching experience by first getting to know the students, staff, and school. When the time came for me to teach, I could focus on what really mattered – educating youth! I thought it was the right program for me before I got in, and my experience has surpassed my expectations.”

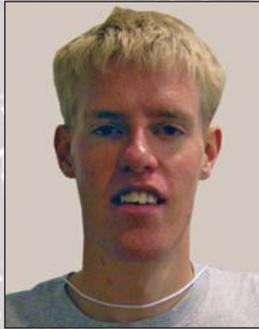
COLLIN HOLMQUIST



“Mathematics has always been an interest of mine; it just never seemed to manifest itself in the right way. Soon after beginning the MAmt program, I realized that teaching mathematics was where I was meant to be. Through that, I am finding that math is more alive than I have previously experienced. It has been a blessing to have a cooperating teacher that takes

on a mentor role. It is helpful to have someone who is a consistent source for guidance as well as someone who challenges me to become a better educator. Spending an entire year in the same school has allowed me to develop stronger relationships with my students. I find that the sizeable investment of time and effort of the program is worth it when I look back and reflect on my growth as a teacher and my students’ growth as learners and citizens.”

JEREMY JANK



“The MAMt program has been a huge blessing as I have learned and progressed on my way to becoming a mathematics teacher, and more importantly, an educator of adolescents. I am extremely grateful for the continual mentoring and guidance my cooperating teacher has provided me as part of the yearlong internship in a public school. With a vast array of

experience and knowledge, my cooperating teacher has modeled consistent and coherent ways of teaching and building rapport with students that have motivated me for the future in my own classroom. The constant support of my professors, advisors, and supervising teachers is a true benefit of this program. Embarking on this intense educational and training adventure with my cohort has been very encouraging, as we are able to share our own unique insights with one another about what we have learned before, during and after our individual internships.”

SONJA ANN KALKWARF



“The unique experience provided by the MAMt program, particularly the yearlong internship and mentoring opportunity, are extremely valuable and worthwhile. Being able to spend an entire year within a single school setting, with a single group of teachers has been wonderful. It has also been beneficial to see not only the day-to-day operation

within the school, as is normally observed during a student teaching opportunity, but to also gain the experience of starting the school year and observing seasoned teachers at this highly important time of the school year. The cohort experience is also something that has provided a wonderful learning opportunity and many wonderful memories. The intensive 14-month program is not for those who are unable to fully commit to all of the time requirements and responsibilities. However, for those who are willing to make the commitment what is gained makes the sacrifices made completely worthwhile.”

PATRICK SPIELER



“As a career-changer, I was looking for a program that allowed me to move quickly into the teaching profession. Even though the MAmt program is only 14 months, the program has thoroughly equipped me to become an effective mathematics teacher. The nine-month internship with the Omaha Public Schools was a tremendous benefit because it gave me the

opportunity to observe my cooperating teacher in the classroom during the fall semester while taking classes at UNL. It also made the transition to full-time student teaching easier because I was already familiar with the students. The 14-month program was challenging, and it was difficult to prioritize studying over spending time with my wife and two children. In the end, however, the benefits of obtaining a master’s degree and teaching certificate all in just over a year are worth the sacrifices made during that time.”

JOSEPH STEELE



“The Noyce program was planned so that our cohort would take all of our classes together, and go through student-teaching together. It’s been a great experience, as we have learned more from collaboration and group work than we could have learned any other way. The program is intensive, and we have spent many long weeks just keeping up with the workload.

Fortunately, we have had each other to rely on, and to turn to for help and guidance. I have never been a part of a learning group like this before, and it is tremendous. I have learned a great deal from the program as a whole.”

INSTRUCTORS AND MENTORS | 2010-2013



Jim Lewis



Doug Kauffman



Wendy Smith



Stephen Swidler

NebraskaNOYCE Principal Investigators

Jim Lewis, Mathematics, Principal Investigator (PI)

Doug Kauffman, Educational Psychology, co-PI

Wendy Smith, CSMCE, co-PI

Stephen Swidler, TLTE, co-PI

David Fowler, TLTE, co-PI, ret.

Ira Papick, Mathematics, co-PI, ret.

UNL Instructors

Erin Blankenship, Statistics

Allan Donsig, Mathematics

David Fowler, TLTE, ret.

Chuck Friesen, TLTE

Jennifer Green, Statistics/CSMCE

Brian Harbourne, Mathematics

Stephen Hartke, Mathematics

Doug Kauffman, Educational Psychology

Christine Kelley, Mathematics

Lorraine Males, TLTE

Tom Marley, Mathematics

Wendy Smith, CSMCE

Stephen Swidler, TLTE

UNL Graduate Students in Mathematics

Thomas Clark, Joe Geisbauer, Zhao Han, Brian Johnson, Anne Kerian, Lauren Keough, Jared Ruiz, Zheng Yang

Master Teachers and Administrators

Tanya Archie, Omaha Benson High School

Dan Dougherty, Lincoln Southeast High School

Spencer Duncan, Lincoln Southeast High School

Gary Furse, Pound Middle School, Lincoln

Katie Garcia, Omaha Bryan High School

James Harrington, Omaha Public Schools

David Hartman, Lincoln Public Schools

Pat Janike, Lincoln High School

Brent Larson, Omaha Central High School

Matt Larson, Lincoln Public Schools

Greg Sand, Omaha Central High School

Sherry West, Lincoln Southwest High School

Evaluators

RMC Research Corporation:

Arlene Mitchell, Brandie Good and John Sutton

CSMCE/NebraskaNOYCE Staff

Lindsay Augustyn, Andy Frederick, Jane Kaufmann,

Maria Hansen, Stephanie Vendetti, Brenda West

QUALIFICATIONS | MAmt PROGRAM

You should apply for the Master of Arts with an emphasis in mathematics teaching program if you have:

- A desire to be a leader in mathematics education, and make a real difference in the lives of young people.
- Graduated from an accredited college or university with a bachelor's degree with a STEM major or minor.
- Earned at least 24 credit hours in mathematics courses at the calculus level and above, with a GPA of 3.0 in those courses.
- A strong academic background that qualifies you for admission to the TLTE Master of Arts program, including an undergraduate cumulative GPA minimum of 3.0 on a 4.0 scale.
- Experience working with adolescents in formal or informal settings.
- Ability to commit to participating fully in the 14-month, cohort-based, full-time academic teacher education program.

APPLICATION INFORMATION | ANNUAL DEADLINE: MARCH 1

The application process for MAMt is a two-part procedure. Applicants must apply to both:

- UNL Graduate Studies and the
- Department of Teaching, Learning and Teacher Education.

The Graduate Faculty admissions committee for the MAMt looks for evidence of your meeting the following admission criteria:

- your strength as a learner, i.e., your academic background in general and mathematics in particular;
- your readiness to learn to teach mathematics to adolescents;
- and your commitment to middle-level and high school youth and to schooling in a democratic society.

<http://go.unl.edu/mamt>

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CONTACT US

For questions about the MAMt program or your eligibility, please contact:

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