Rationale and Mission:

- National and local studies show the single strongest predictor of retention from first to second year of college is taking and passing a math class in the first year.
- 5-10% of students entering UW-Stout typically place into Beginning Algebra or Math 010, a remedial class. Another 30-35% place into Intermediate Algebra or Math 110, a credit-earning class serving as a prerequisite to courses satisfying the general math requirement. Failure/withdrawal rates in these two classes have historically averaged about 30%. Our placement statistics approximate U.S. Collegiate averages; national failure/withdrawal rates in similar courses average about 40% (U.S. Department of Education, 2004 report).
- A departmental task force determined that the three biggest barriers to students’ success in these classes have been not completing homework, skipping class, and not using free tutoring services or office hours.

To address these problems, the Math Teaching and Learning Center was inaugurated in the fall semester of 2004. The three primary strategic changes in course delivery are (1) daily computer-graded homework assignments using software with algorithmically generated questions and problem-by-problem online help; (2) small class sections that meet daily with a classroom instructor for short lectures followed by in-class homework help, with attendance taken daily; and (3) pooling of instructors’ office hours to staff a dedicated open tutor lab for 40-45 hours per week in a room adjacent to the Math TLC classroom, augmented by a specially trained staff of undergraduate peer tutors from many majors and representing diverse student populations.

8-Year Results and Highlights:

- The Math TLC program has served nearly 5000 students since the fall of 2004.
- F/W rates have been reduced by 46% in Math 010 and by 29% in Math 110.
- An estimated 625 more students passed introductory algebra courses than would have passed without the Math TLC program. This number translates to nearly 4% of the entire Stout undergraduate student population over those eight years.

- The Math TLC program has cut the minority student achievement gap by more than 80%.
- The Math TLC program has received four external grant awards, including a 4-year, $450,000 grant from the U.S. Department of Education FIPSE program and over $100,000 in funding from the UW System for a two-year minority achievement gap reduction project.
- The Math TLC program was cited as a major factor in the selection of the UW-Stout Department of Math, Stats and Computer Science as the recipient of the 2011 Program Achievement Award from the State of Wisconsin Council on affirmative action and the 2008 University of Wisconsin System Regents Award for Teaching Excellence.
- Grant-funded course redesign workshops developed by the Math TLC team have been attended by a total of 57 educators from 31 institutions in 12 states.

Visit our web site at mathtlc.uwstout.edu.

This work has been supported in part by the U.S. Department of Education under FIPSE grant number P116B06011.
MORE RESULTS & HIGHLIGHTS:

- **Homework**: 96% of all homework assignments are turned in; the average homework score is 93%. Students are spending an average of **95 minutes** on each daily homework assignment.

- **Tutor lab visits** for Math 010/110 now average 150-200 a week or **2500-3000 per semester** vs. **80** total visits to the campus tutoring office for these two classes in the fall semester of 2003.

- **Class attendance** now averages over **90%** in both Math 110 (Intermediate Algebra) and Math 010 (Beginning Algebra).

- **Student comments** from end of semester survey:
  - *The class is better than I expected. I'm learning more this way than I ever did in high school.*
  - *I REALLY like the way this class operates thus far, and let it be known that I can’t even remember “not minding” a math class since Jr. high school!*
  - *I loved the online homework and tests/quizzes. I believe that helped me a lot!*

**Closing the Minority Achievement Gap:**

The proportion of **underrepresented minorities** among first-year Stout undergraduates has increased over 50% in the past six years. The average math ACT score of minority students in the most recent entering classes was nearly **3 points lower** than other students. The proportion of minority students placing into remedial math (Math 010) was more than twice the rate for all others. Prior to the Math TLC program, failure/withdrawal rates for minority students in remedial math averaged 60%, compared to 20% for all other students. This **40-point gap** was reduced by more than half in the first year of the Math TLC program, and has continued to decline to an all-time low of less than **8 percentage points** in the fall semester of 2008. A two-year summer bridge pilot program has decreased Math 010 failure and withdrawal rates to **zero** in the two small cohorts of students of color who attended the programs in 2009 and 2010.

**COURSE REDESIGN WORKSHOP Materials and Resources:**

A **U.S. Department of Education FIPSE grant** funded three annual summer course redesign workshops at UW-Stout. Attendees at the 2007, 2008 and 2009 workshops included teaching teams from five UW System universities and six Wisconsin technical colleges, as well as participants from 2-year and 4-year colleges and universities in Michigan, Texas, West Virginia, Missouri, Illinois, North Dakota, Minnesota, Kansas, South Carolina, and Iowa.

All presentation slides and other resources and materials developed for these workshops are available to the public at [http://www.uwstout.edu/mathtlc/course-redesign-materials.cfm](http://www.uwstout.edu/mathtlc/course-redesign-materials.cfm)

**Questions?** Contact Math TLC Director **Dr. Jeanne Foley** at **foleyj@uwstout.edu** or **(715)232-5001** or visit our web site at [http://mathtlc.uwstout.edu/](http://mathtlc.uwstout.edu/).