

# PBS TeacherLine Course Syllabus

## **Title**

Gender Equity in the Mathematics Classroom for Grades 4-8

## **Target Audience**

This course is intended for pre-service and in-service 4-8 teachers.

## **Course Description**

The NCTM Equity Principle states, "Excellence in mathematics education requires equity—high expectations and strong support for all students." This course explores ways of creating classroom environments in middle school that are equally supportive of girls' and boys' success in math. Learners will examine the unique social and academic needs of girls at this point in their development, with an eye towards encouraging pursuit of mathematics in high school and beyond. Learners will evaluate their own teaching styles and examine strategies for improvement. As a final task, learners will find ways to create or maintain gender equitable mathematics curricula in their classroom or their school.

## **Facilitator**

See instructor/facilitator sheet

## **Credits**

To be determined by college or university

## **Goals and Objectives**

Learners will:

- Be able to communicate what gender equity means in the mathematics classroom.
- Have a basic understanding of current research on this topic and how it applies to their teaching.
- Identify some of the main areas in which they can work to increase gender equity in their classrooms, as well as specific educational practices and strategies they can use.
- Develop a gender equity action plan they can implement in their classrooms.

## **Outline of Content and Assignments**

After previewing the course introductory information, learners will proceed to the Assignments section to complete the following six sessions, working through each session, or part, in order. Throughout the sessions, learners are asked to articulate their ideas in various forms. They are encouraged to reflect on their ideas and experiences in their online journals. The weekly discussions are designed to foster the articulating and sharing of ideas and strategies. Towards the end of the course, learners will complete a final project. The sessions are as follows:

Session 1: Orientation

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Session 2: Gender and the Curriculum

Session 3: Classroom Expectations and Interactions

Session 4: Assessment and Gender Equity in Mathematics

Session 5: Winning Family and Community Support for Mathematics Achievement

Session 6: Planning Next Steps

This course is designed to address NCTM's *Principles and Standards for School Mathematics* (PSSM 2000). These standards reflect some of the most current research on mathematics teaching and learning, and present a vision of instruction that should enable all students to solve challenging problems.

## **Session 1: Orientation**

Learners will:

- Watch an introductory video to the PBS TeacherLine courses that offers important ideas for studying online;
- Learn about some of the issues and research related to gender equity in mathematics education, including the ways that diversity within gender can shape gender experiences in the classroom;
- Introduce themselves to the other participants.
- Record expectations and prior knowledge in the online journal.

Read:

- Gender Equity in the Mathematics Classroom
- The Equity Principle <http://standards.nctm.org/document/chapter2/equity.htm>

Watch:

- Introductory Video

Explore:

- Various web sites about gender equity

Respond in an online journal

- Expectations
- Prior knowledge

Participate in the discussion

- Introduce themselves on the Discussion Board

## **Session 2: Gender and the Curriculum**

Learners will:

- Learn ways in which curricula can be biased;
- Identify curriculum-based strategies that promote equity;
- Develop skills to evaluate curricula and to counteract bias in the curriculum.

Read:

- Gender and the Curriculum
- Curricula -- the formal and informal content of the lessons and the students' work -- are central to creating the types of classrooms that will be equitable for girls and boys. This reading briefly reviews how to determine if a gender bias is present in a curriculum and if a curriculum affirmatively promotes the participation and achievement of girls and boys.
- A study in gender bias in text
- Learning groups

Activities:

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- Examine the curriculum presently used in at least one of your courses for any areas of bias.

Respond in an online journal:

- Answer questions pertaining to the curriculum examination.

Participate in an Online Discussion:

- Strategies to deal with current textbook bias

Complete

- Assignment to create a list of guidelines to be used when reviewing curriculum.

## **Session 3: Classroom Expectations and Interactions**

Learners will:

- Identify ways that gender-shaped experiences and expectations can influence their teaching and their students learning in the mathematics classroom;
- Recognize gender-fair teacher-student and student-student interactions;
- Identify strategies for promoting equitable classroom interactions.

Read:

- Expectations in the Classroom. This article provides a summary of the research on expectations in the classroom as well as practical strategies for promoting equality in the classroom.

Watch:

- two short video clips of classroom interactions, looking for any differences in the teacher's or students' behaviors based on gender.
- another short video clip of classroom interactions based on the teacher soliciting answers from the whole class. Learners watch for any differences in the ways in which boys and girls respond to the teacher.
- another video and compare techniques between the teachers from the different video clips.

Respond in an online journal:

- reflections of differences in interactions with teachers in videos.
- Describe any surprises or affirmations of your long held beliefs in connection with gender equity in the classroom.

