

## *Sample only*

### Course Description Math M.Ed. Winter Year 1

#### Probability and Statistics: Teaching Math for Social Justice

This course will focus on teaching mathematics from a social justice stance. If we truly say that all students should have the opportunity to learn important mathematics, and that math matters for their life outcomes, we must examine the social, psychological, structural and cultural factors that affect student outcomes. In this course we will begin by examining the racialized backbone of schools and school history. We will consider what has been allowed into the mathematical cannon, and what is systematically excluded—whose mathematics counts? Whose cultures, races and abilities are welcome in school? How do these things affect students and what kinds of resistance do marginalized students offer up?

The course will continue by exploring the role of status, power, and identity in the classroom and examine effective strategies to provide students with greater access and create math classrooms as a more equitable space. We will consider tracking and un-tracking academically, structurally, and politically. We will explore effective strategies for developing student language in the math classroom and how students with special needs can be supported. Our exploration of teaching math for social justice will scratch the surface on work that has been done in this field, and questions that exist within it. Hopefully it will open doors and windows for your thinking and future exploration.

We will explore some features of probability and statistics through course activities focused on conceptual understanding and using tasks that deepen our understanding of equity. Our mathematical coverage will be much less than fall quarter's focus on algebraic thinking. The probability and statistics that we do cover will be guided by two documents: The Transition Math Standards and the Endorsement Competencies 5-12 that are attached at the bottom of the syllabus. Again, we will not be comprehensive, but we will touch on those areas of probability and statistics. The mathematical foci of various lessons will also not be stated within the syllabus as they were fall quarter.

Another feature of this class is to further acculturate you into graduate work. We will read more original research articles this quarter than last. That means the reading will be denser, less accessible, and use more formalized language. It is also closer to the source, which allow for greater critique. This acculturation process should help you as you prepare to do your own action research project next year. It should help you recognize the difference between research articles, conceptual pieces, and articles that are written as synthesis pieces for teachers. As you read these research articles, pay particular attention to how research questions are framed. Posing a good researchable question is an art form you need to learn. Readings will also sometimes argue with each other or portray different perspectives that appear to contradict each other. This is another

feature of graduate work. In a dynamic human system such as education, research is quite complex and doesn't always paint a clear picture of what is best for all kids.

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Books and articles:

<http://www.greatfallstribune.com/apps/pbcs.dll/article?AID=/200812150500/NEWS01/812150301>

Baxter, J. A., Woodward, J., & Olson, D. (2005). Writing in mathematics: an alternative form of communication for academically low-achieving students. *Learning Disabilities Research & Practice, 20*(2), 119-135.

Beegle, D. (2006). *See Poverty...be the difference!: Discovering the missing pieces for helping people move out of poverty*. Tigard, OR: Communication Across Barriers, Inc.

Bishop, A. (1988). Mathematics education in its cultural context. *Educational Studies in Mathematics, 19*, 179-191.

Boaler, J. (2002). Learning from teaching: exploring the relationship between reform curriculum and equity. *Journal for Research in Mathematics Education, 33*(4), 239-258.

Boaler, J., & Staples, M. Transforming students' lives through equitable mathematics approach: the case of Railside school.

Burris, C., Heubert, J., & Levine, H. (2006). Accelerating mathematics achievement using heterogeneous grouping. *American Educational Research Journal, 43*(1), 105-136.

Chval, K., & Khisty, L. L. (2001). Writing mathematics with Latino students.

Cohen, E. (1994). *Designing groupwork: strategies for the heterogeneous classroom* (2nd ed.). New York: Teachers College Press.

D'Ambrosio, U. (Ed.). (2007). *Peace, social justice and ethnomathematics*.

Darling-Hammond, L., & Ifill-Lynch, O. (2006). If they'd only do their homework. *Educational Leadership, 8*-13.

Flores, M. M., & Kaylor, M. (2007). The effects of a direct instruction program on the fraction performance of middle school students at-risk for failure in mathematics. *Journal of Instructional Psychology, 34*(2), 84-94.

Khisty, L. L., & Chval, K. (2002). Pedagogic discourse and equity in mathematics: when teachers' talk matters. *Mathematics Education Research Journal, 14*(3), 4-18.

Lee, A. (2008). *The Creation of the Learning Disabled in Contemporary U.S. Educational Culture*. Unpublished manuscript.

Lewis, A. (2005). *Race in the schoolyard: Negotiating the color line in classrooms and communities*. New Brunswick: Rutgers University Press.

Lubienski, S. T. (2000). Problem solving as a means toward mathematics for all: An exploratory look through a class lens. *Journal for Research in Mathematics Education*, 31(4), 454-482.

McIntyre, E., Rosebery, A. S., & Gonzalez, N. (Eds.). (2001). *Classroom diversity: Connecting curriculum to students' lives*. Portsmouth, NH: Heinemann.

Steele, C. M. (1997). A Threat in the Air. *American Psychologist*, 52(6), 613-629.