

INTERSECTIONS OF CULTURE AND MATHEMATICS MATH 431/531 Fall 2012, TODD HALL 204

Dr. Libby Knott 335-4122 Neill 301 lknot@wsu.edu	Class Schedule Office Hours	MW MW	11:10-12:25 pm Todd 204 1:00 – 2:00 pm Neill 301
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Prerequisites: Students must have either instructor approval or junior/senior standing, or graduate standing in mathematics or mathematics education. Credit will not be granted for both Math 431 and Math 531.

Required Texts:

Ethnomathematics: A multicultural view of mathematical ideas, by Marcia Ascher.

Recommended Resource:

APA Formatting Guide. You may purchase a guide published by the American Psychological Association, or locate one of the on-line resources. Google APA Formatting Guide to find free on-line versions. You must use this formatting style when writing.

Course Description: The focus of the course will be on examining the intersections of culture, gender, and mathematics. This will include, but not be limited to: the role of culture in the development and learning of mathematics, a study of gender and race/ethnicity and status differences in mathematics and their social consequences, factors influencing these differences, and cultural inclusion in the classroom. Graduate students will be required to prepare and lead classroom discussions, organize a panel discussion and presentation by an ethnically diverse group of faculty, and prepare two curriculum units, one for the college level and one for high school level mathematics from a cultural perspective. In addition, they will be required to post weekly reflections on the classroom discussions.

Objectives:

- Explore the ways culture affects the development and learning of mathematics.
- Investigate gender, status and race differences in mathematics and their sociological consequences.
- Examine factors influencing gender and race differences in mathematics and learning styles.
- Critically evaluate research on the intersections of gender, race, mathematics, and mathematics education.
- Understand culturally responsive teaching.
- Create activities and projects for high schools and/or middle schools that are suitable for a culturally responsive classroom

Academic etiquette and deportment: Class will start promptly at the scheduled time. Since arriving late and leaving early is disruptive to the entire class, please be courteous to your classmates and instructor and arrive and leave on time. Respect for and tolerance of opinions voiced in the class is essential. I will treat you with respect and expect you to show the same respect to both your classmates and me. We will be learning together and from one another. We need to allow each other to make mistakes and to voice unpopular positions during discussion. Personal attacks and intolerance are not acceptable and will lead to dismissal from the class. Use of cell phones during class is NOT permitted, unless specific permission is obtained prior to use. If a cell phone rings or buzzes during class, or a student is found texting, the owner will be required to bring cookies or some other snack to share during the next class period. *Behavior that persistently or flagrantly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be asked to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Conduct.*

Academic integrity: I encourage you to work with classmates on assignments. However, each student must turn in original work. No copying will be accepted. Students who violate WSU's Standards of Conduct for Students will receive an F as a final grade in this course, will not have the option to withdraw from the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions:
<http://conduct.wsu.edu/default.asp?PageID=338>

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.

WSU Safety Measures: Washington State University is committed to maintaining a safe environment for its faculty, staff, and students. Please visit <http://safetyplan.wsu.edu> and <http://oem.wsu.edu/emergencies> to access the Campus Safety Plan and emergency information.

Criteria for Student Evaluation:

MATH 431

- Readings preparation and *contributing*
to discussions - 100 points
- Math autobiography- 50 points
- Research project- 150 points
- Mid-term- 200 points
- Curriculum project-
Prepare a high school unit 100 points
- Final exam – 200 points
- Total points 800 points

MATH 531

• Reading preparation and <i>participating in</i> discussions	100 points
• <i>Preparing for and leading</i> a discussion (twice per semester)	100 points
• Math autobiography	50 points
• Research project	150 points
• Ten weekly reflections on class discussions	100 points
• As a group, organize a panel discussion: Recruit a diverse panel of faculty, teachers, graduate students in mathematics. Discuss the details of their presentations with them, lead the discussion with the panel	100 points
• Two curriculum projects – A High school unit, and college classroom unit	200 points
• Mid-term	200 points
• Final exam	200 points
Total points	1200 points

Readings Preparation, Discussions and Presentations – A large part of the learning in this class will come from the readings and class discussions. In order for this format to be successful, everyone must come prepared. To help with that preparation, you are asked to complete a **reading preparation sheet** for each assigned reading unless explicitly told otherwise. This will include a place for an APA reference for the article (PLEASE MAKE SURE YOU DO THIS CORRECTLY), and often a set of questions to guide your reading. **The sheets for a given article will be collected the day the article is discussed.** Throughout the semester, you will be leading or participating in the discussion on a reading within your group or the entire class. Your preparation sheet will be the basis of your participation.

Research Projects – You will complete one research project. You will have a choice of topics to research, and then you will write up a report. You will be responsible for locating reliable sources, gathering data from them, summarizing and analyzing them in the form of a written report, and engaging the class in a discussion or activity, as appropriate, based on what you found.

Math Autobiography- Prepare a 5 minute classroom presentation (PPT, Prezi, etc.) describing your experiences with mathematics throughout your life. Think of this as an autobiography that focuses just on the mathematical part of your life experience. Begin with your earliest memories of mathematics and continue up to the present. Think about your experiences both in and out of a formal classroom setting. Do not just describe what courses you have taken but also how you felt about and experienced mathematics as you were growing up. Be explicit about what you remember about your mathematics classes. Were they enjoyable? Not? Why? Was there some teacher who was influential in your decision to pursue mathematics, or to avoid mathematics? Define mathematics in your own terms. Describe what appeals to you and what you enjoy about mathematics. Include aspects of mathematics that you find less appealing. Also, explain why you want a career that includes mathematics. Describe the role you see mathematics playing in

your future. Bring your presentation to class on a thumb drive, and be prepared to present it to the class. ***Due Monday, August 27.***

Games activity – You will be required to devise and present a math game from a culture other than your own. We will devote several class periods to an examination of mathematical games in different cultures.

Curriculum project or research project- These projects will require you to either (i) create a lesson unit for a project to be used in either a middle school, high school or college math classroom that addresses the culturally responsive classroom. You will identify which classroom it is suitable for (geometry, algebra two, integrated 3rd year, etc.), which CCSM Standards are addressed, what components make it culturally responsive, materials needed, and so forth; or (ii) research an aspect of culture/gender bias in mathematics teaching and learning. ***The projects will be due in draft form on Wednesday, Nov 14, and in final form on Wednesday, November 28th.*** The weeks of Nov 26 and Dec 3 will be spent presenting the projects.

Graduate students are required to complete two curriculum units; one at the college level, and one at the high school level.

Graduate Student Requirements – Students taking this class for graduate credit (as MATH 531) have additional requirements. They will:

1. Work together to organize and present a multicultural math panel of ethnically diverse faculty, for a presentation and discussion for the class. Please arrange to meet with me by the second week of classes to discuss the details of this.
2. Be required to complete *two* curriculum units; one at the college level, and one at the high school level.
3. Be required to prepare and *lead* a weekly discussion, twice during the semester.
4. Be required to write weekly reflections of the class discussions. For this, they will be provided a set of questions appropriate for reflection on each week's readings.

Midterm Exam- This will be an in-class exam, held on Wednesday, October 10.

Final Exam - This will be held in-class on Wednesday, Dec 12, 3 – 5 pm.