Participate in an Online Discussion:

- Your response to behaviors in the classroom
- Compare and contrast instructional practices styles between the two teachers portrayed in the video clips.

Complete

- Create a checklist that learners can use to help self monitor interactions with students.

## **Session 4: Assessment and Gender Equity in Mathematics**

Learners will:

- Identify some of the equity challenges with regard to assessment and with the current testing climate;
- Explore strategies for assessing student learning that are gender-fair;
- Strategize ways for working within the current testing climate while promoting gender-equitable assessment tools.

Read:

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- Assessment and Gender Equity in Mathematics. This article discusses the scoring gaps that have been found in standardized math test scores and offers reasons for those gaps and strategies to help overcome them.
- Read a story of one assessment challenges for a classroom teacher

### Activities:

- Select a math problem to do with students and observe the ways in which the students approach the problem and engage in the problem solving process.
- Explore web sites with rubrics.

### Respond in an online journal

- How well your assessments meet the criteria from the reading.

### Participate in an Online Discussion:

- By reading and posting responses on the Discussion Board regarding how the learner, assuming the role of the classroom teacher, would respond to the Principal and colleagues regarding issue of gender equitable assessments.

### Complete

- A paper to reflect the math problem activity.

### **Session 5: Winning Family and Community Support for Mathematics Achievement**

#### Learners will:

- Distinguish the role that families and communities have in promoting girls' and young women's achievements in mathematics;
- Identify strategies for gaining and maintaining support for math achievement.

#### Read:

- Winning Family and Community Support for Mathematics Achievement. This article discusses why girls need their families and communities to support their achievements in math, and it provides suggestions for offering that support.
- Read two vignettes about the challenges in engaging families in their students' educational experiences and in helping them see their roles in girls' achievement in mathematics.

#### Explore

- Examples of community support and self esteem web sites

#### View:

- the Parents and Math video that features a teacher discussing the role of parents in her classroom, and think about the statements made in the video and whether this situation has been typical for the learners.

#### Respond in the online journal:

- Responses to the video.

#### Participate in an online discussion:

- By sharing some ways learners would expand their responses to the situations articulated in the vignettes.
- Complete
- Assignment to create a detailed plan of community or parent involvement event. Peer review this plan in the discussion boards, then submit the final copy to the facilitator.

### **Session 6: Planning Next Steps**

#### Learners will:

- Reflect on the links and overlaps among the topics addressed in this module;

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- Apply this learning in the development of a final project that can be used in the classroom.

Read:

- Planning Your Next Steps
- This article discusses the importance of being proactive when working for equitable education in the classroom and provides suggestions for potential next steps..

Participate in an online discussion:

- reflect on the material discussed, identifying which strategies will be the easiest/hardest to implement in their classrooms or schools.

Respond in the online journal

- acquired knowledge and professional goals.

## Final Project Part I

Have another teacher observe your math classroom (if another teacher is unavailable, videotape your class) using the checklist that you created in Session 3, Activity 7 to help you self-monitor your interactions with your students.

Write a 1-2 page paper that analyzes the observations and includes any surprises or affirmations, patterns, and ideas for making changes in your teaching practices. Include your checklist with your paper.

Note: You may wish to modify your checklist to reflect the knowledge you gained later in the module.

## Final Project Part II

Prepare an Action Plan (2-3 pages) that incorporates the learning from this module into some "next steps" that build on each other and that you can realistically implement in your classroom.

Action Plan should include:

A **brief overview** of how you can improve gender equity regarding curriculum, teaching practices, assessment, and community involvement. List goals for each that can be achieved over a period of time.

Create a **specific plan for one of these areas** and its goals. For this specific plan, include:

- Description of the plan – what will you do? What is the timeline for this plan?
- Rationale- why have you chosen this particular focus?
- Customization – How have you tailored this plan to your specific environment?
- Assessment and reflection – what do you hope to learn from this step? How will you assess its success with meeting its' goals? How will you ensure continuing success?

## Schedule

This course is scheduled to take approximately 30 hours to complete readings, activities, video, assignments, reflections and a final project.

## Requirements

Learners are expected to:

- Complete all assignments

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- Maintain an online journal
- Participate regularly in discussion boards

## **Evaluation**

This course is evaluated on a letter grade basis, and may be available for graduate credit. See graduate credit details pertaining to specific graduate credit institutions.

## **Materials (hardware, software, plug-ins)**

### Technical Requirements

- Word processor
- Internet service provider
- Email

## **Academic Dishonesty Policy**

To be inserted by university institution only.